ANNUAL REPORT
2020-21

FIFTY SIXTH ANNUAL REPORT

(April 1, 2020 to March 31, 2021)

UNIVERSITY OF AGRICULTURAL SCIENCES
BANGALORE

2021

Hon'ble Chief Minister of Karnataka inaugurating the improved seed drill

Hon'ble Minister of Agriculture, GoK; Vice-Chancellor; Members of BoM and Officers with the awardees during Krishimela 2020

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Published, Compiled, Processed & Edited by	**Dr. K. H. Nagaraj** Editor & Professor of Agril. Extension Communication Centre UAS, GKVK, Bengaluru-560 065
Design, Layout & Typing	**Mr. N. Ramakrishna** **Mr. M.S. Gopala Krishna** **Mr. J. Chandra Shekar** Communication Centre UAS, GKVK, Bengaluru-560 065
Source of Information	Directorate of Education, Office of Registrar, Directorate of Research, Directorate of Extension, Deans of constituent Colleges, Dean of Student Welfare, Dean (PGS), Comptroller Office, Administrative Office, Estate Office, Library, Communication Centre, Examination Cell, Department of Kannada Studies and PPMC.

UNIVERSITY OF AGRICULTURAL SCIENCES BANGALORE

FOREWORD

University of Agricultural Sciences, Bangalore (UAS-B) having collegiate structure is one of the prominent Universities in agricultural education and research. UAS-B was established through an Act of the Government of Mysore (Karnataka) on 6th June 1963 with the objectives to carry out the mandated activities of Teaching, Research and Extension in the areas of agriculture and allied Sciences. I am pleased to present the 56th Annual Report of the University of Agricultural Sciences, Bangalore which illustrates the University commitment to advancing excellence in Education, Research and Extension apart from general Administration from 1st April 2020 to 31st March 2021. University is dyed-in-the-wool to newer paradigms in the field of agricultural and allied enterprises, develop innovative technologies and generate accomplished human resources to serve the farming community. The University receives incomparable backing from State and Central Governments and has reputable collaborations both at National and International levels in all the three wings of the University.

UAS-B has drawn-out its academic programs to meet the requirement of human resources in the face of changing agricultural scenario and the Covid-19 Pandamic. A range of new technology oriented six Under-Graduate Degree programs in Agriculture, Sericulture, Food Science & Technology, Agri-Business Management, Agri-Biotech and Agricultural Engineering including 22 Postgraduate programs & 15 Doctoral degree programs are being offered across five campuses. University places a great emphasis on dynamic curriculum that ensures specialized skills and practical experience. Two-year diploma in Agriculture is also offered under semester system in Kannada medium at College of Agriculture, Mandya. Further, the Directorate of Extension offers various Diploma and Certificate Courses on Distance Education mode. The student placement cell functioning at GKVK provides career guidance and job opportunities to graduating students. The International Centre established in the University coordinates all the international activities and facilitates academic interactions outside the Country. The University has established a Skill Development Center (SDC) under ICAR- SC-SP wherein the Graduates are developed with multi skills of fundamental and contemporary technologies. University's efforts during the lockdown period of Covid-19 Pandemic are exemplary. The library facilities were reinforced through new accessions, adding e-learning through network and wi-fi facilities. UAS-B is equipped with modern virtual classrooms of advanced pedagogic support and well equipped laboratories including central instrumentation facilities to facilitate both fundamental and applied research of PG and faculty research.

Climate-smart, low cost, highly efficient, sustainable and environment friendly crop production technologies are being developed by the University. Research programmes are planned in 13 Agricultural Research Stations situated in 10 Southern Districts of the state under the jurisdiction of UAS-B. The research programmes are oriented towards improving the potentials of various crops, related inputs and resources in agriculture, besides focusing on Bio-technology research, cropping system research, farming systems approach, management of resources, etc., ensuring food security through precision and sustainable agriculture practices. The University is catering to the needs of farming community by undertaking various extension activities *viz.,* front line demonstration, on-farm testings, discussion meetings, farmers field schools, capacity building, krishimela, field days etc., besides supplying agricultural inputs and publications. The University supplements and complements the extension activities of the Developmental Departments through Krishi Vigyan Kendras and Extension Education Units of the University.

The University punctually acknowledges the support and co-operation of the Government of Karnataka, Indian Council of Agricultural Research and alternative Collaborators for their financial backing. The timely guidance and support given by the Members of the Board of Management, the Academic Council, the Research Council, the Extension Education Council, Finance Committee and the Board of Studies (Undergraduate / Postgraduate) in implementing teaching, research and extension programmes is duly acknowledged. The University is competently supported by the Officers, Supporting Staff and Karmikas to foster its mandates to serve the farming community of the State in particular and the Country at large. I congratulate the Communication Centre of the University for having compiled and edited the Annual Report of the University.

June, 2021
Bengaluru

(S. Rajendra Prasad
Vice-Chancellor

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UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE
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EXECUTIVE SUMMARY

The University of Agricultural Sciences, Bangalore (UAS-B) was established by the Act No. 22 of the then Mysore Government in the year 1963. The University came into existence on 21st August, 1964, but its conception took birth in 1899 with the establishment of experimental farm on 30 acres, followed by an Agricultural School in the expanded farm area of 202 acres during 1913, which is now the 'Main Research Station (MRS)' located at Hebbal, Bengaluru. Today University of Agricultural Sciences, Bangalore is a tribute to the visionaries who founded and nurtured it over the past several decades. The phenomenal growth of the University and needs of the regions of the State, led to bifurcation of the University of Agricultural Sciences, Bangalore through an Amendment to UAS-B Act in 1986 and the University of Agricultural Sciences, Dharwad was established. Considering the importance of subjects and regions, Government of Karnataka through Acts, established 'Karnataka Veterinary, Animal and Fishery Sciences University' at Bidar during 2005; 'University of Agricultural Sciences, Raichur' during 2008; 'University of Horticultural Sciences, Bagalkot' during 2009 and 'University of Agriculture and Horticulture Sciences, Shivamogga' during 2013. The University of Agricultural Sciences, Bangalore, the Mother University has operational geographical jurisdiction of 10 southern districts in the State. The UAS-B has celebrated its Golden Jubilee year during 2013-14 and Golden Jubilee Convocation during 2015-16.

Admissions

The University is offering six Under Graduate programmes of four years' duration under semester system (21 weeks) with English as medium of instruction, in its six colleges. College of Agriculture, GKVK, Bengaluru has offered three Bachelor Degree programmes viz., B.Sc. (Hons) Agriculture, B.Sc. (Hons.) Agricultural Marketing, Cooperation and Business Management & B.Tech. (Agricultural Engineering); Master's degree in 22 disciplines and Ph.D. in 15 disciplines. College of Agriculture, Hassan has offered three Bachelor Degree programmes viz., B.Sc. (Hons.) Agriculture; B.Tech. (Bio Tech.) and B.Tech. (Food Technology). College of Sericulture, Chintamani has offered two degree programmes viz., B.Sc. (Hons.) Agriculture and B.Sc. (Hons.) Sericulture. College of Agriculture, Mandya has offered Bachelor Degree programme in B.Sc. (Hons.) Agriculture, Master's Degree in five subjects and two years Diploma in Agriculture. College of Agriculture, Chamarajanagara has offered Bachelor Degree programme in B.Sc. (Hons.) Agriculture.

The student intake for Bachelor's degree was 1050 and admitted 901 students of which 450 were boys (49.94%) and 451 were girls (50.05%). The total number of students on roll were 3478 of which 1829 were boys (52.58%) and 1649 were girls (47.41%). Intake for Master's degree was 356 and admitted 348 students of which 164 were boys (47.12%) and 184 were girls (52.87). The total number of students on roll for Master's degree programme was 332 of which 150 were boys and 182 were girls. Doctoral degree intake was 125 and admitted 110 students of which 44 were boys and 66 were girls. The total number of students on roll were 228 of which 119 were boys and 121 were girls. During the year, the intake for two-year diploma was 50 students and admission made was 47. The student on roll for the programme was 93 of which 59 were boys and 34 were girls. The overall intake for the Bachelor, Postgraduate degree programmes and diploma programme was 1601 and admitted 1417 candidates. The number of students on roll during the year was 4131of which 2157 were boys and 1986 were girls. A total of 656 students passed out with Bachelor degree successfully of which 349 were boys and 307 were girls. At Masters level 279 students have passed out, of which 143 were boys and 136 were girls. At Doctoral level, 74 students have passed out, of which 44 were boys and 30 were girls. Totally, 990 courses were offered with 2405 credit hours, 2954 examinations were conducted and 464585 answer scripts of all Bachelor's degree programme were evaluated across five colleges. As many as 163 courses were offered for Master's degree programmes with 363 credit hours, conducted 1014 examinations and evaluated

98285 answer papers. 65 courses with 136 credit hours were offered to Doctoral degree students and 237 examinations were conducted evaluating 10154 answer papers. Forty four courses with 86 credit hours were offered for Two Years Diploma in Agriculture, conducted 51 examinations and evaluated 2496 answer scripts. In the nutshell, annually the University offers 1155 courses with 2768 credit hours. These courses were offered by 229 faculties consisting of 94 Professors, 36 Associate Professors and 99 Assistant Professors who were in position.

The students of the University participates in various co-curricular activities including participation in Inter Campus Tournament, Athletic Meet and Youth Festival, Zonal, State and National Level co-curricular activities. However, due to Covid-19 Pandemic situation, the evetns were not conducted. The University has placement cell at main campus with coordinator and so also in constituent colleges for the purpose of placement of graduating student in different employing agencies. During the year, 36 graduating students were recruited by different private companies through Placement Cell. The University adopted the National Service Scheme and the students have participated in various activities. The University provides medical services to all the students and the employees, in all its constituent college campuses. During 2020-21, consultation was rendered to 9472 patients at Bengaluru. Besides, 927 samples were subjected to laboratory tests and analysis after which suitable medicines were prescribed.

'University Examination Center' established during 2011-12 at GKVK, Bengaluru with one sub-centre in each of its constituent colleges, is responsible for coordinating, scheduling, conducting final external theory examinations for all Bachelor's degree programmes, answer script evaluation process and declaration of results. The Communication Centre is coordinating with the University Administration, Research, Teaching and Extension wings in respect of publications and other printing works. The NASS score of MJAS has increased to 4.64 which is effective from January 2021. The Department of Kannada Studies is vested with the responsibility of translating, editing, proof reading and publication of books in Kannada pertaining to agriculture and allied subjects. During the year, four books on various agricultural and allied subjects in Kannada were published.

University has redesigned its research programmes on priority basis that has lead to identifying nutrition rich crops like small millets and pseudo cereal grain amaranth for farm trials during the year 2020-21. Efficient and eco-friendly crop production technologies were also developed by the University. In total, 280 research projects are in operation and a total of 59 new research projects have been sanctioned to the University during 2020-21 by various funding agencies with a total outlay of Rs. 2642 lakhs. During the year, the University has tested 348 new varieties / lines/chemicals/molecules for control of pests /diseases / weeds / soil analysis and agricultural equipment and generated a revenue of Rs.436 lakhs. A total of 13 MoUs / MoAs / MTA have been signed with different institutions for conducting collaborative research of mutual interest. University has developed 10 new crop varieties [Paddy-KMP 220, Paddy-MSN 99, Ragi-KMR 316, Foxtail Millet GPUF 3, Little Millet- GPUL 6, Proso Millet-GPUP 28, Grain Amaranth-KBGA 15, Sugarcane-CoVC 18061, Fodder Oats-RO 11-1, and Jack fruit-Byrachandra and 28 new technologies were released for adoption by the farmers.

The Directorate of Extension is vested with the responsibility to carry out the extension services in 10 districts of southern Karnataka. Extension education programmes focuses on technology assessment & refinement and facilitating adoption of technology by the farmers & extension functionaries based on research findings for accelerated agricultural growth. The Directorate of Extension has taken up new initiatives such as training of farmers by awardee farmers, doubling farmers' income, demonstrations of climate resilient integrated farming system, seed hub, skill development programmes, etc. The Directorate of Extension has organised 134 Front Line Demonstrations, 27 On-farm testing's, 977 Field visits, 79 Field days and 618 Training programmes. As many as 36 Radio talks and 26 TV programmes were also given / arranged.

The University has organised 924 Conferences / Seminars / Workshops / Training Programmes / Winter & Summer Schools. Several Professors have been nominated as Members for various committees at State and National Level. As many as 92 radio talks, 191 TV programmes and 1808 field visits, 118 Field Days, 778 training programmes, 108 Seminar/Workshops and 3025 other activities (Resource person and etc.) were organised / performed by the faculty members. In total, 824 publications have been brought out, of which 560 were research papers, 86 popular articles, 53 books / bulletins, 90 leaflets / folders and 35 other literatures.

The University has administrative Office headed by Administrative Officer looking after the Human Resource Developmental activities from recruitment to retirement of teaching faculty and supporting staff of the University. There are six Professors (HAG), 49 Professors, 144 Associate Professors and 387 Assistant Professors sanctioned posts for the University. Out of 586 sanctioned posts, 383 are filled and 203 are vacant. The University has 1564 sanctioned supporting staff positions, of which 567 are filled and 997 are vacant. During the period, four offficers, 13 teaching faculty and 52 supporting staff have been superannuated.

The State Government provided maintenance grants under non-plan to continue the on-going commitments under establishment. Indian Council of Agricultural Research, New Delhi provided funds for the continuation of the existing schemes and to start new teaching, research and extension education programmes. Grants were also provided under All India Co-ordinated Research Schemes and Ad-hoc Research programmes. Several Departments of Government of India also provided financial assistance to conduct specific research in agriculture. Grants are being provided by several National and International Organizations / Agencies to conduct research and extension programmes in the University. Revenue was also generated by utilizing the internal resources through crop cultivation, seed production & nursery activities, collection of student's fee, etc. During 2020-21, the total receipts for the University was Rs.36801.37 lakhs out of which the expenditure was Rs.34690.27 lakhs. The balance of Rs.2111.10 lakhs (Rs.36801.37 – 34690.27 = 2111.10) is available on account of capital expenditure sanctioned by ICAR under All India Coordinated Research projects and the grants were received by GOI for Research project during fag end of the financial year. It also includes funds by RKVY for committed activities as per the DPR. The grant is revalidated for the ensuing financial year and is utilized.

In order to develop and maintain the infrastructure in all the campuses and at the Head quarters, the University has Estate Office headed by Estate Officer and supported by Executive and Assistant Executive Engineers. The Estate Office facilitates tendering for various activities like procurement of chemicals, glassware, equipment's, stationery, etc. through Centralized Store Purchase Office.

Infrastructure developed and renovation undertaken by the Estate Office under State grants includes; Construction of passenger lift at Agriculture College building (North Block), GKVK, Bengaluru; Models at Agricultural Sciences Museum, GKVK; Construction of Record Room at GKVK campus; Construction of compound wall at Agriculture College, Chamarajanagara; Construction of first floor over the existing admin building at Agriculture College, Chamarajanagar and others.

Infrastructure developed and renovation undertaken by the Estate Office under ICAR grants includes; Construction of Girls Hostel at College of Agriculture, Mandya; Construction of Girls Hostel at College of Agriculture, Hassan in addition to State share; Repair and renovation of Girls and Boys Hostel at GKVK, College of Agriculture, Mandya, College of Agriculture, Hassan and College of Sericulture, Chintamani ; Supply and installation of projector at Auditorium, GKVK and others. In adittion, Extension of Seed Godown at NSP, GKVK is taken up for execution under GoI grants.

The University has established Skill Development Center (SDC) under ICAR SC-SP at UAS GKVK, Bengaluru for the academic year 2019-20. Construction of Skill Development Centre with boarding & lodging facilities for 30-50 beneficiaries is undertaken. The Centre, has organized many capacity building and other programmes jointly with the units of University.

Prof. M.D. Nanjundaswamy Research Chair, Centre for Agriculture and Rural Development Studies (CARDS) and Karnataka State Agricultural Marketing Board Chair established at UAS-B have conducted many activites under Covid-19 Pandemic situation covering research and farmer oriented programmes including promotion of direct marketing of farm produce.

The Central Instrumentation Facility (CIF) under the aegis of the Centre for Advanced Agricultural Sciences and Technology (CAAST) program of the National Agricultural Higher Education Project (NAHEP) of ICAR was inaugurated by Dr. Trilochan Mohapatra, Director General, ICAR and Secretary (DARE), GoI on 20th March 2021. CIF would contribute for pursuing research in areas of modern science and technology and development of quality human resource, thus help UAS-B to keep pace internationally

The 55th Foundation Day of the University was celebrated on 17th November 2020. Shri B.C. Patil, Hon'ble Minister for Agriculture, GoK inaugurated the program. Dr. Ashok Vasudevan, Chairman, Tasty Bite Eatbles Ltd., Singapore was the chief guest of the function. Dr. S. Rajendra Prasad, Vice-Chancellor of UAS-B presided over the function. Hon'ble Members, Board of Management participated in the celebration. Various awards *viz.,* Smt. Nagamma Dattatreya Rao Desai Award; Dr. Kalaiah Krishnamurthy National Award; M/s. Zuari Industries Ltd., Best Extension Worker Award; Best Service Personnel Awards and Best Kannada Book Award were bestowed to deserving candidates. Krishimela-2020 was oganised from 11-13th November 2020 at GKVK, Bengaluru both virtually and physically owing to Covid-19 pandemic which was exemplary for other Universities.

Chapter I

1. University Administration

1.1 Establishment and Incorporation of the Universities (Sec.3)

The Universities established under section 3 of the Karnataka Universities of Agricultural Sciences Act, 1963, (Karnataka Act 22 of 1963) shall be deemed to have been established under this Act with their territorial jurisdictions as herein after provided. The University of Agricultural Sciences, Bangalore having head quarter at Bengaluru functions with territorial jurisdiction extending over the districts of Kolar, Chikkaballapur, Bengaluru (Rural), Bengaluru (Urban), Ramanagara, Mandya, Tumkuru, Mysuru, Chamarajanagara and Hasana (Sec.3a).

1.2 Jurisdiction (Sec.4)

(1) Each University shall be responsible for the maintenance of Agriculture, Animal Husbandry, Fishery, Sericulture, Forestry Training or Educational Centres, Research & Experimental Stations, Training of field extension workers and for the Establishment, Development & Operation of such centres as may be required in various parts within its territorial jurisdiction.

(2) All Colleges, Research and Experimental Stations, KVKs and Extension Education Units and other Training Centres under the management of the University or other institutions, which are under the jurisdiction and authority of each University, shall be constituent units of that University and under the management and control of the University. No unit shall be recognized as affiliated unit unless otherwise recognized as affiliated college by the University.

(3) Each University may have collaboration of academic programmes and for research projects having multi-disciplinary approach and academic programmes with other Universities or reputed institutes in India and abroad.

(4) The University may assume responsibility for establishment, development and operation of its constituent bodies in the territorial jurisdiction and abroad as may be required.

1.3 Objectives of the University (Sec.5)

Each University shall be deemed to have been established and incorporated for the following purposes, namely:- (a) Making provision for imparting education towards development of quality human resource in different branches of study specified in sub-section (3) of section 2; (b) Furthering the advancement of learning and conducting of research, particularly in agriculture and other allied sciences; (c) Undertaking the extension education of such science and technologies, specially for the rural people of the State; (d) Such other purposes as the State Government may by notification in the official Gazette specify from time to time and (e) Promoting partnership and linkages with National and International educational, industries, research and other institutions.

1.4 Authorities of the University (Sec.11)

The following shall be the authorities of the University.;

(1) Board of Management

(2) Academic Council

(3) Research Council

(4) Extension Education Council

(5) Faculties including post graduate studies and their Board of Studies;

(6) Such other Bodies of University as may be declared by the Statutes to be authorities of the University

1.5 The Board of Management and its Constitution (Sec.11)

(Amended Section 12(2) vide Karnataka Act 37 of 2014 dated 9.9.2014)

(1) The Chancellor shall, as soon as may constitute the Board of Management

(2) The Board of Management shall consist of the following:

Board of Management as on 31.03.2021

ii.	The Vice-Chancellor of the University	Chairman	Dr. S. Rajendra Prasad Vice-Chancellor
ii.	The Principal Secretary or Secretary to Government, Agriculture Department or their nominee not below the rank of Joint Secretary	Member	Shri Rajendra Kumar Kataria, IAS (from 1-4-2020 to June 2020) Shri Raj Kumar Khatri, IAS (from June 2020 onwards)
iii.	The Principal Secretary or Secretary to Government, Horticulture Department or their nominee not below the rank of Joint Secretary	Member	Shri Rajendra Kumar Kataria, IAS (from 1-4-2020 onwards)
iv.	The Principal Secretary or Secretary to Government, Finance Department or their nominee not below the rank of Deputy Secretary	Member	Shri I.S.N. Prasad, IAS (from 1-4-2020 onwards)
v.	Three progressive farmers from the jurisdiction of the University of whom one person shall belong to the Scheduled Caste or the Scheduled Tribes to be nominated by the State Government	Member	Shri O.S. Dayanand (from 9-7-2020 onwards) Shri M. Suresh (from 9-7-2020 onwards) Shri R. Sriram (from 9-7-2020 onwards)
vi.	Three members of the Karnataka State Legislative Assembly nominated by the Speaker and one member of the Karnataka State Legislative Council nominated by the Chairman to each of the Universities of Bangalore, Dharawad, Raichur and to the University of Agriculture and Horticulture at Shimoga on rotation basis	Member	Shri M.C. Venugopal, MLC (from 1-4-2018 to 3-6-2020 Shri M. Krishnappa, MLA (from 1-9-2020 onwards)
vii.	One eminent educationist or expert in Agriculture sector to be nominated by the Chancellor	Member	Dr. P.H. Ramanjini Gowda (from 6-5-2020 onwards)
viii.	One agro-industrialist or woman social worker to be nominated by the Chancellor	Member	Shri T.M. Aravind (from 6-5-2020 onwards)
ix.	One representative from the Indian Council of Agriculture Research to be nominated by the Director General	Member	Dr. P.S. Pandey (from 1-6-2016 onwards)
x.	One Dean to be nominated by the Vice-Chancellor, by rotation for a term of two years	Member	Dr. N. Devakumar (from 1-4-2020 to 29-5-2020)
xi.	Registrar of the University	Member-Secretary	Dr. Mahabaleshwar Hegde (from 1-4-2020 to 30-9-2020) Dr. G.N. Dhanapal (from 30-9-2020 onwards)

(3) The term of office of the Members of the Board, other than Ex-Officio Members, shall, subject to the pleasure of the Government or the Chancellor, as the case may be, for three years and they shall not be eligible for re-nomination to any of the authorities of the University.

(4) When vacancy occurs in the office of any member by the reason of death, resignation, removal or any cause other than the expiry of term, the vacancy shall be filled in accordance with the provisions of the Act and the person who fills such vacancy, shall hold the said office for the remaining period for whose place he is nominated.

(5) One third of the members of the Board shall form quorum at a meeting of the Board, provided that if a meeting of the Board is adjourned for want of quorum, no quorum shall be necessary for the adjourned meeting called for transaction of the same business.

(6) The Members of the Board other than the Officers of the University shall not be entitled to any remuneration for the performance of their functions under this Act except such daily and traveling allowances as may be prescribed.

(7) The Board may for the purpose of consultation invite any person having experience or special knowledge in any subject under consideration to attend its meeting. Such person may speak or otherwise take part in the proceedings of such meeting but shall not be entitled to vote. Any person so invited shall be entitled to such allowances for attending the meeting as may be prescribed.

(8) Ordinarily the Board shall meet at least once in every three months on such dates as may be fixed by the Vice-Chancellor. However, the Vice-Chancellor may whenever he thinks fit or shall, upon the requisition in writing signed by not less than one half of the members of the Board, convene a special meeting of the Board.

1.6 Officers of the University (Sec. 24)

		Incumbent Officers
i.	The Chancellor	Shri Vajubhai Vala Hon'ble Governor of Karnataka
ii.	Pro-Chancellor	Shri B.C. Patil Hon'ble Minister for Agriculture, GoK (from 11-2-2020 onwards)
iii.	Vice-Chancellor	Dr. S. Rajendra Prasad (from 17.9.2018 onwards)
iv.	*Directors (Sec.31)*	
	1 Director of Education, UAS, GKVK, Bengaluru	Dr. S. Rajendra Prasad (from 17.9.2018 onwards)
	2 Director of Research, UAS, GKVK, Bengaluru	Dr. Y. G. Shadakshari (from 30-5-2017 onwards)
	3 Director of Extension, UAS, Hebbal, Bengaluru	Dr. N.S. Shivalinge Gowda (from 31-10-2019 onwards)

4 Deans

a)	Dean (Agri.), CoA, GKVK, Bengaluru	Dr. D.L. Savithramma (from 9-10-2019 onwards)
b)	Dean (Agri.), CoA, Mandya	Dr. Venkatesh (from 31-7-2019 onwards)
c)	Dean (Seri.), CoS, Chintamani	Dr. P. Venkataravana (from 31-7-2017 onwards)
d)	Dean (Agri.), CoA, Hassan	Dr. N. Devakumar (from 30-5-2017 onwards)
e)	Dean (PGS), UAS, GKVK, Bengaluru	Dr. D.L. Savithramma (from 31-7-2019 to 8-10-2020) Dr. A.G. Shankar (from 9-10-2019 to 30-5-202) Dr. N. Srinivasa (from 30-5-2020 onwards)
f)	Dean (Student Welfare), UAS, GKVK Bengaluru	Dr. M. Byregowda (from 30-5-2017 onwards)
v.	Registrar, UAS, GKVK, Bengaluru	Dr. Mahabaleshwara Hegde (from 28-9-2018 to 30-9-2020) Dr. G.N. Dhanapal (from 30-9-2020 onwards)
vi.	University Librarian, UAS, GKVK Bengaluru	Dr. Srinivas (from 12-7-2019 to 28-2-2021) Dr. R.N. Bhaskar (from 28-2-2021 onwards)
vii.	Comptroller, UAS, GKVK, Bengaluru	Dr. S.V. Suresha (from 31-1-2020 onwards)

Under Sec 24(ix)

viii.	Estate Officer, UAS, GKVK, Bengaluru	Mr. D. Krishna Murthy (31-3-2020 onwards)
ix.	Administrative Officer, UAS, Bengaluru	Dr. G. Gopinath (from 17-10-2018 onwards)

1.7 University Vision, Mission and Mandates

Vision : Transforming University of Agricultural Sciences, Bangalore into a World Class Farm University

Mission : Generate quality human resources in the area of agriculture and allied disciplines, generate cutting-edge competitive technologies and evolve efficient disseminating mechanism so as to serve the farming community of the State and the Country

Mandates: The mandates of the University of Agricultural Sciences, Bangalore as specified in the University Act are:

a) Making provision for imparting education towards development of quality human resource in different branches of agriculture and allied sciences

b) Furthering the advancement of learning and conducting research particularly in agriculture and other allied sciences

c) Undertaking the extension education of such science and technologies specially for the rural people of the State

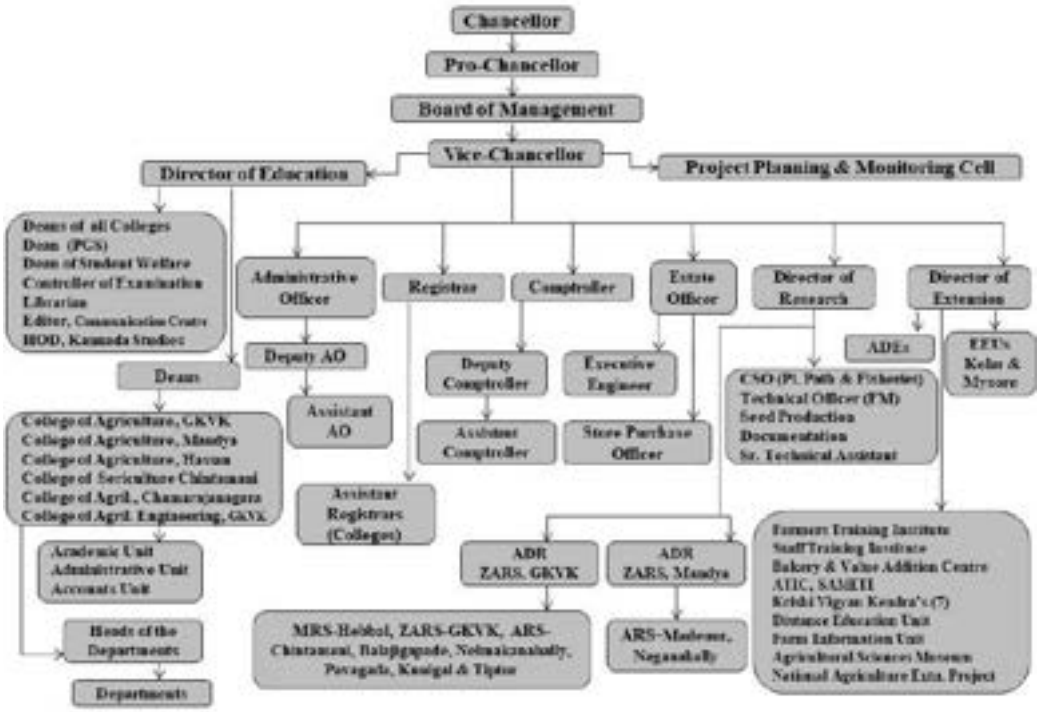
d) Promoting partnership and linkages with national and international educational, industries, research and other institutions

e) Such other purposes specified by the State Government from time to time and notified in the official gazette

1.8 University Governance

In order to achieve the above Vision, Mission and Mandates of the University, the following is the Synoptic Structure of Governance and Organizational Structure adopted by the University.

Organizational Structure of UAS, Bangalore



Synoptic Structure of Governance of UAS, Bangalore

1.9 Month-wise Important Programmes and Meetings Participated by the Vice-Chancellor

April 2020

Dr. S. Rajendra Prasad, Vice-Chancellor chaired the interaction meeting on 09.04.2020 with the Officers of UAS-B on use of 'Zoom Cloud Meeting App' for conducting online classes and discussed on mandatory activities being undertaken during lockdown period. He participated in the Video conference with Dr. T. Mohapatra, Secretary DARE and DG, ICAR and all the Vice-Chancellors to discuss about the various measures taken by the universities during COVID-19 lockdown and discussions on issues of Agricultural Universities on 10.04.2020. He interacted with the UG students of the University on 13.04.2020 and obtained the feedback on conduct of online classes. He chaired the interaction meeting with the Scientists of Directorate of Research and Extension held on 15.04.2020 and discussed the activities being performed during the lockdown period. He inaugurated the UAS, Bangalore Agri-War Room on 17.04.2020 to support the farmers through technical inputs and advisory service during the lockdown period. He participated in the UG & PG admission committee meeting of VCs, DOEs, Registrars and Dean (PGS)s of farm universities of Karnataka held on 20.04.2020 and discussed modalities for the academic year 2020-21. He chaired the 145th Finance Committee Meeting and 385th meeting of the Board of Management of UAS, Bangalore on 21.04.2020. He participated in the interaction meeting by Shri B.C. Patil, Agriculture Minister, Govt. of Karnataka with UG students and visit to Agri-War Room on 22.04.2020. He launched the direct marketing of Avacado fruits and grapes organized by Agri-War unit on 27.04.2020.

May 2020

Dr. S. Rajendra Prasad, Vice-Chancellor chaired the meeting on ICT Agri–UGAM Software held at GKVK, Bengaluru on 2nd May 2020. Vice-Chancellor participated in the meeting convened by Chief Secretary, GoK, held at Department of Agriculture, Bengaluru on 3rd May 2020. Vice-Chancellor met Hon'ble Chief Minister, GoK and handed over the cheque for Rs.58,89,335/- towards Chief Minister's Relief Fund (COVID-19) contributed by Teachers, Staff and Pensioners of UAS, Bangalore on 7th May, 2020. He chaired the interaction meeting with students, nodal officers and teachers through online organized by Examination Centre at GKVK on 5th May 2020. He participated in the video-conference on post COVID-19 impact on Agriculture at GKVK on 7th May 2020. Vice-Chancellor participated in the 'Phone-in-Programme' at the Office of Vijaya Karnataka, Daily Newspaper, Bengaluru on 8th May 2020 and also chaired the interaction meeting with all the Deans of UAS-B. He participated in the 28th Coordination Committee meeting along with Registrar and Administrative Officer held at Vikasa Soudha, Bengaluru on 13th May 2020. He participated in the Annual Breeder Seed Review meeting through video conference organized by NSP, GKVK on 14th May 2020. He chaired the CAAST project review meeting organized by Dean (Agri.), CoA, GKVK on 15th May 2020. He chaired the Technology Commercialization Committee Meeting organized by Director of Research at GKVK on 18th May. Vice-Chancellor participated in the Webinar on 'Challenges and Opportunities in Agricultural Research & Education' chaired by Dr. Trilochan Mohapatra, Secretary, DARE & Director General, ICAR on 23rd May. Chaired the Research Council meeting organized by Directorate of Research at GKVK on 26th May and also signed the MOU with ITC, WoW and launched the dry waste collection 'GKVK Campus move towards Zero Waste Zone' project. He participated in the radio talk related to 'Atma Nirbhar Bharath' programme and also chaired the 190th Academic Council Meeting (UG&PG) on 27th May 2020. Vice-Chancellor met Hon'ble Minister of Agriculture at Vidhana Soudha, Bengaluru on 29th May 2020 and discussed the issues of the University.

June 2020

Dr. S. Rajendra Prasad, Vice-Chancellor launched direct marketing of mangoes and grapes organized by Agri-War-Unit at GKVK on 1st June 2020. He participated in the Coordination sub-committee meeting of all the Farm Universities on 2nd & 3rd June 2020 at UAS, Dharwad. He participated in the News-one TV Channel interview regarding 'Opportunities for students in UAS-B' on 4th June apart from Annual Review Meeting of CAAST programme. Vice-Chancellor visited Bengaluru Bio Innovation Centre, Bengaluru on 5th June along with Members of BoM and had discussion on Agri Start-ups. He Chaired the House allotment committee meeting, PG Automation meeting and Kannada Development Committee meeting at GKVK on 8th June. Dr. S. Rajendra Prasad, Vice-Chancellor participated in the National Food Security Mission meeting convened by Chief Secretary, GoK on 11th June 2020. He participated in Kharif workshop–2020 organized by DoA, GoK on 12th June. He attended the selection committee meeting at Coffee Board, Bangalore to select Director of Research on 12th June. He participated in the video conference meeting called by Hon'ble Minister of Agriculture, GoK on 13th June to review the KVK activities. He chaired the meeting convened to discuss about 'Hands-on training and RAWE programme' on 17th June. He participated in the meeting convened by Secretary, GoK to discuss about application of technology in agriculture, Atma Nirbara programme and formation of Micro-Food-Processing Enterprises through online on 17th June. He participated in the meeting on Post COVID-19 strategies for Karnataka on 19th June organised by PPMSD & KSTA. He inaugurated 'One Stop Learn Shop-Fruit Crop Field Laboratory' in Phala Sampada, at 'D' Block, GKVK on 20th June. He chaired the meeting of 'Raitha Dasoha Committee' and participated in mid-term review of innovation grant under NAHEP projects through online on 24th June. He inaugurated Skill Development Centre-Text Book Bank under ICAR-SC-SP Competitive Examination Zone at UAS Library, GKVK on 26th June. Vice-Chancellor inaugurated Godambi Mogasale-Gazebo, the Cashew Friendship wall and Latha Gruha on 27th June, 2020 sponsored by first batch of students of UAS, GKVK, Bengaluru. Vice-Chancellor participated in the meeting convened by Chief Secretary, Government of Karnataka on 30th June 2020 to discuss about the statutes, land reforms and proceedings of the coordination committee meeting.

July 2020

Dr. S. Rajendra Prasad, Vice-Chancellor chaired the review meeting of CAAST project with Co-Principal Investigators at GKVK on 1st July 2020. He chaired the meeting with respect to deputation of teachers for higher studies and also chaired the preliminary meeting about the convergence meeting of Vice-Chancellor's of SAUs, Directors of ICAR Institutes, Officials of Department of Agriculture with Hon'ble Minister for Agriculture, GoK on 2nd July. He chaired the meeting with DG, DIG, Superintendent of Police and GARUDA Force with respect to COVID-19 on 7th July. He participated in the meeting through online with all the Farm Universities on 8th July to discuss about the academic issues of UG and PG programmes. Vice-Chancellor inaugurated the sericulture waste based Vermicompost Production Units and Mulberry Nursery Unit at Department of Sericulture, GKVK on 9th July. He delivered a lecture during the webinar on 'Application of IVF Technology in Cows & Buffaloes at the doorsteps of farmers in India' organized by JK Trust, Maharashtra on 12th July. He participated in the inauguration of Zonal Conference of KVKs, Zone XI and also participated in the panel discussion on Technology Backstopping to KVKs organized by ATARI, Bengaluru, through online on 14th July. He participated in the meeting on 'Finalization of IOT Projects' organized by ZARS, V.C. Farm, Mandya through online on 16th July and also participated in the 92nd Foundation Day and Award Ceremony of the ICAR, New Delhi through online. He participated in the meeting along with Registrar convened by Secretary, DoA, GoK at Vikasa Soudha on 20th July. He participated in the Dalhousie University and UAS-B Virtual Graduate Student Symposium through online on 22nd July. He participated in the meeting through online with all the Vice-Chancellors, Registrars and Deans of all farm Universities of the State to discuss about the Diploma, UG & PG examinations organized by Registrar, UAS, Dharwad on 24th July. He chaired the meeting with all the Members of Board of Management of UAS-B, Comptroller and Administrative Officer and discussed the University issues on 28th July. He witnessed the signing of MoU on 29th July between UAS-B & Karnataka Science and Technology Academy, Bengaluru on Science and Technology. Vice-Chancellor participated in the meeting along with the Registrar convened by the Additional Chief Secretary, GoK with respect to common statutes on 30th July 2020.

August 2020

Dr. S. Rajendra Prasad, Vice-Chancellor participated in the Sunday-Institutional Growth Meetings (S-IGM) to discuss, debate and brainstorm on issues related to S-IGM-institutional linkages on 2nd August 2020. He chaired the two-year Diploma (Agriculture) Course Admission Committee meeting and discussed issues related to admission aspects on 4th August. He participated in the meeting convened by Chief Secretary, GoK related to PM Formalisation of Micro Food Processing Enterprises Scheme (PM FME Scheme) through video conference on 5th August 2020. He participated in the Phone in Live Programme on 'Atma Nirbhar Bharat and Agriculture' organized by DD Chandana on 6th August. Vice-Chancellor participated in the webinar on 'Innovative Approaches in Seed Quality Maintenance for Successful Entrepreneurship 'organized by UAS, Dharwad under NAHEP and delivered a lecture on 'Comprehensive advents in seed qualityenhancement' on 7th August. He participated in the meeting convened by the Additional Chief Secretary, Dept. of Agriculture, GoK held at Vikasa Soudha, Bengaluru on 8th August to discuss about the Rotary. He participated in the launching programme of 'Krishi Megh-NARES-Cloud Infrastructure and Services' organized by ICAR, New Delhi through online on 11th August. He participated in the panel discussion on 'National Education Policy' organized by Royal Global University, Guwahati through webinar and also participated in the 27th Annual General Meeting of the National Academy of Agricultural Sciences (NAAS), New Delhi through online on 13th August. Vice-Chancellor participated in the discussion meeting with Dr. Ashok Vasudevan from Singapore and Dr. P.G. Chengappa, former Vice-Chancellor, UAS-B about the global movement of categorising and establishing a new standard for nutrition with periodic table on 17th August. He participated as a Panellist in the Conference on Agri Start-up for the session 'Technology in Agriculture' organized by Infrastructure Development Corporation Ltd., Bengaluru through online on 21st August. He participated in the inaugural session of 'UAS-B Science Week-2020: PG Students Symposium' and delivered the presidential remarks through online on 25th August. He participated in

the 5th Executive Council meeting of Karnataka State Rural Development and Panchayat Raj University through online on 28th August.Vice-Chancellor participated in the meeting convened by the Development Commissioner, GoK, held at Vidhana Soudha, Bengaluru on 31st August 2020 and discussed the University issues.

September 2020

Dr. S. Rajendra Prasad,Vice-Chancellor chaired the Finance Committee Meeting and 386th Board Meeting of UAS-B held on 1st September 2020. He participated in the 'National Education Policy-2020' meeting convened by Special Secretary to Governor at Raj Bhavan, Bengaluru on 2nd September and shared his views. He participated in the technical workshop on 'Improving Higher Agriculture Education Job Outcomes in India: Challenges and Opportunities' jointly organized by NAHEP and World Bank through online on 3rd September. He participated in the online meeting on 'Periodic Table of Food Initiative'convened by Dr. Ashok Vasudevan, C-Saw, Singapore on 4th September. Vice-Chancellor participated in the video conference with Hon'ble President; Hon'ble Governors; Lt.Governors and Vice-Chancellors on the 'Role of NEP–2020 in Transforming Higher Education' on 7th September. He participated in the e-Invitation: Karnataka Start-up Showcase-Innovations to Combat COVID-19 through onlineon 9th September. He participated in the 'Crop Survey App' progress review meeting chaired by Hon'ble Minister of Agriculture, organized by the Dept. of Agriculture, Government of Karnataka on 10th September. He participated in the meeting on 'An appropriate seed systems for rainfed areas agenda ahead for the benefit of millions of rainfed farmers in the country' organized byWork Group of Seeds System and RRA Network on 16th September. He also chaired the meeting with President, Karnataka Bio-Diversity Board and discussed on the implementation and development of bio-diversity in the Campus. He chaired the meeting of Co-ordination Sub-Committee (Education) of all Farm Universities through online on 22nd September. Vice-Chancellor participated in the webinar on 'Seed Industry–Quality Production and Viable Agriculture' organized by ANGRAU–NAHEP-IDP and delivered a guest lecture on 'Innovative technologies in quality seed production for viable agriculture' on 24th September. He participated in the 'Award Distribution Ceremony' as Chief Guest organized by Alumni Association, UAS, Hebbal and awarded State Level Best IFS FarmerAward on 26th September. He chaired the meeting and discussed on 'Bheej Aadhar App' promotion and upgradation with ITW Software Development Companyorganized by Seed Platform on 28th September.

October 2020

Dr. S. Rajendra Prasad, Vice-Chancellor witnessed the signing of MoU between UAS-B and progressive farmer Shri Chandramouli from Mandya on production of chemical free Jaggery in Jaggery Park at V.C. Farm Mandya on 1st October 2020. He chaired the meeting of all Farm Universities and discussed about the fees structure of UG and PG programmes on 6th October. He chaired the Budget Review Meeting and reviewed the progress of expenditure of different units of the University from 7-10 October. He participated in the committee meeting on 8th October to prepare draft guidelines on Agri-Start-Ups in the state with senior academicians along with Dr. S. Ayyappan, Former Secretary, DARE and DG, ICAR, New Delhi and shared his views. The Vice-Chancellor participated in the meeting convened by Hon'ble Minister of Agriculture, Govt. of Karnataka and discussed the University issues on 9th October. Vice-Chancellor participated in the webinar meeting and discussed on UAS-B & Hitachi Joint collaboration in the areas of Environmental Change, Block chain Technology, Integrated Agriculture Information System, e-learning systems and others on 12th October. He participated in the webinar and discussed on Periodic Table of Food Initiatives : Global Strategic Leadership meeting along with Ashok Vasudevan, Chairman, Tasty Bite Eatables Ltd., Singapore on 12th October. He participated in the 49th Governing Council and 26th General Body Meeting of Water and Land Management Institute, Dharwad through online and chaired the meeting with Emeritus Scientists of UAS-B, Registrar, Director of Research and Comptroller and discussed the activities of Research on 14th October. He participated in the webinar on 'Business opportunities in seed & planting materials of horticultural crops' and delivered a lecture on 'Seed Act and other related regulatory aspects in seeds and planting material business'on 16th October, 2020. He participated in the

first meeting of Peer Review Team of Indian Agricultural Research Institute, New Delhi on 19th October, 2020. He chaired the meeting on Learning Management System (LMS) and PEDAGOGY through online on 19th October. He chaired the 35th Research Advisory Committee meeting of Karnataka State Sericulture Research and Development Institute, Bengaluru on 20th October. He participated in the online Launch of Agricultural Skills Empowerment Initiative with Western Sydney University, Australia on 26th October. He chaired the meeting on Global Stars Call for Proposals of Joint R & D Projects under EUREKA between the Government of India and the EUREKA member countries on 27th October. He chaired the meeting of the Peer Review Team of NAEAB for the accreditation of the Self StudyReport of Don Bosco College of Agriculture, Goa through online on 28th October. Vice-Chancellor had a meeting with Hon'ble Minister of Agriculture, GoK and discussed the University issues on 29th October, 2020.

November 2020

Vice-Chancellor participated as chief guest in the new tissue culture papaya plants release programme organized by Thomas Biotech & Cytobacts Centre for Biosciences (OPC) Pvt. Ltd., Bengaluru on 01.11.2020 and distributed plants to farmers during the event. He participated in the virtual meeting on 'Implementation of Rejuvenating Watersheds for Agriculture Resilience through Innovative Development Project' organized on 03.11.2020 by Commissioner and Director, Watershed Development Department under the chairmanship of Additional Chief Secretary and Development Commissioner, GoK. He witnessed the MoU between University of Agricultural Sciences, Bangalore and Karnataka State Natural Disaster Monitoring Centre, Bengaluru on desire and intend to develop co-operation and collaboration in research for development, training, and other agreed activities. He chaired the meeting of the Peer Review Team of NAEAB for the accreditation of the Self Study Report of Don Bosco College of Agriculture, Goa through online on 04.11.2020. Vice-Chancellor participated in the radio talk on Implementation of Kannada in UAS-B and Krishimela - 2020 at AIR, Bengaluru. He participated in the Foundation Day of Indian Academy of Horticultural Sciences through online organized by IAHS, New Delhi on 06.11.2020. He participated in the National Steering & Negotiation Committee Meeting – CeRA organized by Directorate of Knowledge Management in Agriculture, ICAR, New Delhi through online on 07.11.2020. He participated in the ICAR-NAHEP-TANUVAS Virtual Sensitization Programme on 'Knowledge Management in the Networked Digital Environment' for UAS, Bangalore jointly organized by TANUVAS LIBRARY-ICAR-NAHEP (IG) and UAS-B on 10.11.2020. He participated in the 'Raitharondigondu Dina' programme with Hon'ble Minister for Agriculture, Government of Karnataka, held at Maduvinakodi village, K.R. Pet taluk, Mandya district and visited farmers field organized by Department of Agriculture, Mandya on 14.11.2020. Participated in the inaugural function of Bengaluru Tech Summit - 2020 through online organized by Department of Electronics, Information Technology, Biotechnology and Science & Technology, Govt. of Karnataka and STPI, Bengaluru on 19.11.2020. He met Hon'ble Governor of Karnataka and invited to 54th Convocation scheduled to be held on 28.11.2020 and appraised the activities of University of Agricultural Sciences, Bangalore on 23.11.2020. He attended the meeting with Additional Chief Secretary for Agriculture, Government of Karnataka and discussed about the C-CAMP and University land issues on 24.11.2020. On 27.11.2020, Vice-Chancellor participated in the International E-conference on 'Advances and Future Outlook in Biotechnology and Crop improvement for Sustainable Productivity' organized by University of Horticultural Sciences, Bagalkote and delivered lecture on 'Next generation technologies for quality seed production'.

December 2020

Vice-Chancellor accompanied the Additional Chief Secretary to Agriculture, Government of Karnataka during his visit to Dept. of Horticulture, GKVK, Bengaluru and discussed about the C-CAMP and collaboration with HITACHI on 01.12.2020. He participated in the meeting on 'Formation and promotion of 10,000 FPO's' under the chairmanship of Additional Chief Secretary to Government, Department of Agriculture through online

organized by Deputy Director of Agriculture, Government of Karnataka on 01.12.2020. He participated in the Annual Conference of Vice-Chancellors of Agriculture Universities and interface meeting with Directors of ICAR Institutes through online organized by Deputy Director General (Agril. Extn.), ICAR, New Delhi on 04.12.2020. He participated in the 28th Annual Conference of Agricultural Economics Research Association on Future of Indian Agriculture: Challenges and Opportunities on 16.12.2020. He participated in the Agri. Tech. presentations facilitated by the PSA's office and supported by NSRCEL, IIMB and delivered key note address through online on 19.12.2020. He participated and inaugurated the Sri Shivakumarswamiji award, Sahithya Rathna and Kannada Rathna award distribution programme organized by Karnataka Vachana Sahithya Parishath, Bengaluru on 20.12.2020. He participated in the interaction of Hon'ble Agriculture Minister, Govt. of India with students and sensitization workshop about various schemes of GoI through online on 21.12.2020. He participated in the sixth Executive Council meeting of the Karnataka State Rural Development and Panchayat Raj University, Gadag through online on 23.12.2020. He participated in the Vijaya Karnataka Superstar Best Farmer Award organized by Vijaya Karnataka Newspaper held at North block Auditorium, UAS, GKVK, Bengaluru on 24.12.2020. Vice-Chancellor participated in the interview on 'We Care' Education App on Agriculture by 'The News 24' Kannada News Channel on 28.12.2020.

January 2021

Vice-Chancellor participated in the budget review meeting under the chairmanship of Vice-Chairman, Karnataka State Planning Board held at Vikasa Soudha, Bengaluru on 01.01.2021 organized by Ministry of Finance, Govt. of Karnataka. He participated and chaired the 12th Scientific Advisory Committee meeting held at Krishi Vigyan Kendra, Chamarajanagara on 04.01.2021. He met Director of Karnataka State Tourism Board and discussed about development of Agri Tourism in University of Agricultural Sciences, Bangalore on 05.01.2021. He inaugurated Seed Processing Plant on 06.01.2021 established at Agriculture Research Station, Tiptur organized by National Seed Project, GKVK. He chaired the interaction meeting with officials of Jiva Sciences and Agri Innovation Centre about the collaboration on Agri Innovation Centre and Start-ups on 07.01.2021. Vice-Chancellor attended the first Karnataka State Planning Board meeting under the chairmanship of Chief Minister and Chairman, Karnataka State Planning Board, Government of Karnataka, held at Vidhana Soudha, Bengaluru on 08.01.2021. On 12.01.2021 he participated and chaired the 14th Scientific Advisory Committee Meeting of Krishi Vigyan Kendra, Chinthamani. He participated in the 'National Collaborative Programme on Enhancing Employability of Graduates' through online organized by Association of Indian Universities, New Delhi on 13.01.2021. He participated in the state level selection committee meeting for the selection of farmers for the award of VK Superstar farmer organized by Vijaya Karnataka News Paper on 15.01.2021. He presided the award ceremony programme 'Prathibothsava - 2019' on 16.01.2021 and felicitated the Gold Medalists of 2018-19 batch students of UAS, Bangalore organized by Sujana Samaja, Bengaluru. Vice-Chancellor chaired the 191st Meeting of Academic Council of UAS, Bangalore held on 18.01.2021. He chaired the 387th meeting of Board of Management and 147th Finance Committee meeting of UAS, Bangalore held on 21.01.2021. He participated in the 'VK Superstar Raitha–2020' State Level Farmers award ceremony as Chief Guest chaired by Hon'ble Chief Minister of Karnataka held at GKVK organized by Vijaya Karnataka News Paper on 22.01.2021. On 23.01.2021, he participated in the meeting of Peer Review Team of ICAR Accreditation through online and reviewed the Self Study Report of Indian Agriculture Research Institute (IARI), New Delhi. He participated in 53rd Governing Council Meeting of Karnataka State Sericulture Research and Development Institute held at M.S. Building, Bengaluru organized by KSSRDI on 25.01.2021. Vice-Chancellor met Director General, ICAR and Secretary, DARE and Dy. Director General (Education) of ICAR and appraised about the activities of UAS, Bangalore on 29.01.2021.

February 2021

Vice-Chancellor chaired the meeting with Chairman, NABARD and UAS-B officials and discussed about the collaborative activities on 01.02.2021. Participated in the special meeting of the Executive Council of Karnataka State Rural Development and Panchayat Raj University, Gadag through online organized by KSRD& PRU,

Gadag on 02.02.2021. He participated in the virtual meeting on 'Annual Review Meeting of the CGIAR Centres' convened by Secretary, DARE and Director General, ICAR and discussed about ongoing activities as well as future plans on 03.02.2021. He participated in the 'Annual National conference for Post Graduate Students' held at Acharya N.G. Ranga Agricultural University, Tirupati and delivered inaugural speech on 04.02.2021. He participated in the meeting of Karnataka State Planning Board and discussed about the State Government budget for 2021-22 and suggested points for inclusion in the Budget for Agriculture on 05.02.2021. He participated in the meeting of Peer Review Team of ICAR Accreditation and reviewed the Self Study Report of Indian Agriculture Research Institute (IARI), New Delhi on 06.02.2021. He chaired the meeting with Director, BMRCL and discussed about the Metro Station near GKVK organized by Estate Office, UAS, Bangalore on 08.02.2021. He participated in the International Capacity Building Webinar-cum-Workshop on OECD Seed Certification and chaired the General Discussion organized by ICAR - Indian Agricultural Research Institute, New Delhi and ICAR - Indian Institute of Millets Research, Hyderabad through online on 09.02.2021. Vice-Chancellor participated in the National Steering & Negotiation Committee meeting, through online organized by Directorate of Knowledge Management in Agriculture, Indian Council of Agricultural Research, Delhi on 10.02.2021. He participated in the valedictory function of National Horticulture Fair as chief guest organized by Indian Institute of Horticultural Research, Bengaluru on 12.02.2021. He participated in the virtual launch of book 'Quality mandate for higher education Institution in India' organized by University Grants Commission, New Delhi on 16.02.2021. He participated in the 6th National Youth Convention on Innovation and Agril Reforms for Farmers Prosperity through online organized by Professor Jayashankar Telangana State Agricultural University, Hyderabad on 21.02.2021. He participated in the AIU South Zone Vice-Chancellors Meet 2020-21 organized by Association of Indian Universities, New Delhi through online on 24.02.2021. Vice-Chancellor participated in the Awards Ceremony organized by Alumni Association of UAS, Bengaluru on 27.02.2021.

March 2021

Vice-Chancellor witnessed the MoU between UAS, Bangalore and Farmer of Nisarga Natural from Turuvekere on commercialization of Coconut flour cocokies and laddus on 01.03.2021. He participated in the video recording on UAS-Central Instrumentation Lab Facility created at GKVK, Bengaluru on 05.03.2021. He met Hon'ble Chief Minister, Government of Karnataka and appraised about the Agri. Start-Ups in Karnataka and incubation centres on 06.03.2021. He participated in the inaugural function of Srinivasapura Mango Farmers Producers Company Limited as Chief Guest organized by UAS, Bangalore at Srinivasapura, Madanapalli road on 07.03.2021. He participated in the scrutiny committee meeting for scrutiny and recommendation of nominations for Gandhi Peace Prize - 2021 organized by Rajiv Gandhi University of Health Sciences, Karnataka at Vice-Chancellor's Secretariat, RGUHS, Bengaluru on 12.03.2021. He participated in the valedictory function of AIWC Water conclave as Chief Guest organized by JSS Science and Technology University, Mysore in collaboration with Western Sydney University held at JSS University, Mysore on 16.03.2021. He chaired the meeting on NAHEP Component-2 and discussed on e-Learning organized by PPMC, UAS, Bangalore on 19.03.2021. He participated virtually in the 'Jal Shakti Abhiyan & Signing of MoA of Ken-Betwa link project by Hon'ble Prime Minister, Govt. of India on 22.03.2021. He participated in the 2nd Foundation Day Lecture of Association of Indian Universities through online organized by AIU, New Delhi on 23.03.2021. He participated in the Vice Chancellors' Conference through video conferencing and discussed on implementation of National Education Policy-2020 organized by Agricultural Education Division, ICAR, New Delhi on 24.03.2021. He participated in the virtual guest lecture on Post-COVID-19 Lessons and Strategies for Advancing Global Food System for Climate-Resilient Food Security and Health organized by NAAS, Bengaluru Chapter on 27.03.2021. He inaugurated GPL-5 cricket tournament organized by 3rd year UG students, UAS, Bangalore, held at GKVK Play Ground, Bengaluru on 29.03.2021.

1.10 Awards and Recognitions Achieved by the University (Units/AICRPs/ARS)

- The Agriculture Today Group has presented the 'Excellence in Course & Curriculum Design Award' to UAS, Bangalore adjudicated by the eminent JURY panel of India Agri-Education Awards-2021 through the virtual event organised on 27th February 2021 for exemplary contribution by UAS-B towards agricultural education in India & beyond
- AICRP on Forage crops, ZARS, Mandya was awarded with appreciation certificate for the team work at National group Meeting – Kharif 2020 for the development of Prodcution Technoloiges from the Project Co ordinator, AICRP on Forage Crops-IGFRI-Jhansi

1.11 Meetings of the Authorities of the University

1	**Board of Management**		
	385th Regular Meeting	...	21.04.2020
	386th Regular Meeting	...	01.09.2020
	387th Regular/ Meeting	...	21.01.2021
2	**Academic Council**		
	190th Meeting	...	27.05.2020
3	**Board of Studies**		
	17th Meeting (UG & PG)	...	28.02.2020
4	**Finance Committee**		
	145th Meeting	...	21.04.2020
	146th Meeting	...	01.09.2020
	147th Meeting	...	21.01.2021
5	**60th Research Council Meeting**	...	26.05.2020
6	**59th Extension Education Council Meeting**		26.05.2020

Chapter II

2. Academic Administration

2.1 Academic Programmes

The University has six colleges, with a territorial jurisdiction of 10 Southern districts of Karnataka to carry out the mandated education in the areas of agriculture and allied sciences. Presently, the University offers six Bachelor Degree programmes *viz.,* B.Sc. (Hons.) Agriculture, B.Sc.(Hons.) Sericulture), B.Sc.(Hons.) Agricultural Marketing & Business Management, B.Tech. (Biotechnology), B.Tech. (Agri. Engineering) and B.Tech. (Food Technology). University also offers Masters' degree programme in 22 disciplines and Ph.D. programme in 15 disciplines. The academic programmes are offered under semester system with english as medium of instruction. Two year diploma in Agriculture is being offered under semester system in Kannada medium at College of Agriculture, Mandya. Further, the Directorate of Extension offers various Diploma and certificate courses on Distance Education mode. Degrees which were offered as B.Sc. (Agri.), B.Sc. (Seri.) and B.Sc. (Agril. Maketing & Co-operation) are now offered as B.Sc. (Hons.) Agriculture, B.Sc. (Hons.) Sericulture and B.Sc. (Hons.) Agril. Maketing, Co-operation & Business Management since 2018-19. The degree B.Sc. (Agri. Biotech.) offered at College of Agriculture, Hassan is now offered as B.Tech. (Biotechnology) since 2018-19 and the degree B.Sc. (Food Science & Technology) is now offered as B.Tech. (Food Technology) since 2017-18.

2.2 Administrative Management System and Functions

2.2.1. Directorate of Education

The Academic administrative system consists of Directorate of Education ably supported by Registrar, Deans of constituent colleges, Dean Post Graduate Studies, Dean Student Welfare, Controller of Examination, facilitated by Communication Center, Kannada Department and University Library. Major responsibilities and functions attached with the directorate/officers and functions performed during 2019-20 are detailed here under.

i. ***Director of Education; As per the Act***

a. Shall be concerned with co-ordination of all academic policy matters and systems regarding resident instruction and development of educational technology. He shall also oversee examinations.

b. Shall monitor and supervise the University Library, Examination Centre, Kannada Department and Communication Centre

c. Shall supervise the academic activities of constituents colleges

d. Shall be responsible for Human Resource Development in the University and teacher's training programmes

e. Shall be the Chairman of Board of Studies of UG and PG programmes and shall maintain the records of the Board of Studies

f. Shall be the Member-Secretary of Academic Council and custodian of the proceedings of the Academic Council

g. Shall be responsible for strengthening of collaboration between UAS-B and other State, National and International organizations

h. Shall co-ordinate Teaching, Research and Extension Education Programmes of the University

i. Shall assist the Vice-Chancellor in over all administration of the University and assume such other duties and powers as the Vice-Chancellor may assign

j. Shall perform duties of the Vice-Chancellor in his temporary absence, except as otherwise provided by the Board and / or the Vice-Chancellor

ii. Registrar; As per the Act

a. Shall be the Member Secretary of the Board of Management and shall be a permanent Member of all councils

b. Shall be responsible for due custody of records and common seal of the University

c. Shall receive applications for entrance to the University and shall keep a permanent record of all the courses, curricula and other information as may be necessary

d. Shall be responsible for Human Resource Development and general administration in the University as prescribed [Sec. 31 (7) b-e]

iii. Deans; As per the Act

Shall be the Head of the college and responsible for administering and implementation of teaching, research and extension activities in the college (Sec. 37 / 4).

iv. Dean of Post Graduate Studies; As per the Act

Shall be responsible for administering and implementation of Post Graduate Studies and other education as programmes including diplomas (Sec. 37 / 5).

v. Dean of Student Welfare; As per the Act

a. Shall plan & direct the programmes of the students' advisement, counselling, enlist the cooperation of prospective employers and employment agencies to assist the placement of graduates of the University and to promote discipline amongst the students of the University

b. Shall plan and organize students extra-curricular activities such as sports, cultural & other recreational activities, NCC, NSS, communi-cation skill improvement and other allied activities at the University level

c. Shall assist the Deans in supervision and management of students' hostel, cafeteria and conduct of sports and cultural events

d. Shall supervise and control medical & health services and other welfare measures of students' in the university [Sec. 37(6) a-d]

vi. Principal – Two Years Diploma in Agriculture

Responsible for implementation of Academic Programme in respect of two years diploma in Agriculture

vii. Controller of Examinations

Responsible for conducting of Examinations, evaluation and declaration of results in coordination with the Deans of respective colleges under the supervision of Director of Education.

viii. University Librarian; As per the Act

Shall be responsible for the maintenance and management of the University Library information system and to guide and coordinate library activities of all the constituent units of the University under the supervision of Director of Education**.**

ix. Communication Centre

Responsible for publishing The Mysore Journal of Agricultural Sciences, Krishi Vignana quarterly magazine, Calendars, Newsletter, Annual Report, Bulletin & other needed text deemed fit for publication in the University both in Kannada & English.

x. Department of Kannada Studies

Responsible for publishing text books & dictionary related to Agriculture and other related subjects for the use of farmers, agril. students, scientists and others.

2.3 Functions and Activities Performed

2.3.1 Admission to Bachelor Degree Programmes

The University admits students to Bachelor degree programmes through KEA-CET by following Government of Karnataka / ICAR guidelines / norms / roaster. The University has reserved 40 per cent of seats to children of Agriculturists. As per the ICAR direction, 15 per cent of the seats are reserved for ICAR-NTS candidates. The University also admits foreign students of 5 per cent and NRI students of 10 per cent of intake. The prescribed qualification is 10+2 with PCMB combinations.

2.3.2 Admission to Masters and Doctoral Degree programmes

Postgraduate admissions are made through Common Admission Test among the Farm Universities in the state through counseling. The University approved seat matrix indicating roaster based on the Government of Karnataka and ICAR, New Delhi guidelines are adopted in admission prcess. The University also admits candidates with ICAR-JRF / NTS /SRF allotted by ICAR to the extent of 25 per cent of the intake. In addition, foreign students are admitted to the extent of 10 per cent of intake to the university through DARE / ICCR, Govt. of India and through bilateral MOU between the foreign universities sponsored candidates. The prescribed qualification for Master degree programme is Bachelor Degree in the concerned subject/s and for Doctoral degree programme is Master degree in concerned subject/s.

2.3.3 Admission to Diploma programmes

Admissions to Two Year Diploma in Agriculture is made based on the merit of the prescribed qualification *i.e.,* 10th Standard by following University approved seat matrix with roaster based on guidelines of Government of Karnataka. These candidates are eligible for scholarship provided by Dept. of Agriculture, Govt. of Karnataka, during their studies.

Admissions to Two Year Diploma in Sericulture is made based on the merit of the prescribed qualification *i.e.,* 10th Standard by following University approved seat matrix with roaster based on guidelines of Government of Karnataka (Started from 2020-21).

2.3.4 Admission Committee

The University constitutes Standing committee for admission to Bachelor degree programme, Postgraduate degree programmes and Diploma in Agriculture and Sericulture under the Chairmanship of Director of Education. Deans, DSW, Dean (PGS), Controller of Examination, Principal-Diploma (Agri.) will be the members and Registrar will be the Member-Convener. The Committee perform the various functions as prescribed and plan for the annual admissions. The University issues Notifications for admissions in leading Kannada and English daily News papers besides uploading to the University website www.uasbangalore.edu.in. The committee prepares

the plan of activity for Bachelor degree programme, verification of documents, for conduct of practical test and evaluation, preparation of merit list and submission to Karnataka Examination Authority.

Similarly, the committee coordinates with the other Farm Universities as per the Coordination committee decisions and participate in conduct of Common Entrance Test, Evaluation of papers and Counselling process. In respect of two year Diploma in Agriculture, plan of activities are prepared, notifications are issued by inviting applications in the local news papers. Received applications are subjected to scrutiny and merit list is prepared to admit candidates as per the roaster.

2.3.5 Admission Intake, Admissions made and Students on Roll

2.3.5.1 Bachelor Degrees

During the academic year, the intake strength for Bachelor's degree was 1050, however 901 students were admitted of which 450 were boys (49.94%) and 451 were girls (50.05%). The total number of students on Roll in UG degree programmes was 3478 of which 1829 were boys (52.58%) and 1649 were girls (47.41%). (Table 1). Category-wise details are provided in Annexures 1.1, 1.2, 1.3.

Table 1 : College-wise Bachelor degree programmes, intake, admitted students, and students on roll during the year 2020-21

Sl.No.	Colleges & Degree programmes	Student intake	Admissions made			Students on Roll (Four years)		
			Boys	Girls	Total	Boys	Girls	Total
1	**College of Agriculture, GKVK, Bengaluru**							
	B.Sc. (Hons.) Agriculture	313	140	141	**281**	572	516	**1088**
	B.Sc. (Hons.) Agril. Marketing & Business Management	70	18	42	**60**	99	132	**231**
	B.Tech. (Agril. Engineering)	87	43	29	**72**	168	116	**284**
2	**College of Agriculture, VC Farm, Mandya**							
	B.Sc. (Hons.) Agriculture	115	41	54	**95**	225	186	**411**
3	**College of Agriculture, Karekere, Hassan**							
	B.Sc. (Hons.) Agriculture	116	59	48	**107**	200	194	**394**
	B.Tech. (Biotechnology)	83	27	36	**63**	129	109	**238**
	B.Tech. (Food Technology)	83	33	32	**65**	120	129	**249**
4	**College of Sericulture, Kurubur, Chintamani**							
	B.Sc.(Hons.) Agriculture	102	54	40	**94**	196	167	**363**
	B.Sc.(Hons.) Sericulture	42	20	12	**32**	69	57	**126**
5	**College of Agriculture, Chamarajanagara**							
	B.Sc. (Hons.) Agriculture	39	15	17	**32**	51	43	**94**
	Total	**1050**	**450**	**451**	**901**	**1829**	**1649**	**3478**

2.3.5.2 Masters Degrees

During the year, the intake for Master's degree was 356 and admitted was 348 of which 164 were boys (47.12%) and 184 were girls (52.87). The total number of students on roll for Masters degree programme was 332 of which 150 were boys (45.18%) and 182 were girls (54.81%) (Table 2). Category-wise details are provided in the Annexure 1.4.

Table 2 : College-wise Masters and Doctoral degree programmes, intake, admitted students and students on roll during the year 2020-21

Sl.No.	Colleges & Degree programmes	Duration	Student intake	Admissions made			Students on Roll (2/3 years)		
				Boys	Girls	Total	Boys	Girls	Total
1.	**CoA, GKVK, Bengaluru**								
	Masters' degree	2 years	324	151	170	321	126	151	277
2.	**CoA, VC Farm, Mandya**								
	Masters' degree	2 years	32	13	14	27	24	31	55
	Total		**356**	**164**	**184**	**348**	**150**	**182**	**332**
3.	**CoA, GKVK, Bengaluru**								
	Doctoral degree	3 years	125	44	66	110	119	121	228

Doctoral Degrees

During the year, the intake for Doctoral degree was 125 and admitted was 110 of which 44 were boys (40.00%) and 66 were girls (60.00). The total number of students on roll for Doctoral degree programme was 228 of which 119 were boys (52.19%) and 121 were girls (53.00%) (Table 2). Category-wise details are provided in the Annexure 1.4.

2.3.5.3 Diploma in Agriculture & Sericulture

During the academic year, the intake for two year Diploma in Agriculture was 50 And admission made was also 47 Students of which 29 Were boys (61.70%) and 18 Were girls (38.29%). The total number of students on roll for the programme was 93 Of which 59 Were boys (53.44%) and 34 Were girls (36.55%) (Table 3). Category-wise details are provided in the Annexure 1.5, 1.6, & 1.7.

Table 3 : Students intake, admission made, students on roll with respect to two-year diploma in agriculture during the year 2020-21

Sl.No.	Colleges & Degree programmes	Student intake	Admissions made			Students on Roll (02 years)		
			Boys	Girls	Total	Boys	Girls	Total
1.	College of Agriculture, VC Farm, Mandya	50	29	18	47	59	34	93
2	College of Agriculture, Chintamani	20	10	1	11	-	-	-

During the academic year, the intake for two year Diploma in Sericulture was 20 and admission made was also 11 Students of which 10 were boys (50%) and 01 were girls (5%).

The overall admission intake for the Bachelor, Postgraduate degree programmes and diploma programme was at 1601 And admitted 1417 Students. The number of students on roll during the year was 4131 Of which 2157 Were boys (48.07%) and 1986 Were girls (52.21%). The details are provided in the Table 4.

Table 4 : Overall intake, admission made and students on roll in the University during 2020-21

Sl.No.	Degree programmes	Student intake	Admissions made			Students on Roll		
			Boys	Girls	Total	Boys	Girls	Total
1	Bachelor degree	1050	450	451	901	1829	1649	3478
2	Master's degre	356	164	184	348	150	182	332
3	Doctoral Degree	125	44	66	110	119	121	228
4	2 yeas Diploma in Agriculture	50	29	18	47	59	34	93
5	2 yeas Diploma in Sericulture	20	10	1	11	-	-	-
	Total	**1601**	**697**	**720**	**1417**	**2157**	**1986**	**4131**

2.3.5.4 Number of Students passed out in Bachelors', Masters' and Doctoral degree

During the year, in total 656 students passed out successfully in Bachelor degree of which 349 are boys and 307 are girls. Further, at Masters level 279 students have passed out of which 143 are boys and 136 are girls. At Doctoral level, 74 students have been passed out of which 44 are boys and 30 are girls (Table 5). Category wise details are provided in the Annexure 1.8, 1.9.

2.3.6 Courses offered, faculty strength and examinations conducted

During the year 2020 - 21, the prescribed courses with credit hours for each degree programmes were offered by the faculty in position in respective colleges. However, wherever possible, scientists of Directorate of Research and Directorate of Extension were also involved in offering courses for UG and PG programmes apart from Postgraduate guidance. The details of faculty strength and course offered college wise is presented in the Table 6.

2.3.7 Adoption and Implementation of Student Rural Entrepreneurship Agricultural Development Yojana (READY) Programme

The University has adopted 'V Deans committee' recommendations of the Indian Council of Agricultural Research(ICAR) and accordingly adopted the Student Rural Entrepreneurship Agricultural Development Yojana(READY) programme for all bachelor degree programmes for the Academic year 2018-19.

Student Rural Entrepreneurship Agricultural Development Yojana(READY) Programme is a new initiative of ICAR, New Delhi to reorient graduates of Agriculture and allied subjects for ensuring and assuring employability and develop entrepreneurs for emerging knowledge intensive agriculture. This programme includes five components *i.e.,* Experiential learning, Rural Agricultural Work Experience (RAWE), In-plant training / Industrial attachment, Hands on Training (HOT) / Skill development training and student's projects.

2.3.8 Implementation of Rural Agricultural Work Experience (RAWEP) Programme

The Rural Agricultural Work Experience Programme (RAWEP) was implemented in the University of Agricultural Sciences, Bangalore during the year 1995-96 to all the final year students of different degree programmes for a period of six months (one semester of 22 weeks) *i.e.,* 7th semester.

ಕೋಷ್ಟಕ 5 : 2020–21ರಲ್ಲಿ ಸ್ನಾತಕ, ಸ್ನಾತಕೋತ್ತರ, ಡಾಕ್ಟೊರಲ್ ಪದವಿಗಳಲ್ಲಿ ಮತ್ತು ಕೃಷಿಯಲ್ಲಿ ಡಿಪ್ಲೊಮಾ ಕೋರ್ಸ್‌ನಲ್ಲಿ ಉತ್ತೀರ್ಣರಾದ ವಿದ್ಯಾರ್ಥಿಗಳ ಸಂಖ್ಯೆ

Table 5 : Details of the Students Passed out with Bachelors', Master's, Doctoral degrees and Diploma in Agriculture during 2020-21

ಕ್ರ.ಸಂ./ Sl.No.	ಕಾಲೇಜುಗಳು/ Colleges	ಸ್ನಾತಕ/ Bachelors'	ಉತ್ತೀರ್ಣರಾದ ವಿದ್ಯಾರ್ಥಿಗಳು/ Passed out Students			ಸ್ನಾತಕೋತ್ತರ/ Masters'	ಉತ್ತೀರ್ಣರಾದ ವಿದ್ಯಾರ್ಥಿಗಳು / Passed out Students			ಡಾಕ್ಟೊರಲ್/ Doctoral	ಉತ್ತೀರ್ಣರಾದ ವಿದ್ಯಾರ್ಥಿಗಳು/ Passed out Students		
			ವಿದ್ಯಾರ್ಥಿಗಳು/ Boys	ವಿದ್ಯಾರ್ಥಿನಿಯರು/ Girls	ಒಟ್ಟು/ Total		ವಿದ್ಯಾರ್ಥಿಗಳು/ Boys	ವಿದ್ಯಾರ್ಥಿನಿಯರು/ Girls	ಒಟ್ಟು/ Total		ವಿದ್ಯಾರ್ಥಿಗಳು/ Boys	ವಿದ್ಯಾರ್ಥಿನಿಯರು/ Girls	ಒಟ್ಟು/ Total
1	ಕೃಷಿ ಕಾಲೇಜು, ಜಿಕೆವಿಕೆ, ಬೆಂಗಳೂರು Col. of Agriculture GKVK, Bengaluru	ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ/B.Sc.(Hons.)Agri. ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ ಮಾರಾಟ ಮತ್ತು ವ್ಯವಹಾರ ನಿರ್ವಹಣೆ B.Sc.(Hons.) Agri. Marketing & Business Management ಬಿ.ಟೆಕ್.(ಕೃಷಿ ಇಂಜಿನಿಯರಿಂಗ್) B.Tech. (Agri. Engineering)	102 30 33	94 27 17	196 57 50	ಎಂ.ಎಸ್ಸಿ. (ಕೃಷಿ) M.Sc. (Agri.) ಎಂ.ಟೆಕ್. (ಪಿ.ಎಫ್.ಇ.&ಎಸ್.ಡ್ಲ್ಯೂ.ಇ) M.Tech. (PFE&SWE) ಎಂ.ಬಿ.ಎ.(ಎಬಿಎಂ) M.B.A.(ABM)	113 9 7	115 4 10	228 13 17	ಪಿಹೆಚ್.ಡಿ. Ph.D.	44 -	30 -	74 -
2	ಕೃಷಿ ಕಾಲೇಜು, ವಿ.ಸಿ.ಫಾರಂ, ಮಂಡ್ಯ Col. of Agriculture VC Farm, Mandya	ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ B.Sc.(Hons.) Agri.	49	24	73	ಎಂ.ಎಸ್ಸಿ. (ಕೃಷಿ) M.Sc. (Agri.)	14	7	21		-	-	-
3	ಕೃಷಿ ಕಾಲೇಜು, ಕಾರೆಕೆರೆ, ಹಾಸನ Col. of Agriculture Karekere, Hassan	ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್)ಕೃಷಿ/B.Sc.(Hons.) Agri. ಬಿ.ಟೆಕ್. (ಜೈವಿಕ ತಂತ್ರಜ್ಞಾನ) B.Tech. (Biotechnology) ಬಿ.ಟೆಕ್. (ಆಹಾರ ತಂತ್ರಜ್ಞಾನ) B.Tech. (Food Technology)	39 21 21	46 30 33	85 51 54	- - -	- - -	- - -	- - -		- - -	- - -	- - -
4	ರೇಷ್ಮೆ ಕೃಷಿ ಕಾಲೇಜು, ಕುರುಬೂರು, ಚಿಂತಾಮಣಿ Col. of Sericulture Kurubur, Chintamani	ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ/B.Sc.(Hons.)Agri. ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ರೇಷ್ಮೆಕೃಷಿ/ B.Sc. (Hons.) Seri.	43 11	25 11	68 22	-	-	-	-		-	-	-
	ಒಟ್ಟು/Total		**349**	**307**	**656**	**-**	**123**	**136**	**279**		**44**	**30**	**74**
5	ಕೃಷಿ ಕಾಲೇಜು, ವಿ.ಸಿ.ಫಾರಂ, ಮಂಡ್ಯ Col. of Agriculture VC Farm, Mandya	2 ವರ್ಷದ ಡಿಪ್ಲೊಮಾ (ಕೃಷಿ) 2 year Diploma (Agri.)	38	15	53								

ಕೋಷ್ಟಕ 6 : 2020–21ರ ಶೈಕ್ಷಣಿಕ ವರ್ಷದಲ್ಲಿ ನೀಡಲಾಗಿರುವ ಕೋರ್ಸ್‌ಗಳು ಹಾಗೂ ಬೋಧಕ ಸಿಬ್ಬಂದಿಯ ಸಂಖ್ಯೆ

Table 6 : Courses Offered and faculty strength during the academic Year 2020-21

ಕ್ರ.ಸಂ./ Sl No	ಕಾಲೇಜುಗಳು/ Colleges	ಬೋಧಕ ಸಿಬ್ಬಂದಿ/Faculty in position				ಪದವಿ ಕಾರ್ಯಕ್ರಮಗಳು/ Degree Programmes	ನೀಡಲಾದ ಕೋರ್ಸ್‌ಗಳ ಸಂಖ್ಯೆ/ No. of courses offered	ಕ್ರೆಡಿಟ್ ಅವಧಿ/ Credit Hrs.	ಪರೀಕ್ಷೆಗಳ ಸಂಖ್ಯೆ/ No. of examiantion	ಮೌಲ್ಯಮಾಪನೆ ಮಾಡಿದ ಉತ್ತರ ಪತ್ರಿಕೆಗಳ ಸಂಖ್ಯೆ/ No. of papers evaluated
		ಪ್ರಾಧ್ಯಾಪಕರು/ Professor	ಸಹ ಪ್ರಾಧ್ಯಾಪಕರು/ Assoc. Professor	ಸಹಾಯಕ ಪ್ರಾಧ್ಯಾಪಕರು/ Asst. Professor	ಒಟ್ಟು/ Total					
1	ಕೃಷಿ ಕಾಲೇಜು ಜಿಕೆವಿಕೆ, ಬೆಂಗಳೂರು College of Agriculture GKVK, Bengaluru	78	25	38	141	ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ/B.Sc.(Hons.) Agri.	69	161	167	87849
						ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ ಮಾರಾಟ & ವ್ಯವಹಾರ ನಿರ್ವಹಣೆ B.Sc.(Hons.) Agri. Markt. & Business Mangt.	51	137	131	15790
						ಬಿ.ಟೆಕ್.(ಕೃಷಿ ಇಂಜಿನಿಯರಿಂಗ್)/B.Tech. (Ag. Engineering)	56	159	140	18823
						ಸ್ನಾತಕೋತ್ತರ ಪದವಿ–15 ಕೋರ್ಸ್‌ಗಳು ಮತ್ತು 22 ವಿಷಯಗಳು ಎಂ.ಎಸ್ಸಿ.(ಕೃಷಿ), ಎಂ.ಟೆಕ್, ಎಂ.ಬಿ.ಎ.(ಎ.ಬಿ.ಎಂ.) Master's Degree - 15 courses & 22 disciplines [(M.Sc. (Agri.), M.Tech., MBA (ABM)]	119	277	453	54817
						ಡಾಕ್ಟೊರಲ್ ಪದವಿ – 16 ಕೋರ್ಸ್‌ಗಳು & 15 ವಿಷಯಗಳು Doctoral Degree - 16 course & 15 disciplines	65	136	237	10154
2	ಕೃಷಿ ಕಾಲೇಜು ವಿ.ಸಿ.ಫಾರಂ, ಮಂಡ್ಯ College of Agriculture VC Farm, Mandya	05	02	19	26	ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ/B.Sc.(Hons.) Agri.	77	164	70	6527
						ಸ್ನಾತಕೋತ್ತರ ಪದವಿ–15 ಕೋರ್ಸ್‌ಗಳು ಮತ್ತು 5 ವಿಷಯಗಳು Master's Degree - 15 courses & 5 Disciplines	28	66	109	2956
						ಎರಡು ವರ್ಷದ ಕೃಷಿಯಲ್ಲಿ ಡಿಪ್ಲೊಮಾ Two year Diploma in Agriculture	44	86	51	2496
3	ಕೃಷಿ ಕಾಲೇಜು ಕಾರೆಕೆರೆ, ಹಾಸನ College of Agriculture Karekere, Hassan	10	03	26	39	ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ/B.Sc. (Hons.) Agri.	84	183	29	19249
						ಬಿ.ಟೆಕ್.(ಜೈವಿಕ ತಂತ್ರಜ್ಞಾನ)/B.Tech. (Biotechnology)	72	183	35	10670
						ಬಿ.ಟೆಕ್.(ಆಹಾರ ತಂತ್ರಜ್ಞಾನ) B.Tech. (Food Technology)	73	183	38	10917
4	ರೇಷ್ಮೆ ಕೃಷಿ ಕಾಲೇಜು ಕುರುಬೂರು, ಚಿಂತಾಮಣಿ College of Sericulture Kurubur, Chintamani	04	2	21	27	ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ರೇಷ್ಮೆಕೃಷಿ)/ B.Sc. (Hons.) Seri.	76	183	67	5824
						ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ/ B.Sc. (Hons.) Agri.	76	183	64	1938
5	ಕೃಷಿ ಕಾಲೇಜು ಚಾಮರಾಜನಗರ College of Agriculture Chamarajanagara	(Only Special Officer and one Professor is nominated. Services of Scientists of KVK & AICRP, Chamarajanagara and Teachers of CoA, Mandya are availed)				ಬಿ.ಎಸ್ಸಿ.(ಆನರ್ಸ್) ಕೃಷಿ/ B.Sc. (Hons.) Agri. *I & II B.Sc. (Hons.) Agri.* only (College started during 2018-19)	37	73	64	-
	ಒಟ್ಟು/**Total**	**97**	**30**	**104**	**233**		**927**	**2174**	**1655**	**248010**

* II semester of 2020-21 for First year - Masters/ Ph.D will be commencing from June 2021 onwards due to COVID-19 pandemic

RAWE programme helps the students primarily to understand the rural situation, status of technologies adopted by farmers, prioritize the farmers' problems and to develop skills and attitude of working with farm families for overall development in rural area.

Students who have successfully completed all the prescribed and offered courses till the end of the 6th semester are eligible to register for 20 credits of Rural Agricultural Work Experience Programme (RAWEP) during 7th semester of the degree programme.

Under Student Rural Entrepreneurship Agricultural Development Yojana Programme,(READY) financial assistance is provided by ICAR and the State Government. Each student is provided with a stipend at the rate of Rs. 3000/- per month for a period of six months. Students are placed in Raitha Samparka Kendras (RSKs) of Department of Agriculture, Government of Karnataka during the village stay practicals. The practical exposure and experience of Rural Agricultural Work Experience(RAWE) Programme will have far reaching impact in shaping the career of every student.

Advisory Committee is headed by the Dean of the college and all the Heads of the Departments, Rural Agricultural Work Experience programmes (RAWEP) Co-ordinator and Associate Co-ordinators are its members. The Committee provides guidance to the teacher's in-charge of Rural Agricultural Work Experience programmes (RAWEP) and students for effective implementation of Rural Agricultural Work Experience programmes (RAWEP). The designated Rural Agricultural Work Experience programmes (RAWEP) teachers from all the departments of the college are responsible to monitor, supervise and guide the students to attend their designated activities.

Owing to Covid-19 pandemic situation, RAWEP is postponed from 7th semester to 8th semester and therefore, no information w.r.t. RAWEP village placement is furnished.

2.4 Hands on Training

The students of all the degree programmes during their final year are required to complete Hands on Training Courses to the extent of 20 credit hours to gain confidence and skills in areas of specialization of their choice. All the colleges of UAS-B offered the approved courses. Based on the interest of the students and their merit, the courses were allotted. Details are presented in the following Table.

Table 7 : Details of Hands on Training Courses Undergone by the Students and Significant Outcomes

College	Module No./ Course Group Name	HOT Course Title	No. of Students Undergone			Significant outcomes
			Boys	Girls	Total	
1	2	3	4	5	6	7
CoA GKVK, Bengaluru	Group I ESA 421 + EAG 421	Soil, Plant, Water and Fertilizer Testing + Organic Production Technology	23	4	27	The students got acquainted with soil analysis, irrigation water analysis, waste water analysis, plant analysis, organic manure and fertilizer analysis, green biomass production, compost production, NADEP method of composting, vermicompost production, production of bio-digested liquid manures and organic certification
						The students have been trained on green biomass production , compost production , NADEP method of composting , Vermicompost production of bio-digested liquid manures and organic certification
	Group II ESA 422 + EAG 421	Agriculture Waste Management + Integrated Farming System	14	12	26	The students have been trained in composting of plant residues, green manuring & bio-gas preparation
						The students have been trained on enterprise selection and management, interaction between different enterprises, resource management in farming system, poultry, dairy management, maintenance of live stock, farm records and economics of different components of IFS
	Group III EAM 422 + EEP 421	Production Technology for Bio-fertilizers + Production Technology for Bio- agents	13	9	22	Mass production of bio-fertilizers, Azolla, Phosphate/ potash solubilising microorganisms, nitrogen fixing bacteria, plant growth promoting rhizobacteria etc., , packing and storing methods and entrepreneurship development have been studied in detail by the students
						Students learnt mass multiplication of parasitoids(T*richogramma, Goniozus*, predators (*Chrysoperlacarnea*) pathogens (HaNPV, SL NPV, *B.bassiana*), and bio- agents (*Trichoderma, Pseudomonas* etc.,) apart from testing their efficacy and delivery system

1	2	3	4	5	6	7
	Group IV EAM 422 + EEP 421	Production Technology of Mushrooms + Production Technology for Bio- agents	18	6	24	Students learnt maintenance of mushroom laboratory, spawn production, harvesting , processing and packing of mushrooms
	Group V EHR 421 + EHR 422	Commercial Horticulture + Floriculture & Landscaping	10	15	25	Students learnt high-tech nursery management, tissue culture techniques in rapid multiplication of horticultural crops and terrace gardening.
						Students have been trained on preparation of different kinds of media, selection of mother plants, preparation of *in vitro and in vivo* culture. Also learnt culture techniques *viz.,*axillary shoot culture, meristem culture, embryo culture, standardization of tissue culture techniques in banana and application of tissue culture in crop improvement.
	Group VI EHR 422 + EFS 421	Floriculture & Land scaping + Food Processing	11	15	26	Students have been trained on nursery techniques, pruning, training, desuckering, management of ornamental crops and wire netting etc.
						Students learnt grain quality assessment, preparation of energy food mix *viz*., malt drink, food safety measures, use of additives & preservatives, labelling and its importance, processing of bread, biscuits etc.
	Group VII ESE 421 + EST 421	Commercial Sericulture + Seed Production and Technology	16	10	26	Students were traind in mulberry cultivation, silkworm rearing, silkworm diseases and pest management and marketing of cocoons
						Students have learnt various seed production principles and technologies during the courses viz., seed production techniques in cereals, pulses, oil seeds and vegetable crops, seed certification principles and procedures, seed processing & drying, seed testing methods and procedures, seed treatment, seed storage, seed marketing channel, etc.
	Group VIII EAP 421 + EAS 421	Commercial Bee keeping + Poultry Production Technology	20	7	27	The students have been exposed to various training on handling and management of honey bee colonies, extraction, processing of bee wax, extraction of honey and its processing and preparation of value added bee hive products.
						Students learnt rearing of coloured broiler, layer farming, litter management, poultry nutrition and feeding, common diseases of poultry birds and vaccination, marketing and economics of poultry production

1	2	3	4	5	6	7
CoA V.C. Farm, Mandya	Group I	ESE 421 Commercial Sericulture (0+10)	16	04	20	Helped the students to become entrepreneurs. Further they can serve as resource consultant in fields of sericulture in private/semi govt/NGO or even they can set up an organization of their own to carry out the activities of sericulture.
		EEP 421 Production Technology for Bio-agents (0+10)	12	08	20	Students learnt the techniques of mass production of bio agents like *Corcyra caphalonica* and *Gonioyers nephantidis*
	Group II	EAG 421 Organic Production Technology (0+10)	12	08	20	Students acquired skill on various commercial compost preparation Familiarized with the laboratory analysis of various compost Student learnt the marketing strategy of compost Learnt organic crop production techniques
		EAM 421 Production Technology for Bio-fertilizers (0+10)	14	06	21	Familiarized with the production technique of bioinoculants and biofertilizer Learnt marketing strategy of biofertilizer and bioinoculants Learnt about quality control aspects
	Group III	ESA 421 Soil, Plant, Water and Fertilizer testing (0+10)	14	06	21	Students learnt the techniques of soil plant, water and fertilizer sampling methods and analysis of their physical, chemical and nutrient properties
						Students familiarized with handling instruments *viz.*, pH meter, flame photometer, *UV-VIS* spectrophotometer and atomic absorption spectrophotometer
		EHR 421 Commercial Horticulture (0+10)	14	06	21	Students can establish nursery and can involve in cultivation of hort. crops in green house
	Group IV	EFS 421 Food Processing (0+10)	09	10	19	Student got familiarized with processing of cereals and millets, Grain quality assessment, Techniques on evaluating physical censoring & objective evaluation methods and also got familiarized with the equipment handling and maintenance
		EST 421 Seed Production and Technology (0+10)	09	10	21	Students can take up varietal / hybrid seed production Start up their own business in government and private sectors Also produce seeds for government and private as per rules and regulations
		EBT 421 Plant Tissue culture (0+10)	16	05	21	Students gained skill on tissue culture to become an entrepreneur Students can establish their own tissue culture laboratory on various agril. and hort. crops

1	2	3	4	5	6	7
CoA, Hassan B.Sc. (Hons.)	Module I	EAM 422 Production Technology for Bio-fertilizers (0+10)	3	14	17	Students learnt the Techniques of Isolation.
						Students learnt identification and mass multiplication of different Biofertilizers like Rhizobium Aztotobacter, Azospirillum, PSB and commercially produced 800 kg of Bio-fertilizers generating an amount of Rs.64,000/-
		EEP 421 Production Technology for Bio-Agents (0+10)	3	14	17	Students successfully learnt isolation characterization, bio-eeficaly test and mass production techniques of bio-control agents like pseudomonas and trichoderma
						Produced 400kg of pseudomonas & 400 kg of trichoderma worth of Rs. 64,000/- and sold to the farmers during the course period
	Module II	ESA 421 Soil, Plant, Water and Fertilizers Testing (0+10)	10	4	14	In this course students learnt about methods of soil, plant ,water and fertilizer analysis
						Preparation of reagents, instrumental techniques and analytical methods were learnt
						The special work assigned to students: Collection of soil samples from different blocks of farm land of Agril. college campus and ARS, Madenur. Analysis of soil samples for various nutrients and physic chemical properties.
						After analysis soil samples were categorized as low, medium and high fertility status.
						Soil Fertility map was prepared using GIS software and cadastral map of college farm lands
						Based on soil fertility map the fertilizer recommendations has been made to each block based on soil test values on LMH basis.
						Plant samples (Oil cakes, Crop residues), FYM, Vermi compost and bore well water samples from college campus were analysed and tabulated for information
		ESA 423 Proudction technology for Mineral Additives (0+10)	10	4	14	In this course, techniques and methods of preparation of mineral additives were shown in the practical class and in theory purchase procedure of the patented technology was taught to the students. Students were taken to exposure visit to IIHR KVK, Hirehally to show production unit of mineral additives along with machinaries and equip-ments.
	Module III	ESA 422 Agriculture Waste Management (0+10)	8	9	17	In this course, students were assigned work on different methods of composting techniques. Students prepared different compost and produced vermicompost during the course period and handed over to farm section.

1	2	3	4	5	6	7
		EAL 422 (0+10) Integrated Farming System	8	9	17	1700 Giriraja & Swarnadhara chicks were rared upto 4 weeks and sold
						10 tones of vermicompost was produced
						Aquired skill on establishment of nutrition garden
						Aquired skill in hydroponics, milking, maintainance of dairy and Crop production activities etc.
	Module IV	EAM 421 Mushroom Cultivation (0+10)	6	11	17	Learned the Techniques of spawn production and cultivation of different types of mush-rooms like oyster pint and milky mushroom.
						Produced 20 kg of fresh Mushroom and sold
						Produced 30 kg of Mushroom Spawn
		EFS 421 Food Processing (0+10)	6	11	17	All the students participated actively in the value addition of food grains and bakery products preparation in practical classes. During this period they generated Rs.2,600/- as income.
	Module V	EST 421 Seed Production and Technology (0+10)	11	06	17	Students acquired knowledge on various techniques of varietal seed production in Cowpea
						Students developed skill on seed quality maintenance techniques viz., identification of off types, conducting roughing operation and carrying out field inspection.
						Methods of seed harvesting, drying, seed quality testing and seed processing operations were practiced and learnt
		EBT 421 Tissue Culture (0+10)	11	06	17	Students were skilled to prepare media and sterilization techniques. They learnt to standardize protocol for callus induction, regeneration in banana and potato. They also got familiarized with mass multiplication of TC plants and hardening of the TC plant
CoA, Hassan B.Tech. (Biotech)	Module I	PBT 411 Plant Tissue Culture (0+20)	11	4	15	Students were skilled in sterilization techniques, media preparation and regeneration protocol for different crops like Banana, Carnation, Potato and Pomegranate
						Students were able to independently develop virus free invitro plants and mass multiplication of banana, carnation and pomegranate
						Students were skilled to multiply potato using apical rooted cutting technology
						Hands on training were also given for validation of virus free plant through different molecular techniques

1	2	3	4	5	6	7
	Module II	PBT 412 Molecular Markers (0+20)	9	5	14	Students obtained skill in DNA isolation, its quantification, gel electrophoresis and standardisation of PCR protocol Students were trained for SSR marker finding and development of SSR primers Students practiced scoring of bands on the gel for dominant and codominant markers. Students were also trained for developing linkage maps and QTL developments using pre-existing data files.
	Module III	PBT 413 Genetic Engineering (0+20)	4	11	15	Imparted skills to students in isolate plasmid DNA, restriction digestion, cloning the gene to vector, preparation of competent cells, transformation, primer designing and PCR amplification. They also isolated beneficial microbes from the soil. They were trained to carryout DNA and protein gel electrophoresis.
	Module IV	BIT 411 (0+20) Bioinformatics	9	1	10	Imparted skills to students in various bioinformatics tools such as BioEdit, Fast PCR, MEGAX, Pymol and Discovery lab Students learnt data acquiring processing, analysis and interpretation Students performed phylo-genetic analysis and 3D modelling of SAARS CoV2 Spike glycoproteing SI sub-unit to find the possibility of using it as an vaccine. Using the result of this study, a manuscript was prepared for submission.
CoA, Hassan B.Tech. (Food Tech.)	Module I : Grains Processing Technology	GPT 411 Processing and Value Addition of Food (0+7) GPT 412 Quality Evaluation and Marketing of Products from Food Grains (0+7)	8	7	15	Learning about physical properties of grains, sampling procedures, processing operations like grinding, milling, roasting, puffing, flaking, etc., and preparation of value added products.
	Module II : Fruits and Vegetable Processing Technology	FVT 411 Processing and Value Addition of Fruits and Vegetables (0+7)	12	3	15	Learning about working principles of equipment like pulpeers, concentrators, juice extractors, etc. and preparation of value added products like pulp, squash, syrup, jam, sauce, pickle, etc.

1	2	3	4	5	6	7
		FVT 412 Quality Evaluation and Marketing of Products from Fruits and Vegetables (0+7)				
	Module III : Baking Technology	BAT 411 Processing and Value Addition of Bakery Products (0+7) BAT 412 (0+7) Quality Evaluation and Marketing of Bakery Products	4	12	16	Learning about raw materials used like flour, sugar, yeast, preservatives, etc. and preparation and analysis of products like bread, biscuits, cookies, cakes, pastries, etc.
	Module IV : Beverage Technology	BET 411 Processing and Value Addition of Beverage (0+7) BET 412 Quality Evaluation and Marketing of Beverages (0+7)	4	11	15	Learing about different types of alcoholic and non-alcoholic beverages, raw materials and equipment used in manufacture, preparation and analysis of juices, carbonated drinks, wines, etc.
CoS, Chintamni °B.Sc. (Hons.) Agriculture	Module I	Commercial Serticulture (0+10)	12	07	19	The students learnt the art of mulberry & silkworm rearing and mulberry saplings production technology They are trained to become seri entrepreneurs and can successfully take up the activity as business
		Commercial Horticulture (0+10)	12	07	19	Students learnt the following skills: 1) Pruning in Jasmine and Rose for higher flower yield and harvesting and marketing of Jasmine, Rose, Crossandra and Marigold 2) Multiple cropping in vegetables and flowers for easy self marketing and to get higher returns 3) Students acquired knowledge on various tools and equipments used in nursery
	Module II	Organic Production Technology (0+10)	07	12	19	Students learnt • The scientific compost production techniques under different methods • Growing of green manures and its use in agriculture production • Production technology of organic liquid manures • Study on organic certification

1	2	3	4	5	6	7
		Soil, Plant, Water and Fertilizer Testing (0+10)	07	12	19	Students learnt the skill of collection, preparation and analysis of soil, water, manure and plant samples. The soil water and leaf litter samples collected in the campus at different sites were analyzed for their nutrient and quality parameters.
	Module III	Production Technology of Bio-agents 0+10)	14	05	19	Students were trained in the techniques of isolation, purification and large scale production of bio agents such as *Trichoderma* and *Pseudomonas* for the management of diseases
						They are exposed to entrepreneurial skill development activities such as commercial production and selling of bioagents to the farmers
		Commercial Beekeeping (0+10)	14	05	19	Students learnt about beekeeping technology, Value addition of honey, bee wax and handling of honey bees
	Module IV	Mushroom Cultivation Technology (0+10)	04	16	20	Student learnt the cultivatin of different mushrooms on different substrates and spawn production technique
		Food Processing (0+10)	04	16	20	The students had undergone training on "Home Baking" at bakery unit, GKVK, Bengaluru and developed skills in preparation of different millet based cookies, doughnuts, pizza, puff, cake and dilpasand
						They prepared products at Department of Food Science & Nutrition and sold them in the campus
						They were practically exposed to the actvitites like purchase of raw materials, preparation of receips and cost calculation and marketing of stuffs
CoS Chintamani B.Sc. (Hons) Sericulture	Module I	Chawki Technology (0+20)	06	09	15	Students acquired the knowledge of chawki rearing technology and practical experience of micro climate management in chawki rearing
						Business plan and marketing of chawki
						Farmer's advisory services on silkworm rearing
	Module II	Bivoltine Silkworm Rearing Technology (0+10)	11	05	16	Students acquired the technical knowledge about bivoltine silkworm rearing which includes nursery management, mulberry garden maintainance for both chawki and late age silkworm

1	2	3	4	5	6	7
						Each student practically experienced the bivoltine silkworm rearing by rearing 20 DFLs
		Value Addition to Mulberry, Grainage and Rearing By-products				Undergone a training programme on fruit and vegetable processing and later applied these methodologies to prepare mulberry fruit jam, jelly, pickle and tea from mulberry leaf
						Waste pupa from grainage unit was used for poultry and fish rearing
						Silkworm rearing waste was effectively utilized in compost production
						Broken and damaged pupa wastes were used to prepare different crafts

2.5 Conduct of External Examinations, Evaluation and Declaration of Results

2.5.1 University Examination Centre (UEC)

The UEC has conducted final theory external examinations for all the six Under Graduate degree programmes in the University covering 260 and 278 courses during I & II Semester of academic year 2019-20, respectively.

Table 8 : No. of External Examinations conducted by UEC during 2019-20

Degree Programme	I SEMESTER					II SEMESTER					Grand total
	I year	II year	III Year	IV year	Total	I year	II year	III Year	IV year	Total	
B.Sc. (Hons.) Agri., GKVK	09	09	09	-	27	09	10	12	-	31	58
B.Sc. (Hons.) Agri., Hassan	09	09	09	-	27	09	10	12	-	31	58
B.Sc. (Hons.) Agri., Mandya	09	09	09	-	27	09	10	12	-	31	58
B.Sc. (Hons.) Agri., Chintamani	09	09	09	-	27	09	10	12	-	31	58
B.Sc. (Hons.) Agri., Chamarajnagar	09	09	0	-	18	09	10	0	-	19	37
B.Sc. (Hons.) Seri., Chintamani	09	09	09	-	27	09	09	09	-	27	54
B.Sc. (Hons.) Agril. Marketing & Business Management, GKVK	09	11	09	-	29	09	09	10	-	28	57
B.Tech. (Ag.Engg.), GKVK	06	09	08	-	23	08	09	07	03	27	50
B.Tech. (Food Tech.), Hassan	08	09	09	01	27	10	10	10	-	30	57
B.Tech. (Biotech.), Hassan	09	10	09	-	28	03	10	10	-	23	51
Total	**86**	**93**	**80**	**01**	**260**	**84**	**97**	**94**	**03**	**278**	**538**

2.5.2 Activities during 2020-21

During the year under report, totally 48915 grades were notified for all the six UG degree programmes in the University.

Table 9 : No. of grades announced for regular courses during academic year 2019-20

Degree programme	I SEMESTER					II SEMESTER					Grand total
	I year	II year	III year	IV year	Total	I year	II year	III year	IV year	Total	
B.Sc. (Hons.) Agri., GKVK	2745	2637	1908	0	7362	2709	2880	2556	0	8145	15507
B.Sc. (Hons.) Agri., Hassan	945	891	693	0	2529	945	1010	1008	0	2963	5492
B.Sc. (Hons) Agri., Mandya	945	990	918	0	2853	981	1100	1224	0	3305	6158
B.Sc. (Hons.) Agri., Chintamani	864	855	675	0	2394	864	970	912	0	2746	5140
B.Sc. (Hons.) Agri., Chamarajnagar	297	270	0	0	567	297	300	0	0	597	1164
B.Sc. (Hons.) Seri., Chintamani	297	300	297	0	876	297	270	288	0	855	1731
B.Sc. (Hons.) Agril. Markt. & Business Management	531	693	432	0	1656	472	640	480	0	1592	3248
B.Tech. (Ag. Engg.), GKVK	450	666	512	0	1628	592	740	588	162	2082	3710
B.Tech. (Food Tech.), Hassan	536	549	522	62	1669	620	610	610	0	1840	3509
B.Tech. (Biotechnology), Hassan	594	570	540	0	1704	432	570	550	0	1552	3256
Total	**8204**	**8421**	**6497**	**62**	**23238**	**8209**	**9090**	**8216**	**162**	**25677**	**48915**

Table 10 : No. of grades announced for supplementary courses during academic year 2019-20

Degree programme	I SEMESTER					II SEMESTER					Grand total
	I year	II year	III year	IV year	Total	I year	II year	III year	IV year	Total	
B.Sc. (Hons.) Agri., GKVK	54	85	17	12	168	52	34	17	0	103	0
B.Sc. (Hons.) Agri., Hassan	40	26	7	10	83	23	8	6	0	37	0
B.Sc. (Hons) Agri., Mandya	42	21	3	2	68	61	14	1	0	76	0
B.Sc. (Hons.) Agri., Chintamani	16	13	1	1	31	44	0	0	0	44	0
B.Sc. (Hons.) Agri., Chamarajnagar	0	3	0	0	3	1	0	0	0	1	0
B.Sc. (Hons.) Seri., Chintamani	12	26	4	5	47	11	18	9	0	38	0
B.Sc. (Hons.) Ag.Markt. & Business Management	8	21	3	0	32	2	2	0	0	4	0
B.Tech. (Ag. Engg.), GKVK	19	22	4	4	49	31	2	7	2	42	0
B.Tech. (Food Tech.), Hassan	15	4	12	0	31	21	5	0	0	26	0
B.Tech. (Biotechnology), Hassan	14	17	5	0	36	12	6	1	0	19	0
Total	**220**	**238**	**56**	**34**	**548**	**258**	**89**	**41**	**2**	**390**	**0**

The UEC has announced a total of 938 grades for supplementary courses in all the six undergraduate degree programmes in the University during I and II semester of academic year 2019-20.

2.5.3 Significant Activities

- The University Examination Centre conducted offline examinations for the undergraduate students during I semester of 2019-20 and online examinations (using Student 4M app for B.Sc. (Hons.) Agriculture students and Zoom app for non- B.Sc. (Hons.) Agriculture students) during II semester of 2019-20
- Orientation classes were conducted by UEC for UG students on conduct of online exams using Student 4M app and Zoom app. The faculty were also trained by UEC staff regarding the evaluation of answer booklets using Student 4M app
- The UGAM software has been upgraded and automated for Post-graduate programmes
- The National Academic Depository- Digilocker system is introduced to make available the awards and certificates of students in NAD - digilocker portal and prevent fake academic records
- University Examination Centre has coordinated in printing over 950 degree and convocation certificates including certificate of gold medals for both Undergraduate and Post graduate degree programmes for the 54th Convocation of University of Agricultural Sciences, Bangalore
- University Examination Centre was involved in generation and printing of OGP card (with 13 security features), migration certificates and PDCs of all the Undergraduate degree programmes
- University Examination Centre has co-ordinated the process of entering the MOU with HDFC bank for payment gateway for online payment by under graduate students through UGAM software
- University Examination Centre was involved in planning and co ordination of walk in interview for admission to various undergraduate degree programme in UAS-B
- University Examination Centre was involved in admission process of under graduate students including NRIs for undergraduate and Post graduate degree programmes

- Coordinated the collection, compilation, scrutiny, finalization and submission of 'Self Study Reports of Undergraduate programme, Post graduate programmes, Colleges and University' for Accreditation by ICAR, New Delhi
- Booklet on 'IT innovations and Green initiatives 2021' which was released by Dr. Trilochan Mohapatra, Secretary (DARE) & DG (ICAR) on 20-03-2021 was brought out
- University Examination Centre has initiated online classes across all campuses of UASB and co- ordinated the online activities from 7th April 2020 to 31st March 2021
- University Examination Centre has co-ordinated the online evaluation of answer scripts of I, II, III and IV year Undergraduate degree programmes during II semester of 2019-20
- Involved in the collection, compilation, finalization and submission of the report on 107th Indian Science Congress to Government of India, DBT, DST, Government of Karnataka and other various government organisations
- University Examination Centre has co-ordinated the process of entering MOU between UAS-B and HITACHI company regarding the development of software for e-learning/ academic management and e-governance

2.5.4 Revenue Generation

- Around 90,644 used/evaluated answer booklets (weighing about 4527 kg) of worth Rs.31,689/ was disposed off to ITC through Store Purchase Officer, UASB for recycling of paper
- The UEC conducted online examinations during II semester of 2019-20 and saved carbon dioxide emission (CO_2) to the tune of 982 kg or 2160 pounds by reducing the use of 4910 kg of white paper for conduct of exams, postage charges etc.

2.5.5 Visitors to University Examination Centre

- Shri B.C. Patil, Hon'ble Agriculture Minister and Pro-Chancellor of UAS, Bangalore visited Digital Evaluation Hall on 22nd April 2020
- Dr. H.K. Veerana, Professor and Controller of Examinations, UAHS, Shivamogga visited University Examination Centre on 25th February 2021 to know about the Examination reforms brought by UASB
- Dr.P. Sudhakar, Professor and Controller of Examinations ANGRAU, Gunturu, Andra Pradesh visited University Examination Centre to know about the Examination system and UGAM software on 17th March 2021

2.6 Department of Kannada Studies and Communication Centre

Department of Kannada Studies was established at UAS, Bangalore to bringout Scientific and Technical knowledge in regional languages as per the guidelines of Ministry of Human Resource Development, Govt. of India and Commission for Scientific and Technical Terminology (CSTT), Department of Higher Education has been providing financial assistance to carry out the same. The department. has published more than 400 books on Agriculture and allied subjects. The Department of Kannada Studies is vested with the responsibility of editing and publication of books in Kannada pertaining to Agriculture and allied subjects for the benefit of Farmers, Students, Scientists, Extension workers and others. In addition, department undertakes the responsibility of preparing Kannada versions of the University annual reports and convocation material. The Department has started teaching Kannada Subject 2015-16 for 1st year Under Graduate Students for 2 semesters. A separate course for non Kannada Students is also being taught in Kannada usage and communication.

The Department has published following five books in regional language during 2020-21 as indicated below:

(1) ಏಕದಳ, ದ್ವಿದಳ ಮತ್ತು ಮೇವಿನ ಬೆಳೆಗಳ ಉತ್ಪಾದನಾ ತಾಂತ್ರಿಕತೆ–ಪಠ್ಯಪುಸ್ತಕ

(2) ಹಲಸು–ಭವಿಷ್ಯದ ಆರ್ಥಿಕ ಹಣ್ಣಿನ ಬೆಳೆ

(3) ಸಂಘಜೀವಿ ಇರುವೆಗಳು

(4) ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ ಪಠ್ಯ ಪುಸ್ತಕ

(5) ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ ಅಭ್ಯಾಸ ಪುಸ್ತಕ

Kannada Krishi Books Award: The Dept. of Kannada Studies invited Books on Agriculture in Kannada published during the year 2019 throughout the State and the best book was awarded with Kannada Krishi Pustaka Prashasthi. This year 'Mannina Gelathi' written by Smt. Bharathi Hegde was awarded as the Best Book with a cash prize of Rs.10,000 during the 55th Foundation Day of UASB.

Communication Centre

The center is coordinating with the University Administration, Research, Teaching and Extension wings in respect of publications and other printing works. The centre has published four issues of Mysore Journal of Agricultural Sciences (MJAS), four issues of Krishi Vignana (Kannada), 12 issues of UAS Bangalore Newsletter and other publications. The NAAS scoring of the MJAS is 4.64 with effect from January 2021.

2.7 Sports, Games and Co-Curricular Activities for Students

The students of University of Agricultural Sciences, Bangalore participates in various co-curricular activities which include participation in Inter Campus Tournament, Athletic Meet and Youth Festival in addition to participation in Zonal, State and National Level co-curricular activities. However, during 2020-21 not many activities were held due to Covid-19 Pandemic.

Table 11 : Acheivements of UG Students in Sports during 2020-21 at National Level

No.	Name of the Student	Class/ ID No.	Event / Place	Results
1.	Syeda Ifthaquar Banu	I BSc Agri	Represented Karnataka State in the 28th Junior National Fencing Championship and 31st Senior National Fencing Championship held at Uttarakand from 10-03-2021 to 26-03-2021	Partcipation
2.	Srividya R	I Yr B.Tech. (Ag Engg.)		
3.	Siddanna B H	MLB 8057	Participated in Drona Cup (Kabaddi Tournament) held at Hemmigepura, , Kengeri on 28.03.3021	Winners
4.	Karthik K D	ALB 9124		
5.	Powjan Gowda	ALB 9034		
6.	Krishna Biradar	ALB 8025		

2.8 Placement Cell

The University has in place the Placement Cell headed by Coordinator at main campus and also in sub-campuses which facilitates the placement of graduating students in different employing agencies. During 2020-21, as many as 45 organizations approached the University and among which 0 organizations visited GKVK campus and interacted about placement drive (Due to COVID-19). During the year, 36 students were recruited by different private companies through Placement Cell as given in the table

ಕೋಷ್ಟಕ 12: 2020–21ನೇ ವರ್ಷದಲ್ಲಿ ವಿವಿಧ ಏಜೆನ್ಸೀಸ್/ಸಂಸ್ಥೆಗಳಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳ ಉದ್ಯೋಗ ಸ್ಥಾನೀಕರಣ ವಿವರ
Table 12 : Details of Agencies/Organisations where student got placement during the year 2020-21

ವರ್ಷ Year	ಅವಕಾಶ ಸಿಕ್ಕಿದ ವಿದ್ಯಾರ್ಥಿಗಳು / Number of students placed			
	ಸಾರ್ವಜನಿಕ ವಲಯ Public sector	ಖಾಸಗಿ ವಲಯ Private sector	ಬ್ಯಾಂಕಿಂಗ್ Banking	ಒಟ್ಟು Total
2020-21	18	11	06	36

2.9 National Service Scheme (NSS)

The University has adopted the National Service Scheme. At the University level, there is a Coordinator and at each college there are Assistant Coordinators to organise the defined and identified mandated programmes, to nurture the patriotism and to inculcate service moto among the students. Following are the important achievements / activities under NSS including all the constituent colleges of the University.

- 'Fit India Freedom Run-2020' programme was organized by NSS Unit, College of Agriculture, UAS, GKVK, Bengaluru on 03.09.2020 to encourage fitness and help people to get freedom from obesity, laziness, stress, anxiety, diseases etc. The concept behind this run was that 'It can be run anywhere, anytime'. You can. Results of 'Fit India Freedom Run' programme are given below

ಪುರುಷರು / Men		ಮಹಿಳೆಯರು / Women	
ಹೆಸರು / Name	ಬಹುಮಾನ / Prize	ಹೆಸರು / Name	ಬಹುಮಾನ / Prize
ಶ್ರೀ ಸುಬ್ರಮಣ್ಯ ಎಸ್ ಶೆಟ್ಟಿ Mr.Subramanya.S.Shetty	I	ಶ್ರೀಮತಿ ಸುಪ್ರಭ ಭಟ್ Mrs. Suprabha Bhat	I
ಶ್ರೀ ಶಂಬು ಗೌಡ, ಆರ್. Mr.Shambu.Gowda.R	II	ಕುಮಾರಿ ಶ್ರೀತಂ ಕೊಂಡು Ms. Shritam Kondu	II

- The NSS Unit of College of Agriculture, UAS, Bangalore has organised Vigilance Programme on Anti-Corruption week on 28th October 2020 under the heading "Satark Bharat, Samriddh Bharat" at Dean (PGS) Conference Hall.

2.10 Indian Youth Red Cross Society

- Youth Red Cross Unit, UAS, GKVK in association with Pushpaganga Academy, Bengaluru organized two days personality development programme on 'Getting Ready for Future' at Conference Hall, Department of Biotechnology, UAS, GKVK between 9-10th February 2021.
- Youth Red Cross Unit, UAS, GKVK in association with Indian Red Cross Society, Karnataka State branch organized three days State level Youth Red Cross Society Volunteer Training and Motivation Camp-2021 from 13.03.2021 to 15.03.2021.
- Ms. Shwetha, M.N. and Mr. Vinod, N.U., PG students, College of Agriculture participated in 'State Disaster Response Team - Training' organised by Indian Red Cross Society, Dakshina Kannada branch, Mangaluru in association with Center of Excellence at National Institute of Technology, Suratkal on 19th March 2021 to 21st March 2021.

2.11 Medical Services Provided

The University of Agricultural Science provides medical service to all the students and the employees, in all its constituent college campuses. The UAS Dispensary at GKVK campus provides outpatient medical consultation and prescription to all the bonafied students and employees of the University. During 2020-21, consultation was rendered to a total of 9,472 patients at Bengaluru. Besides, 927 samples laboratory (Diagnose) - Biochemistry, Haematology, Serology Urine & ECG tests and analysis were conducted based on requirement and results were provided to the concerned along with medical prescription. At satellite college campuses 'Visiting Doctors' service was arranged.

Besides, all the students admitted to the University including Foreign Nationals were covered under compulsory Group Health Insurance Scheme to meet the emergent medical expenses.

2.11.1 COVID-19 Services

Medical services continued even during the lock down period as part of essential service. Awareness on Covid-19 was given to all the patients who visited UAS Dispensary. Educative posters related to prevention of spread of corona issued by the WHO, GoI/GoK to the public were displayed at hostels, North block, South block, Naik Bhavan, ZARS, GKVK, Canara Bank, Canteens, MRS, Hebbal and other Departments of GKVK campus. Educative video´s and guidelines of disinfection measures related to Covid -19 were shared through mail and WhatsApp groups of employees and students. Necessary PPE´s were used by the hospital staff. Chemoprophylaxis was initiated to the hospital staff as per the guidelines. Covid suspect were subjected for covid 19 testing, positive cases and primary contacts were taken care as per the guidelines, laid down by the Ministry of health & family welfare department, India & Karnataka. In association with BBMP, regular covid testing is done to the students & staff in the campus. Reviewing the RTPCR results of the students before allowing them into the campus.

2.12 International Centre

International Centre (IC) has established at the Directorate of Student Welfare, GKVK, Bengaluru. Dr. M.K. Prasanna Kumar, Associate Professor, Dept. of Plant Pathology and Dr. B. Shivanna, Asst. Professor, Dept. of Agril. Entomology, CoA, GKVK, Bengaluru are serving as Coordinator and Assistant Coordinator of IC, respectively.

The International Center planned webinars, trainings, and workshops. The stand-alone seminar series included Dr. Carlose Iglesias, Professor of Horticultural Science and Director of the Plant Breeding Consortium at North Carolina State University. Dr. Adam Spark, University of Southern Queensland and experts from ICRISAT namely Dr. Anthony Whitbread (Research Program Director – Innovation Systems for the Drylands) and Dr. Andrew Smith [Theme Head (SACSA), RP-ISD, ICRISAT, India] conved an online expert workshop on 'Agricultural Pest and Disease Simulation Modelling in a Climate Change Scenario' as part of the NGT-CAAST programme. On Nov. 6, 2020, IC participated in exploring the funding options available from the Australian Government for the planned study in field of recycled water irrigation. Postgraduate opportunities werw advertised by IC, including an integrated Ph.D. programme between UAS-B and Western Sydney University as well as a Master's programme from Poland. UAS-B in conjunction with Western Sydney University in Australia has lanched three online certificate courses in scientific writing, bioinformatics and predictive analytics.

2.13 Library Resources and Information system

University Library was established during 1966-67 which is the oldest and biggest University library in the field of agricultural sciences in Karnataka. Library has nearly 2 lakh documents including Books, Journals, University

publications, Government publications, Rare books, Thesis/dissertations, Reports, Pamphlets, Maps, Microfilms, Microfiche, CD ROM's/DVD's etc. Library provides seamless access to e- resources of world leading online journals databases through EZproxy. University Library is a member of Online Computer Library Centre (OCLC). University library has created sophisticated video library cum virtual classroom to provide unique and dynamic real time online multimedia service to the user fraternity. The library is completely automated with Koha Open Source Software package and integrated with RFID Technology.

Library has developed the database of Books, Journals, Thesis, Reports and other sources of Information under the Koha open software. Users can access the OPAC through Internet. University Library has subscribed several Online Journals, Offline Databases, e-books and e-Journals. The Library is also offering PGS 501 (0+1) non-credit compulsory course on 'Library and Information Service' for Master's Degree Students as per the mandatory of ICAR. Koha which has comparatively more advantages compared to other LMS has been used for automation. The University Library has implemented and adopted recent technologies such as Institutional repository (DSpace), Vidwan faculty profile and also library is in the process of linking Koha with all constituent colleges. DSpace is an open source repository application that allows library to capture, store, index, preserve and distribute the digital material including text, video, audio and data. IRINS-Indian Research Information Network System is web based Research Information Management (RIM) service developed by the Information and Library network (INFLIBNET) Centre. The portal facilitate the academic, R&D organizations and faculty members, scientists to collect, curate and showcase the scholarly communication activities and provide an opportunity to create the scholarly network. Koha is the Library automation software, used in library. Koha has the modules with fully-functional library software-acquisition, serials, members, circulation, cataloguing, reports, and tools. RFID library management, using RFID tags library, is easy and convenient. A RFID library management system consists of books, each attached with an RFID tag, RFID reader, computer network and software. Ezproxy is a web proxy server used by libraries to give access from outside the library's computer network to restricted-access websites that authenticate users by IP address, all their new technologies to keep pace with the growing information needs of the users community to provide better information services. University Library is reaching 24/7 all over the Globe through its website *www.uasbagrilibindia.org*. / https://www.uasbangalore.edu.in/index.php/library-en

Library will function between 8.30 to 12.00 Midnight from Monday to Friday from 8:30 a.m. to 6:00 p.m. on Saturday and from 9.00 a.m. to 1.00 p.m. on Sundays.

2.13.1 Library Sub-Committee

The Library Sub-Committee meets on the need based issues under the Chairmanship of Dean (Post Graduate Studies) at GKVK and Dean's at other constituent colleges,Library Sub-Committee reviews and recommends for procurement of new books and subscription of new Journals.

2.13.2 Acquisition of Books and Periodicals

Books : During the year 2020-21, a total Book's of 4126 titles were procured using funds made available by the State Government and ICAR grants. These titles include current titles, serials like; annual reviews and advances. The following Tables provide the details of books and other collections added to the Library.

Table 13 : Details of new additions to UAS-B Libraries during the year 2020-21

Sl. No	Particulars	GKVK Campus	CoA Hassan	CoA, Mandya	CoS, Chintamani	CoA, Chamarajanagar	Total
1.	Purchase (Books)	3920	883	859	621	782	7065
2.	Gift Books	1311	04	43	51	174	1583
3.	Pamphlets	117	12	98	20	-	247
4.	Thesis/Dissertations	306	0	21	01	-	328
5.	Reports	150	06	09	-	-	165
6.	Bound Volumes of Periodicals	1040	0	-	-	-	1040
7.	e-Books/CDs	89	06	-	14	-	109
8.	e-Journals	-	0	-	-	-	-
	Total	**6933**	**911**	**1030**	**707**	**956**	**10537**

Table 14: Details of books and other periodicals in the University libraries as on 31st March, 2021

Sl. No.	Particulars	GKVK Library	CoA, Hassan Library	CoA, Mandya Library	CoS, Chintamani Library	CoA, Chamarajanagara Library	Total
1	Books (including Back Volumes)	130485	20687	19555	12707	1582	185831
2	Pamphlets	8753	164	98	1291	-	10306
3	Gift Books	13552	816	990	1918	870	18145
4	Thesis / Dissertations	12456	0	262	68	-	12786
5	Reports	17180	152	724	241	-	18297
6	Microfilms	04	0	-	-	-	04
7	Microfiche	53	0	-	-	-	53
8	Maps	60	157	10	-	-	227
9	CD ROM's/DVD's/CDs	371	227	314	167	-	1079
10	e-Books	253	29	18	20	-	320
11	e-Journals	18	-	-	-	-	18
	Total	**183185**	**22232**	**21971**	**16412**	**2452**	**247066**

Periodicals

UAS-B Libraries has received Journals on subscription, gift and exchange basis during the Year 2020-21 as detailed below:

Table 15 : Details of other periodicals in the university libraries

Sl. No.	Particulars	GKVK Library	CoA, Mandya Library	CoS, Chintamani Library	Total
1.	Subscription of Foreign Journals	03	-		03
2.	Subscription of Indian Journals	10	-	16	26
3.	Journals received on Gift	23	03	05	31
4.	Journals received on Exchange	14	-	-	14
5.	Print and Online Journals	-	-	-	-
6.	e-Journals	-	-	-	-
	Total	**50**	**03**	**21**	**74**

*Most of the Indian Journals are available on CeRA on free of cost

2.13.3 Library e-Resources

Table 16 : Details of e–Resourcess in the libraries

Sl. No.	Particulars	GKVK Library	CoA, Hassan Library	CoA, Mandya Library	CoS, Chintamani Library	CoA, Chamarajanagara Library
1.	Indiastat.com (on-Line Journal)	01	Linked with Cera	Linked with Cera	Linked with Cera	Linked with Cera
2.	CRC NET, e-Books	2010-2019	Accessing through University/ Library Website	Accessing through University/ Library Website	Accessing through University/ Library Website	Accessing through University/ Library Website
3.	e-Books (John Wiley)	22 Titles 2012	-do-	-do-	-do-	-do-
4.	e-Books (Indian Edition)	211 titles	-do-	-do-	20 titles (2018)	-do-
5.	Directory of Open Access Journals (DOAJ)	Open Source	Open Source	Open Source	Open Source	Open Source
6.	Emerald Management Journals	2009-2014	Accessing through University / Library Website			
7.	Offline databases (CD ROM's/DVD)	4 CD		314	167	
8.	e-books Taylor & Francis	49 titles 2010				
9.	AGRIS	from 1975-80 to 1999-2001				
10.	Britannica Encyclopaedia	6 CD				
11.	CAB CD	1994-2009				
12.	CIARL-BRS	1962-86				
13.	HORT CD	1973-2004				
14.	VET CD	1973-2004				
15.	Mapsofindia.com CD	2001				
16.	Agriculture & Environmental Education CD	1978-2006				
17.	Biological Abstracts on DVD	2008-2013				
18.	Agriculture & Animal Husbandary DVD Format	1-81				
19.	Biotechnology Abstracts CD-ROM	2008-2011				
20.	CAB e-BOOK (On-line)	2009-2017				
21.	Food Science and technology Abstracts (FSTA)	2008-2014				

2.13.14 : Library e-Resources of ICAR

Table 17 : Details of ICAR e-Resources available in the UAS-B Libraries

Sl. No	Particulars	GKVK Campus	CoA Hassan	CoA, Mandya	CoS, Chintamani	CoA, Chamarajanagar
1.	CeRA and J-Gate Plus online journals • Full Text- • Library Subscription • Open Access	4,000+	Linked with Cera	Linked with Cera	Linked with Cera	Linked with Cera
2.	Elsevier e-Books from CeRA	1174	Accessing through University/ Library Website	Accessing through University/ Library Website	Accessing through University/ Library Website	Accessing through University/ Library Website

2.13.5 Circulation : Activities related to circulation in depicted in the following tables

Table 18 : Status of Membership (Students & Staff) during 2020-21

Sl. No.	Particulars	GKVK Library	CoA, Hassan Library	CoA, Mandya Library	CoS, Chintamani Library	CoA, Chamarajanagara Library	Total
1.	B.Sc. (Hons.) Agriculture	1091	406	414	356	32	2299
2.	B.Sc.(Hons.) Agril. Marketing & Business Mangement	230	-	-	-	-	230
3.	B.Tech. (Agri.Enginering)	284		-	-	-	284
4.	B.Tech. (Biotechnology)	Nil	245	-	-	-	245
5.	B.Tech. (Food Technology)	Nil	257	-	-	-	257
6.	B.Sc.(Hons.) Sericulture	Nil	-		122	-	122
7.	M.Sc., MBA, M.Tech. (Agri. Engg.)	608	-	55	-	-	663
8.	Ph.D.	342	-	-	-	-	342
9.	Diploma in Agriculture	Nil	-	99	8	-	107
10.	Staff (Teaching & Non-Teaching)	951	52	72	44	2	1121
	Total	**3506**	**960**	**640**	**530**	**34**	**5670**

Table 19 : Usage of the Libraries of UAS, Bangalore

Sl. No.	Particulars	GKVK Library	CoA, Hassan Library	CoA, Mandya Library	CoS, Chintamani Library	CoA, Chamarajanagara Library	Total
1.	Books Consulted	15605	9818	16340	3950	274	45987
2.	Reports Consulted	3972	438	-	59	-	4469
3.	Theses Consulted	4937	-	217	73	-	5227
4.	Other Publications Consulted	1843	250	-	417	-	2510
5.	Books Issued	(Staff) 518 (Student) 2147 Total 2665	556 2055 2611	137 1281 1418	- 2367	- 84	9145
6.	Inter-Library Loan						
	a) Lent In	10	-	-	-	-	10
	b) Lent Out	10	-	-	-	-	10
7.	Introductory Letters	19	-	-	-	-	19
8.	Visits	58777	8112	-	6120	-	73009
9.	Consultations Permitted	25		-	-	-	25
10.	Collections made (in Rs.)						
	a) Overdue Charges	16768.00	4856.00	4313.00	5198.00	182.00	31317.00
	b) Book Lost Cost Recovered	3102.00	450.00	-	-	-	3552.00
	c) Outsiders Consultation Charges	2650.00	-	-	-	-	2650.00
	d) I.D. Cards	57430.00	4000.00		-	-	61430.00
	e) Text Book Bank Fee	-	-	820.00	-	-	820.00
	Total	**79950.00**	**9306.00**	**5133.00**	**5198.00**	**182.00**	**99769.00**

Table 20 : Text Book Bank under general fund - Details of Text Book Bank at University Library

Sl. No.	Particulars	GKVK Library	CoA, Mandya Library	Total
1.	Total Collections	805	986	1791
2.	No. of Members	-	469	469
3.	Books Issued	-	164	164
4.	Amount Collected (Rs.)	-	820.00	820.00

Table 21 : Details of Book Bank under SC/ST fund

Sl. No.	Particulars	GKVK Library	CoA, Hassan Library	CoA, Mandya Library	CoS, Chintamani Library	Total
1.	Total Collections	3017	1406	1122	654	6199
2.	No. of Members (UG 77, PG 73, Ph.D. 59)	209	179	64	21	473
3.	Books Issued	40	16	16	13	85

2.13.6 Documentation and Reprographic Services

Catalogue of theses of UAS-B has been up-dated for the year 2020-21 and added to the Library software KOHA. Following Table gives the details of Reprographic, CD-Rom and Internet services provided to the users during the year 2020-21.

Table 22 : Computer/Reprographic Services and Number of Users

Sl. No.	Particulars	GKVK Library	CoA, Hassan Library	CoA, Mandya Library	CoS, Chintamani Library	CoA, Chamarajanagar Library	Total
1.	Users of CD-ROM Databases (CA, Biological Abstract, FSTA, Biotechnology Abstracts	771	90	21	-	-	882
2.	References downloaded from Databases	02	-	-	-	-	02
3.	CERA						
	a) Request Received	-	-	12	-	-	12
	b) Request sent	-	-	-	-	-	-
4.	Krishiprabha						
	a) No. of Theses sent on e-Mail	Nil	-	12	-	-	12
	b) No. of Ph.D. Theses sent on CD/DVD format	Nil	-	-	-	-	-
5.	Reprographic Services						
	a) Xerox	455	-	-	517	1361	2333
	ಒಟ್ಟು / Total	**1228**	**90**	**45**	**517**	**1361**	**3241**

Table 23 : Overall Resources at GKVK and Constituent College Libraries of the University of Agricultural Sciences, Bangalore

Sl. No.	Particulars	GKVK Library	CoA, Hassan Library	CoA, Mandya Library	CoS, Chintamani Library	CoA, Chamarajanagar Library	Total
1.	Total Collections	183185	23046	21971	16412	2452	247066
2.	Total Membership	3506	960	640	530	128	5764

2.14 Skill Development Centre

The University has established Skill Development Center (SDC) under ICAR SC-SP at UAS GKVK, Bengaluru for the academic year 2019-20. Construction of Skill Development Centre with boarding & lodging facilities for 30-50 beneficiaries is undertaken. The Skill Development Centre, has organized the following programmes under ICAR, SC-SP and TSP.

2.14.1 Human Resource Development Programmes

- Capacity Building Programme for Horticultural Nursery Management
- Skill development training programme on maintenance and servicing of tractor and Agricultural Machinery for SC Farmers and Rural youths to become successful entrepreneurs
- Training on immune boosting foods for the Scheduled Caste (SC) youth in the Southern parts of Karnataka state
- Seed quality awareness and Popularization of High Yielding Variety Seeds (HYV) to enhance the yield and sustainability
- Phala Sampada -Establishment of Fruit Orchard in SC farmers Field for food and nutritional security and income generation
- Adoption of UAS seri suvarna technology (trenching and mulching) for sericulture in SC clusters of Karnataka

2.14.2 Entrepreneurship Development Programme

- Empowerment of Schedule caste farmers through scientific beekeeping approaches in selected taluka-districts under UAS, Bangalore jurisdiction in Karnataka
- Utilization of pierced cocoons from grainages converted into biocrafts as an additional income
- Mushroom cultivation, processing & marketing for the Scheduled Caste (SC)
- Entrepreneurship development, Training and Capacity Building of under privileged people of Southern Karnataka through Post-harvest technology interventions
- Entrepreneurship development programme on Poultry Farming, Goat sheep rearing and Dairy production management
- Training on Sewing & embroidery work for the Scheduled Caste (SC) youth in the Southern parts of Karnataka state
- Economic Empowerment of Scheduled Caste through Bakery and Value Addition Industry

2.15 Central Instrumetation Facility

The Central Instrumentation Facility (CIF) under the aegis of the Centre for Advanced Agricultural Sciences and Technology (CAAST) programme of the National Agricultural Higher Education Project (NAHEP) of ICAR was inaugurated by Dr. Trilochan Mohapatra, Director General, ICAR and Secretary (DARE) GoI on 20th March 2021. CIF would contribute for pursuing research in areas of modern science and technology and development of quality human resource, thus help UAS-B to keep pace internationally.

Chapter III

3. Agricultural Research and Development

The COVID-19 pandemic has redefined the food habits and now is the situation to adapt to long term measures for promoting healthier diets, encouraging farmers to produce a wider range of food and strengthen collaboration among the public health, food, and agriculture sectors. Agricultural research plays a pivotal role in transforming food systems for affordable healthy diets.

In this context, the University has redesigned its research programmes on top priority basis that has lead to identifying nutrition rich crops like small millets and pseudocereals and grain amaranth for farm trials during the year 2020-21, that can be reintroduced into diets. These crops not only promote nutritional requirement but also enhance crop diversity. Further, efficient and ecofriendly crop production technologies were also developed by the University.

The University also coordinates location specific, strategic and anticipatory research programmes in 13 Agricultural Research Stations situated in 10 southern districts of the state, mainly to address the issues of small and marginal famers including farm women to improve their standard of living while ensuring food security by improving productivity and enhancing agricultural resource use efficiency with no adverse effects.

3.1 Agricultural Research Stations and Agro-Climatic Zones

Location, specific and farmer centric Research Programmes have been formulated by the Scientists working in 13 Agricultural Research Stations located in 10 Southern Districts of the State under the jurisdiction of UAS-B. The details are outlined below:

Zone – 4

Agricultural Research Station, Pavagada

Zone – 5

Zonal Agricultural Research Station, GKVK

Main Research Station, Hebbal

Agricultural Research Station, Chintamani

Agricultural Research Station, Balajigapade

Agricultural Research Station, Nelamakanahalli

Zone – 6

Zonal Agricultural Research Station, Mandya

Agricultural Research Station, Naganahalli

Agricultural Research Station, Madenur

Agricultural Research Station, Kunigal

Agricultural Research Station, Arasikere

Agricultural Research Station, Tiptur

Zone – 7

Agricultural Research Station, Gunjevu

3.2 Projects in Operation (As on 31-03-2021)

In total, 280 research projects are in operation of which 31 are All India Coordinated Research Projects, 14-RKVY projects, 8 Emeritus Scientists, 8 ICAR *Ad-hoc* projects, 66 Government of India Projects (DST/DBT), 39 Government of Karnataka Projects; 38 projects funded by other agencies and 76 UAS Sponsored Research projects (47 Projects on Varietal Development and Value addition, 14 Farmer Centric and 15 Climate Smart Agriculture) sponsored by the University to address the problems of the farmers in the State in general and 10 districts in particular.

New Research Projects

A total of 59 new research projects (RKVY:5 Emeritus Scientists:4, ICAR *Ad-hoc* project:1, Government of India:9, Government of Karnataka:7 and Other funding agencies:3) have been sanctioned. Thirty UAS Sponsored Research Projects (16 projects on Varietal Development and Value addition, 7 projects on Farmer Centric Demand driven and 7 projects on Climate Smart Agriculture) have been sanctioned to the University during 2020-21 by various funding agencies with a total outlay of Rs. 2642 Lakhs.

Table 24 : Abstract of projects sanctioned during 2020-21

Sl. No	Particulars	Project No.	Amount (lakhs)
1.	RKVY Projects	5	489.03
2.	Emeritua Scientists	4	96.00
3.	ICAR *Ad-hoc* Projects	1	51.57
4.	Government of India (DST / DBT)	9	1002.72
5.	Government of Karnataka	7	681.76
6.	Other Funding Agencies	3	232.88
7.	UAS Sponsored: Varietal Development	16	47.60
8.	UAS Sponsored: Climate Smart Agriculture	7	25.00
9.	UAS Sponsored: Farmer Centric	7	15.00
	Total	**59**	**2641.09**

3.3 MoUs Signed with other Institutions

A total of 13 MoUs / MoAs / MTA were signed with different institutions for conducting collaborative research of mutual interest.

3.4 New Chemicals/ Varieties/ Molecules Tested

The University has undertaken the testing of 348 new varieties /lines/ chemicals/molecules for control of pests /diseases / weeds / soil analysis and agricultural equipment and generated revenue of Rs. 436 lakhs.

3.5 Break through Research

3.5.1 Validation and field evaluation of biosensor for early detection of Papaya Ring Spot Virus (PRSV) infecting Papaya: A low cost ecofriendly strip for early detection of a plant virus which is being moved towards a provisional patent. This newly developed basal stratum was used for the field level early detection of the plant virus as an alternative to commercially available nitrocellulose membranes. The results were on par with the routinely used diagnostic strips wherein the viral presence was detected in different field collected samples across Karnataka.

3.5.2 Development of a molecular Polymerase Chain Reaction (PCR) and lateral flow immuno strips for the early and rapid detection of Cucumber Mosaic Virus (CMV): An electrochemical device has been developed for the detection of a plant virus which is being moved towards a provisional patent. This developed device is very effective in the early detection of plant virus in the lab and field as well. We were able to obtain broad spectrum detection of the plant virus collected from filed samples across different states in South India.

3.5.3 Slag based gypsum (SBG) and its utilization in agriculture: Slag-based gypsum (SBG) is first kind of gypsum produced from steel industry slag by acid treatment which is also a rich source of calcium, magnesium, sulphur in addition to silicon and other micronutrients. Having limited sulphur resources in India and other countries, sulphur fertilizers would become more and more expensive in the future. Field trials on application of 300-750 kg SBG per hectare significantly increased the yield of different crops (paddy, maize and groundnut) as compared commercially available gypsum in different soils. The properties of the SBG make it act as a soil conditioner besides increasing the nutrient uptake and nutrient use efficiency. The results of these field experiments are compiled and filed in the form of a patent "A Soil Conditioner an Applications Related Thereto" (Indian Complete Patent Application No. 202131002666) jointly with the scientists of Tata Steel Limited, Jamshedpur.

3.5.4 Solid state cooling module for raw milk cooling: Proper cleaning and rapid cooling at 4°C or less temperature is essential to avoid spoilage of milk. The present refrigeration system provides more cooling effect by using refrigerants but is has some disadvantages like emission of GHC's. Considering these demerits of conventional refrigerator system, the solid state refrigerator was designed and developed. The module developed iscompact, reliable, noiseless, flexible, eco-friendly and economical (B:C ratio of 1.18:1).

3.5.5 Design and Development of Battery Operated Cocoon Harvester for Silkworm Mountages (Bamboo Mountages): Manual harvesting of cocoons from chandrike is labour-intensive and also a time-consuming process. To overcome this, the battery-operated cocoon harvester was developed to suit for one-man operation. Harvesting of cocoons from bamboo mountage takes around 30-35 minutes by manually, in case of developed battery operated cocoon harvester takes only 6 - 7 minutes to harvest one bamboo mountage. The cost of operation of battery operated cocoon harvester was very less as compared to manual harvesting. The machine is also used for cleaning of bamboo mountage. The cost of cocoon harvester is approximately Rs.9,000/ - (Nine thousand rupees only).

3.6 New Technologies Developed and Released

3.6.1 Crop Varieties recommended for release:

Ten varieties have been recommended for release during 2020-21. The details of the same are given below.

a) **Paddy: KMP 220 :** This is a medium duration variety that can be harvested in 125 to 130 days after sowing. This variety can be sown during July 1st to 2nd week and transplanted within 1st week of August in Southern Dry Zone of Karnataka (Zone-6). The grains of this variety are long bold with red kernel and are highly similar to the grains of Jyothi rice variety. Compared to Jyothi rice variety, KMP-220 is moderately tolerant to blast disease and is taller than Jyothi variety. It also gives higher straw and grain yield. Hence, KMP-220 can be grown instead of blast suceptible Jyothi variety. The grain yield potential of this variety is 24-26 q/acre.

b) **Paddy: MSN 99 (IET 283490) :** It is an early duration (115-120 days) variety suitable for sowing in kharif (June-July), late kahrif (August – September) and Summer(January) seasons in irrigated areas of Southern Dry Zone (Zone-6) of Karnataka. A medium tall (100-110 cm) variety with strong culm and erect growing habit, favouring close planting with 50-60 hills/ sq.mt. It has medium slender grains with good cooking properties. With need based control measure against pests and diseases, especially neck blast, one can expect 60-65 quintals of grains and 70-75 quintals of straw yield per hectare.

Table 25 : Varieties / hybrids recommended for release during 2020-21

Crops	No.	Variety/Hybrid	Zone Recommended
Paddy	1	KMP 220	Zone 6
Paddy	1	MSN-99	Zone 6
Ragi	1	KMR-316	Zone 5 and 6
Foxtail Millet	1	GPUF-3	Zone 5 and 6
Little Millet	1	GPUL-6	Zone 5 and 6
Proso Millet	1	GPUP-28	Zone 5 and 6
Grain Amaranth	1	KBGA-15	Zone 5 and 6
Sugarcane	1	COVC-18061	Zone 6
Fodder Oats	1	RO-11-1	Zone 5 and 6
Jack Fruit	1	Byrachandra	Zone 5

c) **Ragi: KMR 316 :** Short duration variety that can be harvested in 100 to 105 days after sowing and can be cultivated during *kharif* (June - July) and late *kharif* (August-September) seasons. Ear heads of this variety are green in color with longtip incurved fingers. This variety is suitable for cultivation in both irrigated and rainfed condition and is also resistant to blast and foot rot diseases. The grain yield potential of this variety is 20-22 and 12-14 q/acre under irrigated and rainfed situations, respectively.

d) **Foxtail millet: GPUF 3 :** It is a medium duration variety matures in 85 to 90 days. It has semi compact and oblong shaped inflorescence with oval shaped yellow colored seeds. It is moderately resistant to rust and leaf blight diseases. The variety is suitable for sowing in both Kharif(June-July) and summer (January). It yields 15-20 q/ha under protective irrigation. The variety is recommended for cultivation in both zones 5 & 6.

e) **Little millet: GPUL 6 :** This variety has compact panicle with archid shaped inflorescence. Grain is oval shaped with dark brown colour. It is medium duration and matures in 85-90 days. The variety is suitable for sowing in both Kharif(June-July) and summer(January). This variety is moderately resistant to leaf blight and brown spot diseases. It yields 15-20 q/ha under protective irrigation. It is recommended for cultivation in both zones 5 & 6.

f) **Proso Millet: GPUP 28** : This variety has intermediate compact with globose elliptic shaped inflorescence. Grain is oval shaped with golden yellow colour possesses higher test weight. This variety is moderately resistant to leaf blight and resistant to brown spot diseases. The proposed variety is medium duration and matures in 80-85 days. The variety is suitable for sowing in both Kharif(June-July) and summer(January). It yields 17-20 q/ha under protective irrigation. It is recommended for cultivation in both zones 5 & 6.

g) **Grain Amaranth: KBGA 15 :** It is a high yielding variety that yields 16-18 q/ha under rainfed condition and 22-24 q/ha under protective irrigation. It matures in 90-95 days with good plant height(170-180 cm) and pink mixed green coloured attractive inflorescence. The variety is tolerant to leaf rust, phyllody, leaf spot diseases and insect pests. It is recommended for cultivation in both zones 5 & 6.

h) **Sugarcane: CoVC 18061 :** It is developed from the cross between Co86032 and Co86011 and recommended for commercial cultivation in zone 6 of Southern Karnataka. It is very sparse and late flowering variety and recommended for all the planting seasons of Sugarcane. It is ideal variety for January-

February planting season. It is midlate maturing (12-13 months) with high cane yield (70-80 t/acre) and better quality. It has high tillering potential and suitable for wide row planting. It is a medium thick cane, colour of the cane is greenish yellow and leaf canopy is lush green and semi erect. It has self detrashing habit and possesses good jaggery recovery and also exhibits good ratooning.

i) **Fodder Oats: RO-11-1:** Forage Oats is an important Rabi cereal crop and RO-11-1 is a new variety in forage oats developed at AICRP FCU Rahuri centre Maharastra. It is having superior green forage yield(12-16 t / ac) and high crude protein yield(3-3.5 q/ha) it is a tall variety(110-120 cm) with long(48.50 cm) and broad leaves(2.1-2.6 cm) with high leaf stem ratio(0.55) and hence improved quality and digestibility attributes. RO-11-1 is moderately tolerant to leaf blight, root rot and less susceptible to aphids. The compact seeds have lesser thousand grain weight(42.6 g) and the seed rate of 80 kg/ha is sufficient to obtain better yield.

j) **Jack fruit: Byrachandra :** Early bearing (3.5 years from planting), oblong shaped fruits with green rind and orange colour flakes, Flake to fruit ratio is good (0.55), with 650-700 g flake wt./kg fruit, each flake weighs 25 to 35g, Rind is thin (< 1 cm) weighing 300-350g/kg fruit wt., TSS ranges from 30-33^{o} Brix., Seeds are small, some are rudimentary, the 20 seed weight is around 110-130g.. Fruits are borne on trunk and primary branches, big sized fruits (>10kg /fruit), medium size flakes, highly preferred for table purpose and processing into squash, twice bearing type with an average yield of 120 to 150 fruits /tree /year (60-75 fruits/season/tree after 10 years of planting), suitable for commercial and kitchen gardens. Dual purpose variety table and vegetable purpose and Fruit quality is excellent with less gum in ripend fruits.

3.6.2 New Technologies Developed for Inclusion in Package of Practices

3.6.2.1 Crop Improvement (5)

Plant Biotechnology (1)

a) **Application of minimally aerated Compost tea (Compost Kashaya) for increased yield in groundnut crop:** The application of minimally aerated compost tea (compost Kashaya) has been developed as an integrated technology for increasing pod yield(25-30%) in groundnut. Aerated compost tea is prepared by continuously aerating the compost water suspension using an aerator for a period of four days. However, we have developed a simpler method of preparing compost tea. In this modified method, the suspension of compost and water is mixed once a day using a stick, resulting in minimal aeration during the preparation. Application of minimally aerated Compost tea improves the plant biomass, chlorophyll content and induces defense priming in plants. The application of compost tea enhances the pods per plant, 100 seed weight and the shelling percent in groundnut crop. The technology is farmer friendly, economical (B/C ratio of 1: 13) and eco friendly and reduces the application of fungicide by 50 per cent.

Seed Science and technology (4)

a) Rice hybrid KRH-4 and varieties *viz.,* Gangavathi sona, Thanu, MAS-26 and MAS- 946-1 are also suitable for cultivation under direct seeded rice (DSR) method.

b) Validation of suitable presowing seed treatment to improve plant establishment in dry direct seeded rice method:- Seeds are to be soaked in either $ZnSo_4$ @ 3 % or $CaCl_2$ @ 2 % for 16 hours and shade dried before sowing to get higher field emergence, optimum plant population and higher grain yield.

c) Proso millet seeds primed with 20% liquid *Pseudomonas fluoresces*(adopting 1:1 seed solution ratio) for 6 hrs and dry for 8 hours under shade before sowing.

d) Soybean seeds packed in a super grain bag along with zeolite beads in the ratio of 1 Kg seed to 100g zeolite beads would extend the storability up to 18 months by maintaining all the seed quality parameters.

3.6.2.2 Crop production (8)

Agronomy (3)

a) **Recasting of Chapter-12: Crop production systems in different zones (*Vividha Krishi Valayagalalli Bele Utpaadana Vyavasthe: Zone-4, 5 & 6*)**: Concepts on Rain star wise rainfall quantity, Optimum sowing windows for pre-monsoon season, Crops and agricultural activities for pre monsoon season based on long term rainfall analysis (30 and 50 years) and Agro climatic onset of sowing date were included by modifying the present monthly rainfall details..

b) Suitable planting geometry and intercrops in top feeds for higher green forage yield & quality:

- Cultivation of top feeds like Sesbania, Erythrina and Drum stick with a row spacing of 6 ft. and 1.5 ft. from plant to plant recorded additional green forage(67.1 q/ha), dry matter(16.7 q/ha) and crude protein yield (2.9 q/ha) with additional net returns (Rs.14,000/ha).
- Cultivation of 2 rows B x N hybrid with a row spacing of 3 feet & 2 feet from plant to plant in between rows of top feeds recorded additional green forage yield (429.6 q/ha), dry matter (77.5 q/ha) and crude protein (7.96 q/ha) yield with additional net returns (Rs.52,100/ha).

c) **Chapter on Rice Bean crop is included in the package of practice :** Details on variety, season and soil, land preparation, seeds and sowing methods, manures and fertilizers, thinning of seedlings, inter cultivation and earthing up, weed control, water management, plant protection, yield and low cost technologies are included.

Soil Science &Agril. Chemistry (5)

a) **Subsoil manuring for enhancing crop productivity in rainfed farming regions of southern Karnataka for both sodic and red soil situations**

- Subsoil manuring in dry land sodic soils or dry land red soils having subsoil hardpan to be taken up immediately after 1st showers during May to June with recommended doses of fertilizers and double dose of organic manure (poultry manure or press mud or sheep manure) through sub soil ripper having manuring tank attached to tractor at 1 meter apart and at 45-50 cm depth. After getting good rains during monsoon season, crops can be grown.
- In the similar way next year also in the same field recommended dose of NPK for the crop to be grown along with double dose of organic manure should be applied through subsoil ripper at 1 meter apart between the earlier 1 meter ripper space to a depth of 45-50 depth. Then, after getting good rains in monsoon the crop decided earlier to be grown, so that the soil sodicity or subsoil hardpan will be reduced due to breaking of subsoil hardpan and adding organic manures, thereby water and nutrient holding capacity will be enhanced. Because of this, soil fertility will be improved and can grow good crops in these soils in the coming years.

b) Utilization of slag based gypsum in groundnut cultivation: Application of RDF + 625 kg slag based gypsum(50% at the time of sowing + 50% at 30 days after sowing) recorded higher pod, haulm, oil and protien yield of groundnut. There was increase in pod, haulm, oil and protien yield of groundnut by 11.40, 19.06, 18.96 and 14.38 %, respectively with the application of 625 kg SBG/ha (50 % at sowing + 50 % at 30 DAS) over package of practice (POP: RDF + 500 kg commercial gypsum/ha at 30 DAS). Higher benefit cost ratio (3:1) was noticed in the treatment which received RDF + 625 kg slag based gypsum/ha as 50% at the time of sowing + 50% at 30 DAS when compared with POP (2.70:1) applied treatments.

c) Composting of sericulture wastes using compost culture and waste decomposer: Composting of sericulture waste using compost culture developed by University of Agricultural Sciences, Bengaluru or

waste decomposer developed by National Centre of Organic Farming(NCOF), Ghaziabad results in speed up the decomposition process and obtain high nutrient compost(1.5-1.9 % N, 0.5-0.9 % P, 1.5-2.0 % K) within 80-90 days.

- **Composting using Compost Culture:** One ton of sericulture rearing wastes collected in a constructed pit or compost bag spreading mulberry twigs at the base layer followed by waste from rearing house is then spread over. For each layer of residue spread the part of slurry prepared using 1 kg of compost culture with 3 kgs of cowdung, 2 litres of cow urine and water. All the above steps are repeated in the stated sequence until the pit is filled with1-2 feet above the pit height. Finally, the pit is plastered with mud and cow dung slurry to maintain optimum moisture content inside the heap. To avoid rain, wind, and to maintain the moisture and temperature, the pit should be covered with grass or coconut fronds or polythene sheet. Water is sprayed time to time over the pit to attain 60 -70 % moisture. After 3 - 4 weeks of decomposition, the first turning is done. Compost will be ready by 80 - 90 days.
- **Composting using waste decomposer:** Mix 2 kgs of jaggery and one bottle of waste decomposer containing 10g microbial consortium into 200 litres of water in a plastic drum. Stir the content of the drum with a wooden stick every day twice, cover it and place under shade. On 6th day, sprinkle 40 litres of waste decomposer solution from 200 litres to every layer of one ton sericulture rearing wastes filled in a compost pit or compost bag. From rest of 160 litres of waste decomposer solution, sprinkle 40 litres every day to compost pit within 4 days. Water is sprayed time to time over the pit to attain 60 -70 % moisture. After 3-4 weeks of decomposition, the first turning is done. The compost will be ready by 80-85 days.

d) Effect of multimicronutrients mixture application on growth and yield of aerobic Paddy: Application of soil grade micronutrients mixture (Fe+Mn+Zn+B) @ 5 kg per acre at the time of transplanting and spraying of foliar grade micronutrients mixture (Fe+Mn+Zn+B) @ 1.00 per cent at 20 and 40 days after transplanting recorded higher grain yield of 31.5 q/ acre with B:C ratio of 1.6:1 in aerobic paddy.

e) Effect of multimicronutrients mixture application on growth and yield of irrigated Paddy: Application of soil grade micronutrients mixture (Mn+Zn+B+Mo) @12 kg per acre at the time of transplanting and spraying of foliar grade micronutrients mixture (Mn+Zn+B+Mo) @ 0.20 per cent at 30 and 45 days after transplanting to aerobic paddy enhances grain yield by 8.80 per cent with B:C ratio of 1.80:1.

Crop Protection (10)

Entomology (3)

a) **Management of fall armyworm (*Spodoptera frugiperda*) in maize:** For management of fall armyworm (*Spodoptera frugiperda*) in maize when infestation is noticed, apply spinetoram 11.7 SC @ 0.5ml or emamectin benzoate 5 SG @ 0.4g or chlorantraniliprole 18.5 SC @ 0.4g or thiodicarb 75 W.P. @1g/liter of water to the infested leaf whorl.

Note: Since larvae of fall armyworm feed inside the leaf whorl, spray should be targetted only to leaf whorl.

b) **Pre- harvest management of pulse beetle (*Callosobruchus sp*) in pigeonpea:** Spraying emamectin benzoate 5 SG @ 0.3g/l at pod maturity controls the field infestation of pulse beetle (*Callosobruchus sp).* The seed can be stored upto a month without any treatment.

c) **Management of rodents in paddy**: Place Snap traps @ 50/ha (Continuously 3 nights) at tillering stage and apply 2 per cent Bromadiolone CB (0.25 %) bait in burrows and bunds at Panicle formation stage of the crop.

Note: For preparation of 1.0 kg poison bait, add 450g rice, 450g ragi, 50g groundnut kernels, 50g groundnut oil and mix thorouly with 20g of Bromadiolone powder. Prepare paper pockets containing 10g poison bait to be placed in field.

Plant Pathology (7)

a) **Management of blast disease in Rice:** Isoprothiolane 40% EC @ 1.5 ml/L was effective in managing the leaf blast disease by recording 65.2% disease reduction and 26.06 % increased yield with cost benefit ratio 1.92. Spraying of isoprothiolane 40%EC @ 1.5 ml/L at 5% panicle emergence stage was effective against neck blast by recording 80.05% disease reduction and 80.74 % increased yield with benefit cost ratio 1.98:1.

b) **Management of blast disease in finger millet:** Seed treatment with chitosan 2g/kg of seed followed by spraying of *Pseudomonas fluoroscens* + *Trichoderma viride* talc each 5g per litre of water at and grain filling stage for the management of blast disease in finger millet

c) **Management of Alternaria leaf spot disease in cotton:** Foliar spray with Pyraclostrobin 20% WG @ 500 grams/ha has reduced the disease incidence of 64.1 per cent and increased the yield of 187 per cent over the untreated control and recorded the B:C ratio of 2.56:1. Hence Pyraclostrobin 20% WG @ 500 grams/ha is recommended to manage the Alternaria leaf spot disease in cotton.

d) **Management of yellow mosaic virus in ridge gourd through integrated approach**

Cultivation practices	Chemical /product	Quantity /dosage
Before sowing	Intercropping with two rows of border crops of maize 30 days before sowing	1 kg
	Soil application of *Pseudomonas fluorescens* along with neem cake	(1 kg *Pseudomonas fluorescens* in 100 kg neem cake)
Sowing time	Seed treatment with Thiomethaxam 25 WS – 5g/kg seeds, Mulching with black silver mulch	5 g / kg seeds
20 Days After Sowing (DAS)	Spraying of seaweed extract installation of yellow sticky traps	1.5 ml / 1itre of water 10 no / acre
30 DAS	Thiamethoxam 25% WG	0.3 g/litre of water
45 DAS	Imidacloprid 17.8 SL	0.5ml/litre of water

e) **Management of Turcicum Leaf blight of maize:** Spraying twice one at 35 and 50 DAS of Azoxystrobin 18.2% w/w + Difenoconozole 11.4% w/w SC @ 0.10% should be taken

f) **Management of downy mildew disease in maize:** Seed treatment with Metalaxyl M 31.8 ES @ 2.4 ml/ kg of seed and foliar spray with Azoxystrobin 18.2% w/w + Difenoconazole 11.4% w/w SC @0.1% at 30DAS has reduced the disease incidence of 98.3 per cent and increased the yield up to 4.8 times over the untreated control and recorded the B:C ratio of 1.71:1.

g) **Management of Pigeonpea sterility mosaic disease:** Fenpyroximate 5% E. C. @1 ml/L at 25 and 40 days after sowing controlled the disease upto 41% and the increase in yield was 67% compared to the unsprayed control with the B:C ratio of 2.08:1.

Sericulture (3)

a) **Evaluation of suitable intercrops in tree Mulberry for additional income:** Growing determinant type of cowpea as an intercrop in tree mulberry garden, where the space 10x10 ft or 9x9 ft given from plant to plant and row to row gives additional income and increase the profitability of mulberry cultivation. It also improves the soil fertility of tree mulberry garden.

b) **Management of mulberry leaf roller:** When the mulberry garden is infested by mulberry leaf roller, *Diaphania pulverulentalis* (Hampson), spray Chlrorfenapyr 10% SC 1.5 ml / 1 ltr of water. Use mulberry leaves for silkworm rearing only 20 days after the spray of insecticide.

c) **Management of Mites in Mulberry:** Spray propargite 57EC @ 1.5 ml per litre of water by drenching all the apical leaves of mulberry plant. If the infestation is severe, repeat the same spray at an interval of seven days from first spray. However, the mulberry leaves sprayed with propargite 57 EC @ 1.5 ml litre of water are safe to silkworm after 16 days of last spray.

Apiculture (1)

a) **Separate chapter on "double queen system for management of *Apis cerana":*** Adoption of double queen system for management of *Apis cerana* would minimise absconding and enhance foraging activity with higher honey yield and fastens growth and development of colony. This technology is also helpful in colony multiplication.

- Brood area was higher in DQS (274.65 inch^2) as compared to that of 166.97 inch^2 in control.
- Honey area was higher in DQS (217.73 inch^2) as compared to that of 154.15inch^2 in control.
- Pollen area was higher in DQS (36.13inch^2) as compared to that of 21.67inch^2 in control.

Agriculture Engineering (1)

a) Tractor drawn automatic seed-cum-fertilizer drill for intercropping /monocropping system of multi-crops: Monocropping/ intercropping system of multi-crops improved tractor drawn seed-cum-fertilizer drill developed by the scientist of Dryland Agriculture Project, University of Agricultural Sciences, GKVK, Bangalore. Monocrops like finger millet, pigeon pea, groundnut, soyabean, field bean, horse gram, cowpea, kodo millet, foxtail millet, bajra, jowar, maize etc., seeds could be sown by this improved seed drill. Inter cropping system such as 10 rows of groundnut with 2 rows of pigeon pea (10:2) and 10 rows of finger millet with 2rows of pigeon pea (10:2) can be taken up by this improved seed drill. This seed drill also found suitable to take up strip cropping like finger millet 21 rows and 21 rows field bean/cowpea/horse gram. This method of sowing helps to take up harvesting by using combined harvester. Strip cropping system having runoff permitting and runoff resistant crop helps to conserve more moisture. This improved seed drill can be driven by 35 to 50hp tractor. The cost of improved seed drill is Rs.95,000/-

3.7 Research in Progress

3.7.1 Crop Improvements

3.7.1.1 Genetics and Plant Breeding

a) Rice

- As a part of resistance breeding, the Marker Assisted Back Cross Breeding was employed to improve IR-64, KMP-175, KCP1, KMP149 and Jyothi. As a result of the crosses done and the selections made, several promising lines harboring Pi9, and Pi54 blast resistance genes, Saltol QTL for salt resistance and Xa13 and Xa21 bacterial leaf blight resistance genes in different combinations were derived. The screening of these lines for both leaf and neck blast resistance under the conditions favoring blast incidence revealed high degree of resistance to the disease. At present, some of these improved blast lines are in the advanced back cross stages. KMP-225, an improved version of IR-64 for blast resistance was accepted for farm trial in the year 2021.
- KMP 149, Jaya x ASD-16, BPT-5204 x BR-2655, RNR-15048 and KMP-220 (Jyothi x BR-265), medium/ short duration, fine/bold grain genotypes under irrigated-transplanted trials were found promising over

years. KMP-220 was accepted for release in Zone-6, RNR-15048, a short duration rice variety with very fine grain type and wide adaptability was accepted for farm trial in Zone-6 during Kharif 2021.

- The experiments conducted under RKVY project have led to identification of unique SSR markers for determination of genetic purity of seeds in Rice.
- Under DBT funded Mainstreaming of Rice land race project, 5405 rice land races were characterized for 30 DUS characters. The screening of a subset of the above mentioned land races has identified several lines that are resistant to different forms of blast, sheath blight and tolerant to BPH.

b) Small millets

- Identified KMR-702, KMR-704, KMR-708 and KMR-609 as promising Finger Millet genotypes.
- One variety in Browntop millet (GPUBT 2) was accepted for Farm Trial to be conducted in zone 5 and 6 at ZREP meeting held on 5th (Zone 6) and 8th (Zone 5), April 2021.
- Two genotypes, one each in Little millet (GPUL 11) and Proso millet (GPUP 32) have been accepted in the plant breeders annual technical committee for evaluating under Multilocation trials.
- The results of Foxtail Millet station trial have led to identification of selections from PKS-22 and T-62-20-1 as promising genotypes.
- Under ICRISAT Genomics project, the Finger Millet varieties GPU 28, GPU 66, PR 202 and KMR 301 are being improved for Heat tolerance and Blast resistance by Backcross program and SNP genotyping.
- Contribution of genotypes in AICRP testing: During Kharif 2020, 3 genotypes finger millet, 5 in proso millet, 3 in little millet, 2 in foxtail millet and 6 in browntop millet entries contributed for AICRP trials.

c) Sorghum

- Germplasm Evaluation and Characterization: 237 germplasm lines were evaluated and characterized for early type, grain, fodder and dual purposes. Superior genotypes were identified for different desirable traits.
- Hybridization program: Ninety seven single plant selections (F5) and One hundred fifty single plant selections (F3) were made from the double crosses for different yield traits.

d) Sunflower

- KBSH 78, new early sunflower hybrid was released for Karnataka and gazette notified during 2020
- Sunflower hybrid KBSH 85 was advanced to AHT-II during 2021
- Sunflower hybrid KBSH 88 was advanced to AHT-I during 2021
- KBSH 53 was commercialized with INVICTA AGRITECH PVT.LTD, Telangana during 2020

e) Castor

- Gray mold disease screening: A total of 45 accessions and 75 single plants from gray mold gene pool were screened by detached spike/raceme technique, among them only five accessions (HCG-26, ICS-253, ICS-272,RG-72-1 and RG-2822) and five plants (Plant number: 3, 4, 17, 19 and 22) showed resistant reaction towards gray mold disease, respectively.
- Multi Location Trial: In multi location trails among the test entries, ICH-66 (1377 kg/ha) was found to be superior over check hybrid DCH-177 (957 kg/ha) and recorded 43.80% higher seed yield over the locations in Zone 5 and 6. The hybrid ICH-66 (SKP-84 x ICS-164) was proposed for farm trial during *Kharif* - 2021-22.

- Nucleus Seed production and maintenance breeding activity: Castor variety 48-1(Jwala) seed production (TL) has been taken up at ARS, Konehalli. About 300 to 350 kg seed yield is expected. Maintenance of released varieties, germplasms, pistillate and inbred lines were sown during *Rabi/summer*-2021 for maintainance purpose.

f) Pigeonpea

- Six new crosses were generated. Twelve F_1s were planted, six backcrosses were made and four F_2s were raised. Single plant selections were made for yield, its component traits and resistance to wilt and SMD diseases in F_2 and F_4 generations.

g) Soybean

- Variety release and notification: First vegetable soybean candidate variety of India KBVS 1 (Karune) identified for release for southern zone in Varietal Identification Committee Meeting held in virtual mode on 12th march 2021 during 51st annual group meet of AICRP on Soybean.

h) Arid legumes

- Front line demonstrations: 15 cowpea and 10 Horsegram front line demonstrations on varietal performance were taken up in farmer's field at Magadi & Ramanagara Taluk of Ramanagara district. 16.92 per cent of higher yield were recorded in KBC-9 variety (11.81 q/ha) over local check variety of cowpea and 12.28 per cent higher yield were recorded in PHG-9 (8.5 q/ha) over local check variety.
- Cow pea IVT-AVT trial: CP-16 showed highest grain yield of 1282 kg/ha than best check KBC-2 (981 kg/ha) followed by CP-15 and CP-14 with grain yield of 1167 kg/ha and 1148 kg/ha respectively.
- Horse gram IVT-AVT: HG-17 recorded highest yield than other test entries and the check variety PHG-9.

i) Potential Crops

- In early maturing Grain amaranth germplasm, four genotypes namely IC35608 (52g/plant), IC35611 (50/g/plant), IC35575 (46g/plant) and IC35600 (44g/plant) topped for the grain yield. For dwarf plant type, three genotypes recorded plant height lower than 100 cm. They were IC35635 (96.6cm), IC35585 (98.5cm) and IC35582 (98.7 cm).
- Among the grain amaranth genotypes evaluated three genotypes namely IC35504 (51.8/g/plant) & IC35497 (48g/plant) topped for grain yield. The genotypes IC35539 (77.2cm), IC35551 (81.6cm), IC35542 (87cm), IC35545 (91cm), IC35529 (95.6cm), IC35541(96cm) & IC35552(99cm) were dwarf that recorded plant height less than 100 cms

j) Sugarcane

- In Initial varietal trials, MS 17081(156.30 t/ha), CoVC 17061(139.26t/ha), CoT 17366 (131.02t/ha) and Co 17001(130.28 t/ha) were significantly superior over the standards CoC 671(110.65 t/ha) and Co 09004 (109.81t/ha). MS 17081 is on par with zonal check Co 86032 (153.52t/ha) for cane and sugar yield.
- In advance varietal trials-II Plant cane, CoN14073 (117.15t/ha) & MS 14082 (110.69t/ha) recorded significantly superior cane yield over standard CoC671 (87.71t/ha) and CoSnk 05103 (97.08t/ha). But they are on par with zonal standard Co 86032 for cane and sugar yield.
- In advance varietal trials Ratoon crop, MS14082 (111.74t/ha), Co14016 (109.79t/ha) & Co14027 (106.11t/ha) were significantly superior over the standard CoC671 (82.43t/ha) and they are on par with zonal standards Co 86032 (115.21t/ha) and CoSnk 05103 (105.42t/ha) for cane and sugar yield.

k) Forage Crops

- In forage Cowpea MFC-08-10 recorded higher GFY of 242.6 q/ha with higher dry matter yield and dry matter percent as compared to MFC-09-1.
- In IVT Maize HQPM 28 (470 q/ha) recorded highest GFY and DFY (106.1 q/ha) as compared to African tall.

3.7.1.2 Crop Physiology

- The effect of Agrolyser and Agrosmile on growth and yield of different crops: Foliar spray with 0.1% Agrolyser on 4th DAS + 0.1% Agrosmile on 11th DAS and Agrolyser on 25th DAS + Agrosmile on 35th DAS gave better fresh yield of coriander (6.44% over the control). Similarly yield can be increased in French bean with drenching treatment.

3.7.1.3 Seed Technology

Seed Production and Certification

- The seed yield and quality of finger millet cv. ML-365 was enhanced by priming seeds with liquid *Pseudomonas fluorescence* for 6 h @ 20 % with application of 125 kg neem + 1250 kg vermicompost per ha + 50 kg urea + 50 kg SSP and 50 kg MOP per ha + top dressing urea at 3-4 weeks after transplanting + 2 % Borax.
- In integrated approach for seed production of prosomillet cultivars TNAU-145, the nutrient dosage of 125 kg Neem + 1250 kg vermicompost per ha + 50 kg Urea + 50 kg SSP and 50 kg MOP per ha + Top dressing urea at 3-4 weeks after transplanting + 2 % Borax recorded the highest field emergence (75.5%), earheads (12.53) and seed yield (7.2 g/plant and 12.15 q/ha).
- Standardization and development of organic seed production technology for rice. Field emergence (83.15%) seed yield (31.85 g/plant and 49.88 q/ha), net monetary returns and B: C (1.41) were noted significantly highest in nutrient dosage 100:50:50 kg NPK kg/ha viz., state recommended dose of fertilizer as compared to the organic nutrient sources.
- The breeder seeds of paddy hybrid & sunflower hybrid (both parental lines), finger millet, Pigeon pea and Groundnut were assessed for seed quality and genetic purity. The genetic purity in all the crop varieties was more than 99.9% and seed germination was above the IMSCS level.
- In nutrient management of groundnut through nano fertilizers, the plant growth parameters viz., field emergence (94.74%), plant height @ harvest (30.32 cm), pods no. per plant (22.4) and seed yield (13.70 g/ plant and 20.43 q/ha) was highest in the nano fertilizer treatment viz., 75% RDF (100% NPK with 75% Zn/Fe) + Seed coating of nano Zn + Fe (Zinc + Iron) @125 ml/ha (100% seed coating).

Seed Physiology, Storage and Testing

- Identified three SSR primers which are showing polymorphism to maize hybrids viz., PMH-15 (primers like bnlg 238, umc 1227 and umc 1798) and were capable to distinguish parental lines of maize hybrid PMH 1. In case of sunflower hybrids, out of 96 microsatellite primers studied, eleven markers amplified a specific allele among six hybrids studied.
- The redgram variety BRG-5 seeds subjected to different nano particles to standardize the optimum concentration for seed storage and silicon dioxide in nano form @ 100 ppm concentration recorded highest filed emergence (77.88%), plant stand (72.73%) compared to other treatments up to six months of storage period.

Seed Entomology

- Insecticide resistance in storage insect pests, the storage insect pest *Rhyzopertha dominica* recorded 10175 folds of resistance to the insecticide malathion and 461 fold for deltamethrin. *Callosobruchus maculatus* exhibited resistance of 10916 folds to malathion and it was 880 folds for deltamethrin.
- Storage pest management with commercially available neem products, the highest germination with neemazal 10000 ppm @ 75 ppm (87.0% and 82.0%). The insect infestation was recorded significantly least in neemazal 10000 ppm @ 75 ppm (0.33% and 1.17%, respectively).
- Pre harvest **s**praying of insecticide and botanicals, emamectin benzoate 5SG @2 ppm at 50% pod maturity and maturity recorded significantly least per cent of seed infestation (1.17%). Further, among the botanicals neemazal 10000ppm @6ml/l at 50% pod maturity and maturity was registered the least seed infestation of 2.42 per cent at 8th week of storage. The per cent seed damage in untreated check was significantly highest (22.83%).
- Insecticidal seed treatment on cowpea, delegate 11.7% SC @ 3 ppm recorded the highest germination (95 and 90%) after three and six months of storage respectively.
- Integrated approach for management of pulse beetle on redgram, pre harvest spraying of emamectin benzoate 5SG @0.3g/l at 50% maturity and maturity and seed treatment with Neemazal T/S @ 7.5ml/kg of seed recorded highest (87.00%) germination and no insect damage (0.00%) after three months of storage.

Seed Processing

- CAL 1443 (Female parental line) and CML 451 (Male parental line) of maize hybrid MAH 14-5 could be processed satisfactorily with 6.00 mm (R) for better seed recovery and optimum seed quality parameters.
- Pigeon pea variety BRG-3 could be processed satisfactorily by using grading sieve size of 5.00 mm (Round) in order to get satisfactory seed recovery and quality parameters.
- Field bean variety HA-4 could be processed satisfactorily by using grading sieve size of 6.50 mm (Round) in order to get satisfactory seed recovery and quality parameters.
- Sunflower hybrid KBSH-78 could be processed satisfactorily by using grading sieve size of 2.40 x 20 mm (S) in order to get satisfactory seed recovery and quality parameters.
- Finger millet cv. KMR 340 could be processed satisfactorily by using grading sieve size of 1.20 mm (Round) in order to get satisfactory seed recovery and quality parameters.

3.7.2 Crop Production

3.7.2.1 Agronomy

Crops

Rice

- Studies on post emergence chemical weed control in paddy wet nursery: Early post emergence application of Bispyribac sodium (10%SC) @ 100 ml /ha at 12 DAS or post emergence application of Penoxsulam (1.02%)+ Cyhalofop-butyl (5% OD) @ 2.5 lit./ha at 18 DAS recorded higher weed control efficiency (99.48 to 99.58%), zero phytotoxicity rating on rice seedlings with similar plant height at 25 DAS as compared to hand weeding or unweeded control in paddy wet nursery.
- In paddy dry nursery, early post emergence application of Bispyribac sodium (10%SC) @ 100 ml /ha at 12 DAS or post emergence application of Penoxsulam (1.02%)+ Cyhalofop-butyl (5% OD) @ 2.5 lit./ha at 18

DAS recorded higher weed control efficiency (95.1 to 99.5%), zero phytotoxicity rating on rice seedlings with similar plant height at 25 DAS as compared to hand weeding or unweeded control.

Small Millets

- Foxtail millet and Proso millet intercropping with Red gram in 6:1 and 8:1 ratio was found most productive and profitable systems as compared to their sole crops and technology was accepted at national level.

- Recommended dose of fertilizers (40-20 kg/ha N-P_2O_5) and a sowing at a spacing of 45 cm x 10 cm were most optimum practices for higher productivity and profitability of Browntop millet.

- July 1st and 2nd fortnight sowing of foxtail millet, little millet, proso millet and browntop millet were found most ideal under Bengaluru, Nandyal and Waghai climatic conditions.

Castor

- Inter cropping systems for castor under rainfed situation : Among the intercropping system in 2:4 and 4:4 ratios of castor and ragi, castor + finger millet (2:4) recorded significantly higher yields of finger millet during farm trials of caster with ragi, navane, haraka,, korale and short duration pulses in kharif 2020. Economic analysis of intercropping indicated that, gross return, net return and B:C also followed the trends of castor equivalent yield.

- Best management practices for higher castor yield : In the study during kharif 2020, on effect of soil and foliar application of water-soluble fertilizer on yield and economics of rainfed castor, soil application of 75% RDF (N in two splits) and 20 kg $ZnSO_4$/ha (Basal) followed by foliar application of 2% 19:19:19 @ 40 days after sowing recorded significantly higher seed yield of castor (1604.8 kg/ha) over other treatments.

- Based on the study comparison made between farmers practice and best management practices (BMPs), the yield increases with adoption of BMPs was 165 per cent higher over farmers practice. Inspite of higher cost of production relatively higher gross return, net return and benefit cost ration was observed with BMPs over farmers practice.

Sorghum

- From the pooled analysis of experimental results of two years (2019-20 and 2020-21), it was revealed that Sorghum+ Blackgram(4:2) recorded higher grain yield (1645kg/ha) which was on par with Sorghum+ Greengram(4:2) (1590kg/ha), Sole sorghum (1507 kg/ha). Similar trends in results were noticed in all the growth and yield parameters. Maximum in Land Equivalent ratio (1.35), Area Time Equivalent ratio (1.36) and Sorghum Equivalent yield (2503 kg/ha) were observed with Sorghum+ Blackgram (4:2). Maximum gross returns (47,043 Rs/ha), Net returns (29,185 Rs/ha) and Benefit: cost ratio(2.63) with the treatment Sorghum+ Blackgram (4:2). The results revealed that intercropping of Sorghum with either blackgram or green gram was effective interms of growth, yield and economics.

Pigeonpea

- Numerically higher seed yield was obtained with Spraying of pulse Magic 1 % at flowering followed by 19:19:19 (0.5 %) spray. Existing practice of Foliar application of single nutrient recorded lower yield.

Arid legumes

- Foliar application of WSF 19:19:19 @ 1 % at vegetative stage and pod formation stage recorded significantly higher seed yield (1348 kg/ha) and B:C ratio (2.16) as compared to all other treatments.
- 100 % recommended dose of fertilizer with rhizobium and PSB seed treatment along with foliar spray of WSF 19:19:19 @ 1 % at vegetative stage has recorded significantly higher yield (1366 kg/ha), net returns (Rs.35366) and B:C ratio (2.33).
- Application of Quizalofop ethyl @ 50 g a.i./ha as POE at 15-20 DAS recorded significatly higher seed yield (2109 kg/ha), net returns (Rs. 39862) and B:C ratio (1.54). However, it was found on par with application of Clodinafoppropagyl @ 60 g a.i./ha.

Potential Crops

- The pooled data of two years indicated that new Grain Amaranth genotype KBGA-14 performed well under higher fertilizer level of 75:50:50 NPK kg/ha and it was on par with RDF (60:40:40 NPK kg/ha) as compared to check varieties. However, higher net returns and B:C ratio were observed under RDF.
- In the Study on phosphorous use efficiency in grain amaranth, the pooled data of two years indicated irrespective of the varieties grain yield was higher in 30 kg P2O5+ PSB+ VAM along with RD of NKS and was on par with RDF (60:40:40). However, the net returns and B;C ration was also higher with 30 kg P2O5+ PSB+ VAM along with RD of NKS and which followed by RDF (60:40:40).
- Among the chemical treatments, significantly lower weed density, weed dry weight WCE and grain yield were recorded with quizalopop ethyl 10% EC @ 50 g a.i /ha which was on par with propaquizapop 10% EC @ 55 g a.i /ha.

Forage Crops

- Cultivation of top feeds like Sesbania, Erythrina and Drum stick with a row spacing of 6 ft. and 1.5 ft. from plant to plant recorded additional green forage (67.1 q/ha), dry matter (16.7 q/ha) and crude protein yield (2.9 q/ha) with additional net returns (14000 Rs/ha). Cultivation of 2 rows B x N hybrid with a row spacing of 3 feet and 2 feet from plant to plant in between rows of top feeds recorded additional green forage yield (429.6 q/ha), dry matter yield (77.5 q/ha) and crude protein yield (7.96 q/ha) with additional net returns (52,100 Rs/ha).
- Planting of Drum stick at a spacing of 45 x 30 cm recorded significantly higher green forage, dry matter and crude protein yield (162.1 q, 38.66 q and 5.82 q respectively), which was on par with spacing of 30 x30 cm. Application of 150 N kg/ha recorded higher green forage, dry matter and crude protein yield (169.8 q, 41.5 and 5.7 q/ha respectively). Harvesting at 75 days interval recorded significantly higher green forage, dry matter and crude protein yield (176.4 q, 42.4 and 5.4 q/ha respectively)
- Yield enhancement of Fodder Maize through Bio fortification of plant growth regulators and micro nutrients indicated that soil application of Zinc (5 Kg/ha) and Boron (2 Kg/ha) + Foliar application of Salicylic acid (1000 PPM) at 30 DAS recorded significantly higher green forage and dry matter (505.6 q, & 134.8 q/ha respectively).
- In organic fodder production under fodder cowpea-maize cropping system, application of 100 % RDN through inorganic fertilizer recorded significantly higher green forage, dry matter and crude protein yield (659.7 q, 161.9 q & 221.9 q/ha respectively) and B: C ratio of 2.8. Among organic sources, application of 50% RDN through FYM + 50% RDN through bio-compost recorded higher green forage, dry matter and crude protein yield (583.6 q, 131.5 q & 15.7 q/ha respectively).

- Among Bajra genotypes, Giant Bajra recorded significantly higher green forage and Dry mater yield (608.0 q and 114.9 q/ha respectively) which was on par with genotypes Raj Bajra-1 (539.8 q and 102.0 q/ha respectively) and HTBH-4912 (566.2 q and 106.1 q/ha respectively). Application of 120 N kg/ha recorded higher GFY (741.4 q/ha), DMY (143.4 q/ha) and CPY (12.57 q/ha). Interaction was non significant.

Cotton

- Standardization of sowing window in cotton for Southern Dry Zone of Karnataka: Pooled analysis data revealed that among the different dates of sowing, sowing at April 2nd fortnight recorded maximum seed cotton yield (1970 kg/ha) followed by sowing at May-1st fortnight (1935 kg/ha) and May-2nd fortnight (1831 kg/ha). While, the lowest growth and yield parameters were noticed in sowing at September 1st fortnight.
- Multi-tier cropping system to enhance resource utilization, profitability and sustainability of *Bt* cotton *(Gossypium hirsutum)* production system: Among the intercropping system significantly higher seed cotton yield was recorded in paired row cotton + green gram (1683 kg/ha) intercropping system, followed by paired row cotton + black gram (1678 kg/ha) and they are found to be on par with each other. While, paired row cotton+greengram (2322 kg/ha), paired row cotton+blackgram (2308 kg/ha) and the seed cotton+cluster bean equivalent yield (3394 kg/ha), gross return (Rs.152742/ha) and net return (Rs.87727/ha) were maximum in cotton inter cropped with cluster bean.

Weed control

- In Conservation agriculture systems under maize based cropping system during *Rabi* 2019-20 Green gram, Summer 2019-20 Maize and *Kharif* 2020-21 Maize at MRS, Hebbal, Pre emergence application of pendimethalin 750 g/ha followed by Hand weeding at 30 DAS in maize crop gave significant control of weeds.
- In Evaluation of non – chemical methods of weed management in *kharif*- Fox tail millet (*Setaria italic* (L.) P. Beauv). – *Rabi*- Green gram - Complied results of the year 2018-19 and 2019-20, Grain yield of foxtail millet was significantly higher in hand weeding at 20 and 40 DAS (1.38 t/ha) as compared to unweeded control and in Green gram two hand weeding (20 & 40 DAS) recorded significantly higher seed yield (1.04 t/ha) which was on par with stale seed bed technique.
- In Evaluation of non-chemical methods of weed management in kodo millet during *kharif* 2020- 21, two hand weedings (20 & 40 DAS) recorded significantly higher grain yield (2.04 t/ha) which was on par with stale seed bed technique followed by Intercultivation twice at 25 and 45 DAS (1.71 t/ha).
- Preliminary Screening of Pre-emergence (PE) herbicides in coriander (*Coriandrum sativum* L.) grown for leafy vegetable. Among the herbicides trend, Pendimethalin at 580 and 677 g/ha was comparatively effective in controlling the complex weed flora throughout the crop growth period.

Dry land Agriculture

- Catchment-Storage-Command Relationship for Enhancing Water Productivity in Micro-watershed: With respect to different live barriers, *Nase* grass recorded higher mean finger millet grain yield, compared to *khus* grass and control plots.
- Efficient utilization of farm pond water for intensive and profitable crop production: French bean grown with 100% RDF recorded higher net returns, B:C ratio and RWUE.
- Standardization of conservation agriculture practices for finger millet + pigeon pea (8:2) intercropping system: Growing finger millet + pigeonpea (8:2) with horse gram as cover crop under conventional tillage recorded higher finger millet grain yield.

- Agronomic investigations on guni method of finger millet production: Growing long duration variety (MR-1) under conventional tillage recorded higher grain yield, straw yield, net returns, benefit cost ratio and rain water use efficiency compared to medium duration variety (GPU-28)

- Identification of contingent crops for delayed sowing under changed climate in dryland situations: Among the sowing windows, August 2nd fortnight sowing has produced significantly higher finger millet equivalent yield followed by September 1st fortnight sowing and September 2nd fortnight sowing in French bean, finger millet quinoa, foxtail millet and field bean.

- Response of crops to long-term use of organics and fertilizers under rotation and mono-cropping: Application of 100% recommended dose NPK + 10 t/ha FYM with rotation of groundnut and finger millet recorded significantly higher yield of finger millet and groundnut compared to control plots.

- Studies on runoff and soil loss under different crop management: Significantly higher moisture was noticed under trenches at 10 m interval at 30, 60 and 90 DAS as compared to other treatments. Similarly significantly higher finger millet and groundnut grain/pod, net returns and benefit cost ratio was recorded with trenches at 10 m interval compared to other treatments

- Impact of subsoiler for *In-situ* moisture conservation in finger millet and groundnut based intercropping system in Eastern Dry Zone of Karnataka: Among different sub-soiling treatments, significantly higher finger millet yield and net returns was recorded in recommended practices + sub-soiling at 2 m interval + organic manure compared to other treatments

Agrometeorology

- Length of Growing Period of Southern districts of Karnataka State: The length of growing period (LGP) is highly varying within and among the NARP zones. Attempt has been made to develop and present normal LGPs and LGP for 2020 for different districts of Karnataka.

- National Initiative on Climate Resilient Agriculture (NICRA): NICRA project is in operation in Chikkaballapur district since 2011. Agromet advisories are being given weekly twice based on weather forecast for Nayanahalli village. During 2016, Kuthanagere watershed area was added as study area and Durgadanagenahalli, Koratagere taluk, were added during 2018. Significant results were achieved through issuing Agromet Advisory Services (AAS) to the farmers of the NICRA adopted villages. AAS Bulletins were displayed at public places. Due to which, farmers have saved the crops from adverse climatic conditions. Nearly 250 farmers received our agromet advisory services and adopted in their field.

    - Impact of weather based agro advisories in grapes during 2015-2020 in Chikkaballapura was carried out. Nearly 200 farmers were monitored under the project, additional returns due to agromet advisories from sample survey of AAS farmers was Rs. 2,83,000 /ha. Total net gain including the total additional return and reduced cost was Rs.3,08,250/ ha.

    - Tamarind (variety: Gottipura) is sustainable agri-horti system against hail storm and drought in Koratagere Taluk. Here, the mango farmers got Rs. 53,571 gross income and Rs.17,771 net income per ha per annum as compared to Rs.2,26,000 and Rs.1,98,500 in tamarind, respectively. Due to the fact that tamarind is less susceptible to hail storm and relatively more suitable to the locality, based on soil site parameters, farmers preference towards tamarind than any other dry land orchard.

    - Economic analysis of climate resilient double cropping system for bimodal rainfall pattern for finger millet under farmers practice alone was worked out in comparison to cowpea-finger millet and field bean-finger millet double cropping wherein an additional return of 8,000 and 44,000 was incurred respectively.

- Forecasting of Agricultural output using Space, Agrometeorology and Land based observation (FASAL): During *kharif* 2020, early sown groundnut recorded higher pod yield of 1442 kg/ha as compared to late sown crop (1048 kg/ha). The low yield of groundnut in second sown crop was mainly due to water stress in the pod formation and maturity stage. Among the varieties, JL-24 has recorded significantly higher pod yield of 1326 kg/ha followed by TMV-2 (1217 Kg/ha). Whereas K-6 recorded significantly lower yield (1193 kg/ha).
- Gramin Krishi Mausam Sewa (GKMS: IAAS): During the year 2020, 96 Agromet Advisory Bulletins were issued and 56 per cent success was achieved. In addition to regular Agromet Advisory Service, GKMS unit also given information regarding extreme events through telephone contact and SMS alerts through m-kisan. During 2020, 3 Farmer's Awareness Programs (FAP) were conducted in Ramanagara district. Through FAPs, we created awareness on the climate resilient systems like water harvesting and recycling on watershed approach, drought proofing through agri-horticulture and dry land method systems and sustainable agriculture through IFS modelsandpopularization of agromet advisory services dissemination through mobile apps like Meghdoot, Mausam, Damini and Sidilu. In this contest, GKMS plays pivotal role to resolve the drought problems and helping the farming community. In conclusion, the GKMS unit has been serving the farmers of this region issuing the agromet advisory services to meet the changing needs of rainfed agriculture, horticulture, animal husbandry and sericulture unit.
- Yields determined using infocrop model for major crops of the state under the climate change scenario:Using InfoCrop simulation model, yields were predicted and the output data revealed that, Chickpea is gaining by 13.5 %, Cotton by 55.6 %, Maize by 24.5 %, Sorghum by 20.3 %, Soybean by 28.9 %, Redgram by 19.2 %, Finger millet by 12.0 %, Sugarcane by 6.1%; whereas rice is losing by 5.6%, wheat by 0.6% and Groundnut by 9.6 % under the changed climate scenario during the year 2035.

Agroforestry

- Teak based agroforestry system: In Teak based agroforestry system the mean plant height was higher with 12 m x 3 m i.e. 9.64 m followed by 10 m x 3 m i.e. 9.6 m. lowest height was recorded in 8 m x 3 m.
- Evaluation, Selection and establishment of clonal seed orchard of Tamarind:In evaluation of different tamarind selections out of 27 tamarind germplasm maximum tree height and girth at breast height (GBH) was recorded with NFN-6 (6.40 m & 72.5 cm, respectively) followed by Hosakote-2 (6.2 m & 51.2 cm respectively).
- Spacing trial on Mahagony based agroforestry system: In Mahagony based agroforestry system among different spacing highest periodic level of height and collar diameter improvement was recorded in 5m x 4m is 39.15 cm and 12.74 mm respectively.

Organic Farming

- Effect of different sources of organic manures on growth, yield attributes and yield of Sunflower (*Helianthus annuus* L.). Among the different organic farming treatments combinations application of 50 % N equivalent compost + 25% N equivalent Oilcake + 25 % N equivalent Jeevamrutha + 2.5 % Panchagavya spray at flowering stage has recorded higher sunflower seed yield (2316.09 kg/ha)
- Effect of different sources of organic manures on growth, yield attributes and yield of Groundnut (*Arachis hypogaea* L).Among the different organic farming treatments combinations application of 50 % N equivalent compost + 25% N equivalent Oilcake + 25 % N equivalent Jeevamrutha + 2.5 % Panchagavya spray at flowering stage i.e., T_{11} has recorded higher groundnut kernel yield (1689.58 kg/ha).
- Studies on crop geometry and different organic nutrient sources on growth and yield of chia (*Salvia hispanica* L.) experiment has indicated that sowing chia with a spacing of 90 cm x 15 cm and basal application of FYM 10 t/ha and 75 % N equivalent applied through FYM and 25 % through vermicompost was found to be best treatment.

- In Evaluation of various organic sources of nutrient for chia cultivation experimentthe best treatment was found to be FYM + Vermicompost (50:50) along with jeevamurtha 1000 l/.ha and panchagavya spray @ 5 %.

Integrated Farming System

- On-farm crop response to plant nutrients in predominant cropping systems
  - At Shidlaghatta block (high productive block) : In finger millet - tomato cropping system application of NPK+ micronutrients recorded significantly higher finger millet grain yield compared to all treatments, however tomato fruit yield in NPK+ micronutrients treatment was on par with farmers practice. The higher system equivalent yield (10 %), gross returns and net returns were obtained in NPK+micronutrients treatments indicating the benefits of balanced application of major nutrients + micronutrients / biofungicides.
  - At Gowribidanur block: In maize + field bean cropping system application of NPK+micronutrients recorded significantly higher maize kernel and vegetable field bean yield compared to all other treatments.
  - Balanced application of NPK+micronutrients resulted in 9.3% higher SEY in maize + field bean cropping system in addition to nitrogen fixation and adding of field bean bio-mass at the time of harvest.
- Diversification of existing farming systems under marginal household (HH) conditions
  - In FS 5: crop + horticulture + dairy +sheep + poultry FS invovling 6 HH and average holding of 0.76 ha : benchmark net income was Rs.185903 which increased to Rs.254955 indicating 37 % increase in mean net income compared to benchmark.
  - In FS 4 : crop+dairy+poultry FS : 3 HH: average holding of 0.83 ha recorded 62% increase in mean net income compared to bench mark.
  - In FS 5: crop + horticulture + dairy +sheep + poultry average cost of intervention was Rs.12962 resulting in a return of Rs.69052/-
  - In Crop + dairy + poultry FS average cost of intervention was Rs.9541/- resulting in a return of Rs.82400/
  - Capacity building through training and demonstration of ICM (integrated crop management) practices including IPM, IDM, INM, IWM has resulted in reduction in the use of external purchased inputs. Resource recycling is encouraged.
  - Training on honey bee rearing – farmers are gaining the skill and performing better
  - Training on general maintenance of livestock has resulted in good health of animals, sanitation, higher milk yield.
  - Training on *Trichoderma* usage along with FYM and vermicompost usage has reduced the cost on fertlizers and PP chemical application.
  - Azolla rearing is encouraged. It is supplementing the protein requirement of dairy animals, sheeps and poultry birds.
  - Use of cow and sheep mineral mixtures is providing good nutrition to livestock. Use of disinfectant liquids is helping in general health maintenance.
- ON-FARM evaluation of farming system modules for improving profitability and livelihood of small and marginal farmers
  - Highest income – Rs.201458 : Crop + horticulture + dairy + sheep farming system

- Lowest income – Rs.133068 : Crop + dairy + sheep + poultry farming system
- Highest – Rs.367693 (176% over bench mark) in crop + dairy + sheep + poultry
- Effective recycling of nutrients has resulted in soil fertility improvement. Improvement in organic carbon and available N, P2O5 and K_2O after intervention due to balanced use of organic and inorganic nutrients.

3.7.2.2 Soil Science

Soil Test Crop Resonse (STCR)

- Experiment on bhendi to develop targeted yield equation under irrigated condition, higher bhendi fruit yield of 16.02 t/ha was recorded in high fertility strip and the lowest fruit yield of 4.75 t/ha was recorded in low fertility strip. Among the treated plots, highest fruit yield of 25.88 t/ha was recorded in L_2 strip where 3-1-1: NPK were applied along with 15 t/ha of poultry manure. The lower yield (5.73 t/ha) was recorded in low fertility strip, where 0-2-2 levels of NPK were applied without poultry manure.

- Influence of different levels of boron on sunflower crop yield: In the 5th year of the study, where different levels of boron was applied in the same plots with different crops. This year due to the application of heavy doses of boron, sunflower germination was completely affected from 2 to 16 kg B/ha applied plots even at 13th DAS. Sunflower seed yield data indicated that continuous application of boron from 2 to 16 kg/ha has drastically reduced the seed yield compared to no boron applied plots. The stalk yield of sunflower also followed the same trend. The significantly highest seed (20.47 q/ha) and stalk (30.88 q/ha) was recorded in only FYM + RDF applied plot, whereas application of boron from 2 kg/ha (18.71 q/ha) to 16 kg/ha (13.28 q/ha) has gradually reduced the seed yield as the B level increased. This indicates that even the recommended dose of 2 kg B/ha should not be applied continuously without soil testing as it may accumulate and cause toxicity and reduce the crop yield.

- Subsoil manuring for enhancing crop productivity in rained farming regions of Southern Karnataka: Totally 4 experiments were conducted in sodic soils and 2 experiments were conducted at red soil over 2 years where subsoil hardpan were identified. Application of double dose of organic manures (Sheep manure / Pressmud/ Poultry manure) along with RDF through deep ripping significantly increased the yield of different crops over the other treatments. Based on the 2 years results obtained, residual studies were also conducted in red soils. Based on the experimental results, demonstration was conducted in 25 acres of farmers' fields with best treatment. Again based on the 25 acres large scale demonstrations in sodic soils on different crops (Maize, Cotton, Redgram) where yield increase ranged from 9.00 per cent to 36.40 per cent, and residual studies with redgram in red soils, this technology was given for POP for zone 5 & 6 as sub soil manuring in sodic soil/ red soil hard pan areas for improving the fertility status of soil and enhancing crop yields.

Long Term Fertilizer Experiment (LTFE)

- In the Effect of long term application of fertilizers on finger millet productivity, nutrient uptake, and yield sustainability in finger millet – maize cropping sequence: Significantly higher finger millet grain and straw yield was recorded in 150% Rec. NPK (36.85 and 42.37 q/ha, respectively) over other treatments, but it was on par with 100% Rec. NPK + FYM @ 10 t/ha + lime (35.1 and 40.84 q/ha, respectively) and 100 % Rec. NPK+ FYM @ 10 t/ha (33.2 and 39.56 q/ha, respectively).

- Effect of long term application of fertilizers on maize productivity, nutrient uptake, changes in soil quality and sustainability in finger millet – maize cropping sequence: Significantly higher grain and stover yield of maize (45.81 and 53.67 q ha-1, respectively) were recorded in T10 (100% NPK+ FYM + lime) treatment over all other treatments, but it was statistically on par with T3:150% NPK (40.11 & 51.11 q ha-1) treatment with respect to stover yield.

- Effect of manuring on maize productivity, nutrient uptake, changes in soil quality in finger millet–maize cropping sequence after superimposition in selected treatments of long term fertilizer experiment: Treatment 150% NPK gave significantly higher maize grain and stover yield (45.96 and 55.62 q ha-1, respectively)

Micro and Secondary Nutrients and Pollutants Elements in Soil and Plants

- Inoder to delineate and reassess the changes in micro, secondary nutrients and pollutant elements in the soils of Karnataka, geo referenced surface soil samples (0-15 cm) were collected from Chikkaballapura (400), Mysore (400), Kolar (400) and analyzed for different chemical parameters and the results of the study were presented below

- Chikkaballapura district soils are neutral, non saline, medium in organic carbon, sufficient in exchangeable calcium and magnesium, high in available sulphur and available micronutrients

- In the soils of Mysore district about 7.03 pH, 0.15 dS/m EC, 0.84 % organic carbon, 34.68 kg/ha available phosphorus, 324.27 kg/ha available potassium, 9.8 and 3.5 meq/100 g of exchangeable calcium and magnesium, 21.05 mg/kg of available sulphur, 16.46 ppm Fe, 11.87 ppm Mn, 2.13 ppm Cu, 1.13 ppm Zn and 0.81 ppm B was recorded.

- Kolar district soils have neutral pH, normal salt content, high organic carbon, high available phosphorus, potassium, sulphur, exchangeable calcium, magnesium and micronutrients content.

Sujala Project

- Profile studies and sample collection at 8 Benchmark sites and 108 surface sample collections in Tumkur districts. Analysis of profile samples for physio-chemical properties and fertility status. Updation of maps by comparing with LRI data

- Profile studies and sample collection at 2 Benchmark sites and 20 surface sample collections in Chamarajanagar districts. Analysis of profile samples for physio-chemical properties and fertility status. Updation of maps by comparing with LRI data

- Profile studies and sample collection at 2 Benchmark sites and 20 surface sample collections in Davanagere districts. Analysis of profile samples for physio-chemical properties and fertility status. Updation of maps by comparing with LRI data

3.7.2.3 Apiculture

- Double Queen System (DQS) for *Apis cerana*: The experiment on DQS was conducted at 4 locations *viz*., UAS, GKVK, Bangalore; KVK, Maagadi; College of Sericulture, Chintamani and KVK Kandali. DQS was successful in management of the absconding behavior. There was no absconding of colonies in KVK, Maagadi during the study period. 16.7 % absconding was recorded in UAS, GKVK, Bangalore in DQS whereas 66.7% colony absconded in control. 16.7 % colony absconding was observed in KVK Kandali whereas 100% colony absconding was recorded in control. In College of Sericulture, Chintamani 33.3% colonies were absconded in both DQS and control.

- Artificial domiciliation of Non- Apis pollinators: Artificial domiciliations were created in different locations in UAS GKVK Bangalore and observations were recorded on acceptance of the nest by non Apis bees like Megachilidae, Nomia and Carpenter bees. Megachilidae: 56 Artificial nesting habitats with total number 0f 73 Ipomoea reeds in 7 different treatments were established for Megachilids in Pigeon pea plots of NSP, IFS and Bee park in GKVK. 31.26 % of reeds were accepted by bees for nesting throughout the year.

- Monitoring bee colonies for pest and diseases in Beekeeping districts of Karnataka: The survey was carried out at beekeeping districts of Karnataka *viz*., Bangalore, Bangalore Rural, Ramanagar, Chamarajanagar, Coorg, Shimoga, Chikkaballapura, Dakshina Kannada, Hassan and Tumkur. Total 893 colonies were observed and 140 colonies contributing to 15.6% colonies were found to be absconded in these visited beekeeping areas. Wax moth was recorded as major pest problem followed by TSBV. The lack of flora and management of bee colonies were attributed to absconding of bee colonies.

- Evaluation of non chemicals for management of sac brood viruses: Different treatments for evaluation of non-chemicals for management of sac brood virus have been finalized. Ganoderma mycelial extracts(1ml and 3 ml), Phyllanthus niruri extract (2gm), Turmeric rhizome extract (2ml), Tulsi powder (2gm), Nigella seed powder (2 gm) and Control were used to treat TSBV diseases in parts of Dakshina Kannada. Among all the treatments, Phyllanthus niruri extract, Tulsi and khalanji seed extracts showed effective against TSBV when the infection rate is minimum. Molecular diagnosis of TSBV was carried out.

3.7.2.4 Sericulture

- The role of seaweed extracts in inducing defense in Mulberry: Cultivated tropical sea plant extracts (a.i., *Sulfated galactans*) with four different formulations (LBD3, LBD12, LBS6 and LBS13) were used as a foliar spray in freshly pruned mulberry garden at three different concentrations on 21 and 30 Days after pruning (DAP). Among the treatments, LBS 13 at 1.5 Ml/L is efficient in enhancing the mulberry plant growth as well as leaf quality parameters.

- Efficacy of novel insecticides on pink mealybug *Maconellicoccus hirsutus* Green on mulberry and their safety to silkworm: The insecticides, dinotefuron 20 SG @ 0.25 g/l exhibited higher mealybug mortality at both 7 and 15 days after spraying (DAS), followed by pymetrozine 50 WG @ 0.6 g/l and azadirachtin 1 % @ 2 ml/l

- Interaction effect of pathogenic bacteria on outbreak of bacterial Flacherie: Fifth instar larvae of PM×CSR$_{2.}$ found highly sensitive to bacterial administration compared to fourth and third instar larvae. Among three instars, third instar larvae was found tolerable and has taken more number of days for mean symptom expression and mortality (10.99 and 13.61 days) compared to fourth (8.54 and 10.69) and fifth (6.93 and 8.96) instar inoculated batches.

3.7.3 Crop Protection

3.7.3.1 Plant Pathology

Crops

Rice

- **Management of blast disease in Rice:** Isoprothiolane 40% EC @ 1.5 ml/L was effective and on par with the Tebuconazole 50% + trifloxystrobin 25% 75WG and Tricyclazole 75WP in managing the leaf blast disease by recording 65.2% disease reduction and 26.06 % increased yield with cost benefit ratio 1.92. Spraying of isoprothiolane 40%EC @ 1.5 ml/L at 5% panicle emergence stage was effective against neck blast by recording 80.05% disease reduction and 80.74 % increased yield with benefit cost ratio 1.98.The residue detected was below maximum residue limit after 7 & 28 days after spraying.

Small Millets:

- Two promising following strategies were identified for the management of blast and foot rot diseases

a) Spraying of Tricyclazole + Mancozeb 62% WP 1st spray at the time of flowering followed by second spray 10-15 days later for the managementof blast disease

b) Seedling root dip with chitosan 0.25% + *Pseudomonas fluorescens* + *Trichoderma viride* (consortium) each 5g/L of water for the eco-friendly management of foot rot in fingr millet.

- Leaf Blast on barnyard millet was recorded for the first time in south India (Bangalore and Mandya).The pathogen was identified as Pyricularia Spp. based on cultural and morphological characters.

Pigeonpea

- Twelve entries of pigeon pea showed resistant reaction to wilt and fifty-one entries showed resistant reaction to SMD. A survey was undertaken in the Magadi taluk of Ramanagara district. Diseases noticed are wilt (30-90%), SMD (20-30%), Alternaria leaf spot (5-10%).

Nematodes

- From different taluks of Tumakuru and Mandya districts, major phytonematodes associated with cucumber, banana, tomato, crossandra, guava, pomegranate, maize, paddy, blackgram, suagrcane, cucurbits, cowpea and okra include *M. incognita, R. similis, Pratylenchus* sp.*, M. graminicola, H. oryzae, M. enterolobii, Tylenchorhynchus* sp., *Hoplolaimus indicus* and *M. javanica*.

- High populations of *Meloidogyne incognita* (279/200 cc soil) on cucumber, *R. similis* (324/200 cc soil) on banana was recorded from Tumakuru district.

- High populations of *Meloidogyne graminicola* (332 /200 cc soil) on rice was recorded from Mandya district.

- In Karnataka *M. enterolobii* was earlier reported from guava orchards of Chikkaballapur district, UHS campus, GKVK, Bangalore, Bangalore rural, Mandya and Channapattana taluks. This year, it was recorded from Sira (Tumkur dt.), Bagalkote (Bagalkote dt.) and Gudibande (Chikkaballapur dt.). This nematode is spreading in the State.

- Dazomet @ 40g/m2 under polythene cover for 15 days effectively managed *M. graminicola* infesting rice and increased the yield.

- Neem cake enriched with *Baxillus amyliliquefaciens* @ 20g/spot and *Pseudomonas fluroscens* @ 2g/ kg of seed was found to be the most effective treatment in reducing root-knot nematode population and increasing the yield in bottle gourd.

- Removal of previous crop roots +solarization+ *P.lilacinum* at 2 kg in 1 ton FYM in beds after solarization can effectively manage *M. incognita* population in cucumber grown in polyhouse.

- Application of poultry manure @100g/m2 2 weeks prior to transplanting manages root-knot nematode population in polyhouse cultivated capsicum by increasing yield also considerably.

- The culture filtrate of *Trichoderma koningii* and *Bacillus velenzenesis* strain P42 exhibited inhibition of egg hatching, juvenile mortality and final nematode population of *M. incognita* on tomato.

3.7.3.2 Entomology

Small Millets

- The incidence of *Spodoptera frugiperda* on finger millet is reported for the firsr time.

- Comparaive biology of *Spodopterafrugiperda* was carried out on finger millet and maize crop. It completes its lifecycle within 36- 42 days.
- Mapping of biogeography of Indian shoot flies of small millets is under progress
- Over all around 25 species of shoot fly were identified during last five years

Pigeonpea

- Three entries GCPB-41, GCPB-15 (5.2%) and GCPB-20 (5.41%) showed least pod damage by *Helicoverpa armigera*. Though the lowest per cent seed damage (2.09%) and highest yield (2304 kg/ha) at harvest was observed in the treatment Dinetofuron, the highest cost benefit ratio 9.24 was obtained in the Acetamiprid treatment among the chemical treatments evaluated against pod fly. The highest grain yield was obtained with chemical treatment Chlorantraniliprole @ 0.3 ml per lt (2133 kg/ha) with 3.71 cost benefit ratio followed by Bt. kurastaki @ 2.5 g/lt (1863 kg/ha), Bt. kurastaki @ 2.25 g/lt (1843 kg/ha and NSKE 5% (1808 kg/ha), among the bio-pesticides evaluated against pod borers in pigeonpea with Chlorantraniliprole as check.

Cotton

- Screening of breeding material for resistance to insect pests of cotton: Totally 88 genotypes were screened for their reaction to insect pest complex in two replications, Out of those 37, 38 and 13 genotypes shown jassid injury grade I, II and III respectively.
- Weekly Pest Status on Cotton in farmer's fields during 2020-21: Among sucking pests, leafhoppers crossed ETL in 55 locations starting from July month. Similarly, 56 locations were suffering from heavy aphids incidence. The incidence of PBW was noticed during August itself and crossed ETL in 33 locations.
- Validation of IPM module for cotton pests: IPM module has recorded less roseste flower, less number of pink bollworm larvae/20 green bolls, minimum green boll damage, locule damage in green bolls and open boll locule damage. Higher yield (19.25/ha) with net return of Rs.49900.00/ha was recorded in IPM module as compare to farmers practice, where in higher incidence of pink bollworm was noticed.

Vertebrate Pest Management

- The surveillance studies on birds revealed the highest damage in milky stage of maize and sunflower with the incidence of 7.5-12.4, 16-34, per cent respectively followed by ragi (4.6-7.90%) during the harvesting stage. In maize and sunflower parakeets were predominant bird pest whereas, in ragi Indian peafowl and spotted munia were the predominant bird pests. The highest relative abundance of 22.56 per cent was recorded by Indian peafowl in ragi, and rose ringed parakeet by 28.53 and 21.60 per cent in maize and sunflower respectively.
- Among the different modules for the management of birds in ragi the least crop damage and highest yield was recorded when the crops were protected with bio acoustics (2.5 %) and reflective tape (3.7 %, 1756 kg/ha) whereas, in maize the least crop damage and highest yield was recorded by fields protected by nylon net (0 %, 3575 kg/ha) and Bio acoustics (7.6 %, 3326 kg/ha). In groundnut, the sown seeds are exposed to bird damage the least crop damage and highest yield was recorded when the fields were protected with nylon net (0%, 935 kg/ha) and Arranging of jute ropes (7.6%, 856 kg/ha). In sun flower, the highest yield of 1310, 1185 kg/ha and least damage of 4.6 per cent was recorded when the fields were protected with nylon net and bioacoustics respectively.
- In ground nut crop, the best economic measures were fencing with barbed wire, placement of HDEP nylon net and use of bioacoustics for wild boar management. The yield of 1122.4 kg/ha, 1132.6 and 1071.6

kg/h was recorded, respectively with the following above treatments than the control (703.21 kg/ha). Similar trends were also recorded in maize which recorded in yield of 3475, 3456, 3247 kg/ha was recorded when the fields were protected with fencing with barbed wire, placement of HDEP nylon net and use of bioacoustics, respectively.

- Studies on social structure of the monkeys viz. group size, density, M: F ratio and damage pattern at Doddaballapura, Kanakapura, Chamaraja-nagara, Magadi, and Shivamogga was recorded. The study indicated mean group size of 18 to 52 and M:F ratio of 2:1.5 was recorded. The monkeys preferred the field and horticultural crops for feeding and at late evening all the monkeys resided on trees close to the agricultural fields.
- In the crop preference studies by monkeys found that monkeys preferred Fruits (53%) followed by Vegetables (25%), Cereals (8%), Sugar (6%), Tubers (6%), Spices (2%) and the crop raiding frequency was weakly twice.
- Population of Indian palm squirrel was estimated in maize, vegetables and grape gardens, among the crops highest number of squirrels were recorded in grape gardens (22/acre) followed by maize (19/acre). The food preference studies indicated the squirrel preferred nuts (21%), insects (18%), seeds (16%), fruits (11%), flower buds (9%), bark (8%), and pith (6%).

Soil Arthropod Pests

- A comprehensive checklist for 40 species of the genus *Popillia* Dejean (Scarabaeidae: Rutelinae) of India is prepared.
- A native fungal isolate UASBBb16 showed promising results against sugarcane and arecanut white grubs.

Agril. Acarology

- Assessment of crop loss due to spider mite on tomato crop: Crop loss study was conducted in tomato during November 2019. Protected plots were sprayed with acaricides, buprofezin, fenazaquin and propargite at 10-15 days interval for complete protection against mites. Marketable fruit yield data from different pickings were pooled and analyzed for estimation of loss in the yield of tomato fruits due to spider mite infestation. The loss in yield of tomato due to spider mite, Tetranychus urticae was estimated to be 29.95%. The mean loss in tomato fruit yield from the last three trials (30.7%, 13.3% & 30%) was found to be 24.7%.
- Monitoring the incidence of spider mites Oligonychus indicus, Schizotetranychus krungthepensis and eriophyid mite Abacarus sacchari on sugarcane in Mandya district: Survey was carried out in four villages of Mandya district during June, 2020 to assess the incidence of spider mites Oligonychus indicus, Schizotetranychus krungthepensis and eriophyid mite Abacarus sacchari on 3-6 months old sugarcane crop. Oligonychus indicus infestation on tillers (% infestation) and mite population (0.4 cm2leaf area) were recorded, which ranged from 1 to 4% and 0 to 26.52 mites, respectively. The infestation of Schizotetranychus krungthepensis was found in one location, Doddarasinakere recording 100 percent clump infestation and 80 per cent cane infestation. The eriophyid mite population on sugarcane variety VCF 0517 ranged from 1.2 to 7.3 mites/0.4 cm2 leaf area.
- Bio-ecology of yellow mite Polyphagotarsonemus latus on mulberry: Observations recorded on the incidence of yellow mite Polyphagotarsonemus latus on 20 cultivated varieties of mulberry maintained in the experimental fields of Department of Sericulture, at GKVK, Bengaluru from December 2019 to January 2021. The mite incidence was found on all the varieties and the incidence was noticed throughout the year. The number of mites recorded per sq cm leaf area ranged from 28 to 205 and the peak population of mites was seen during October month 153-205 mites/cm2.

- Study of plant associated mite fauna in Karnataka and other states: Regular survey was conducted for plant associated mites in Karnataka and other states during 2020-21. In Karnataka plant samples were collected from 77 locations spread across 32 taluks & 19 districts and also mite specimens/mite infested plant samples were obtained from 3 locations covering 3 other Indian states. The data revealed 70 mite species from 23 families associated with 83 host plant species, of which mite families Tetranychidae and Phytoseiidae were dominant with 31 and 14 species, respectively.

3.7.4 Inland Fisheries Unit

- In total, ten working models of aquaponics systems have been developed: Farmpond based aquaponics (3 No.s: Vertical aquaponics, Aquaponics in RCC cisterns with growbed media, Aquaponics in FRP troughs with floating rafts), Horizontal aquaponics (2 No.s), Solar-powered rooftop aquaponics (2 No.s: Intermediate Bulk Container-based aquaponics and Bathtub-based), Solar-powered microgreens aquaponics, Vocational aquaponics in polyhouse and Exhibition model aquaponics.

- For working model on 'Solar-powered rooftop aquaponics food production system', a patent application bearing No.: 202141011449 A has been published in the Indian Patent Journal No.: 13/2021, Page No.: 15393, on 26.03.2021.

- From the State's maiden and the only hatchery for Genetically Improved Farmed Tilapia (GIFT) fish in IFU 34,530 all-male seeds were sold to the farmers and rest were used for its RKVY project on Aquaponics.

3.7.5 Food and Nutrition

- In the rural-urban interface, more dietary diversity score (DDS) was observed for urban with 39.4 per cent, followed by rural (38.6%) and transition (37.5%), indicating more diversified foods consumed in urban and least in transition. Increased consumption of energy dense and processed foods in both urban and rural segments indicated transition in food consumption patterns. This is reflected in more incidences of obesity and overweight compared to underweight among the study households. Findings revealed that, 25 per cent of households were having incidence of diabetes in both urban and transition. Prevalence of underweight (13.56%) as well as obesity (34.87%) was more among rural and transition women respectively, compared to men. Prevalence of non-communicable diseases was not differed across rural-urban interface. These nutritional and health status are influenced by various socio-cultural practices and growing urbanization in the rural urban interface of Bangalore.

- Region specific millet based low glycemic food mix showed the keeping quality to be good up till two months. Validated the developed low glycemic index diabetic mix through dietary intervention by providing 1/3 rd requirement for 120 days for pre diabetic subjects Impact assessment of the intervention as assessed by anthropometric parameters and biochemical parameters showed reduction in BMI, HbA1c, FBS and lipid profile . App on diabetic diet care was developed as an educational tool to create awareness among public on management of diabetes by diet care.

- Millet based high fibre food mix developed to address obesity among farm women which was found to be effective in reducing the body weight and lipid profile was commercialized to two entrepreneurs. Shelf life study of the developed nutria dense mix showed the keeping quality to be good up till three months. Using the developed mix poustik laddu was developed. Validated the developed nutri dense Poustik laddu through dietary intervention. Impact assessment of the intervention as assessed by anthropometric parameters showed an improvement in BMI.

3.7.6 Agricultural Economics

- An economic analysis of mango agro-eco-tourism in Eastern Dry Zone of Karnataka: The Karnataka State Mango Development and Marketing Corporation (KSMDMC) have initiated 'Mango tourism' to

help the farmers in realizing better prices for their produce. Study undertaken regarding the same showed that it has to be further strengthened and popularized to cover all mango growing farmers. The farmers practicing tourism (FPT) in mango realized better prices compared to farmers who were not practicing tourism (FNPT). Returns per rupee of cost including marketing cost were higher for FPT (Rs.1.85) than FNPT (Rs.1.21).

- Institutional intervention in marketing of organic millets in Eastern Dry Zone of Karnataka: The return per every rupee of expenditure in small millets cultivation was high for member farmers (1.31 in little millet, 1.17 in foxtail millet and 1.20 in kodo millet) compared to non-members (1.22 in little, 1.12 in foxtail and 1.08 in kodo millet).

3.7.7 Centre of Excellence for Nutri-Cereals

- The NRDC project entitled 'Pre-commerciali-zation trials and consumer acceptability studies of millet based breakfast cereals' was implemented during 2020-21 and conducted Pre-commercial trials at a commercial processing facility in an industry situated at peenya industrial area Bengaluru as per the mandate. The prepared products were subjected to sensory acceptability studies by serving to a semi-trained panel of judges and Sensory acceptability studies were completed. Nutritional Composition of the developed products was accessed from 3rd party food analysis laboratory. Storage stability of prepared products is under progress. Consumer acceptability studies of the developed products are under progress.

- The NRDC project entitled 'Upgradation of the millets based value added food products and its process technology' was gained towards strengthening of the processing facility. The processing equipments (6 Nos) equipments worth of Rs.4,36,910 were purchased by following University norms and installed at Centre of Excellence.

- Incubation Facilities: The farmers, farmwomen, entrepreneurs, wholesale dealers, retailers, start-up companies, incubates of agri-innovation centre, consumers and other stakeholders in value chain of millets have been utilising the small millet incubation facility available at the Centre of Excellence for Nutri-Cereals, UAS, Bengaluru. The centre has processed 2,802 Kgs of millets during the financial year 2020-21 and earned amount of Rs.13,502.

3.7.8 Post Harvest Engineering and Technology

- Value Chain on Tamarind: Under this mega project, there are four sub-projects. Two prototype tamarind processing machines were developed, one of which was already commercialized (Tamarind Dehuller) and the other has been approved for commercialization in ZREP-2021. The details are given below.

– Development of Tamarind Defibring Machine: A suitable mechanism for separation of fibres from deseeded pulp is being identified. Fabrication of defibring unit integrated with Trommel screen for both seed and fibre separation is under progress.

– Development of Modified Tamarind De-seeder: A prototype Tamarind Deseeder operated by a 3 hp electric motor has been developed. The capacity of the machine is 100 kg/h and the deseeding efficiency is over 90%. It has been recommended for commercialization in the Zone-5 ZREP-2021 Meeting.

– Development of a Dehuller for Browntop Millet (Urochloa ramose): Prototype Small Millets Dehuller has been developed based on abrasive principle. It is operated by a 5 hp electric motor and it can dehull all 6 small millets. The dehulling efficiency of >95% was observed for most small millets except for brown-top millet for which it was about 75%. It has been recommended for commercialization in the Zone-5 ZREP-2021 Meeting.

- Hermetic Storage of Small Millets for Management of Insects: The millet rice grains packaged in 80 micron EVOH multi-layerd film package (ProHarvest) and sealed hermetically could be stored at ambient conditions for 60 days maintaining shelf-life quality i.e., without appreciable rise in rancidity and insect infestation. The Foxtail millet rice irradiated @ 1 kGy could be stored under ambient conditions for at least 6 months without insect infestation and significant rise in rancidity or in microbial load.

- Segregation of Special proteins and Amino acid profiling of Protein concentrate from De-oiled Sunflower cake: Protein isolate was extracted from fresh samples of defatted sunflower meal using already standardized procedure at AICRP on PHET laboratory. Optimum extraction was achieved by extracting the meal at pH -9, NaCl% -9 and Meal% -10. The protein isolate yield was 32.14%.

3.7.9 Popularization of Biofertilizers and Quality Control Laboratory

- Fouteen tonnes of carrier based biofertilizers and 8400 litres of Liquid bio-inoculants were producred and sold to farmers under "Revolving Fund on Biofertilizers" realizing an income of Rs.24 lakhs.
- 380 samples received from 35 commercial biofertilizercompanies were analyzed forquality parametersand generated income of Rs. 6.05 lakhs.

3.7.10 Bioenergy Research and Quality Assurance Laboratory

- The quality analysis for nearly 191 samples from 40 sources which includes student research, institutions, BRIDC, entrepreneurs etc., has been carried out and results recorded.

3.7.11 Biofuel Park Project

- 16 Training programs held at Madenur center.
- 6 FPO Training programs held at Arasikere Taluk villages.
- 5360 seedlings of five bio-fuel crop species (Honge, Hippe, Neem and Simarouba) Planted in 60.1- acres
- About 1238 farmers participated in the program with around 50 per cent accounting for women participants

3.7.12 Seed production- An overview

- National Seed Project (NSP), UAS, Bangalore has organized seed production in an area of 812 ha with a production target of 16643.80 quintals during 2020-21 in different crop varieties. The breeder seed production has been organized to produce 1000.46 quintals as against an indent of 820 quintals from the Department of Agriculture, Co-operation and Farmers welfare (DAC&FW), GOI, GOK and other private agencies. Quality seed production programmes were also been implemented in an area of 555 ha seed yield of 8623.97 quintals during Kharif 2020. Besides, during rabi/summer, seed production programme of around 171 ha has been organized with an anticipated seed yield of 2602.53 quintals. Hence, the total quantity of quality seed production expected would be 11,226.50 quintals during 2020-21. About 27 tonnes of sugarcane

Table 26 : Breeder Seeds and Quality Seeds Produced (in quintals) during 2020-21

Sl.No	Crop	Breeder Seeds (q)	Quality Seeds (q)	Total (q)
1.	Cereals	95.71	9658.73	9754.44
2.	Pulses	46.15	765.43	811.58
3.	Oilseeds	858.6	790.65	1649.25
	Total	**1000.46**	**11226.50**	**12226.92**

setts, 2.5 lakh tissue culture sugarcane saplings were supplied to farmers through Department of Agriculture and Sugar mills. Sale of Horticultural crops, seeds & planting materials generated an income of Rs.42.60 lakhs.

3.8 Indian Council for Agriculture Research-Centre for Advanced Agricultural Science & Technology (CAAST)

India may be at the crossroads in terms of food and nutrient protection following the green revolution. This necessitates the expansion of agricultural productivity through the use of modern technologies and techniques. To maintain yield levels in major crops, the use of precision breeding tools for trait enhancement, models to predict pest and disease outbreaks for successful management, seed microbiome enrichment technologies for mitigating biotic and abiotic stresses, biosensors for crop cultivation performance, and judicious natural resource management, among other things, are needed.Based on the existing strengths and research leads, a program on Next Generation Technologies (NGT) in Adaptive Agriculture (AA) in four specific areas has been initiated at the University of Agricultural Sciences, Bangalore (UASB) under the Centre for Advance Agriculture Science and Technology (CAAST) scheme of the National Agricultural Higher Education Project (NAHEP) of the Indian Council of Agricultural Research (ICAR). There are four objectives in this program, which include research component, skill development, training and demonstrations and strengthening infra-structure for post-graduate programmes of the UAS-B.

Highlights of Significant Achievements:

3.8.1 Research

Reduced runoff farmingpractices for soil moisture distress in Eastern dry zone of Karnataka:Experiments have been carried out with the aim of harvesting runoff water from the micro-watershed and greenhouses for a various application. In various catchment areas, main crops such as French bean, Finger millet; Pigeon pea + Field bean (1:1); Pigeon pea + Field bean (8:2); Kitchen garden (Beans, Chilli, Green pepper, Brinjal, Ridge gourd, Radish, Tomato, Curry leaf, and Drumstick); and annual mixed fruit crops (Pumelos + Guava) were grown. During moisture tension, the water stored in farm ponds is used as preventive irrigation, which has increased crop yield by 20-30 percent.

Development of value-added products from Kodo Millet : Developed value added products from kodo millet and analysed their nutritional quality and shelf life. Some of the products prepared from kodomillet are Kodokhakhra, Kodo Masala Khakhra, KodoIdliMix,KodoDosa Mix, KodoPulav Mix, Upma Mix, Roti Mix, Kodo and khoa based barfi and Gulabjamun.

Precision crop breeding : Development and validation of newly designed SSR markers in different crops

Finger millet: Developed and validated 550 SSRs (genomic and EST) using whole genome sequence of *Eleucinecoracana* and *E. indica* species and also from the EST sequence from NCBI database. Genomic potential of developed markers was assessed using 38 cultivated species and 8 wild species of Eleusine.

Dolichos bean: A total of 619 SSR markers have been validated on 96 genotypes & 413 polymorphic SSR markers identified. A core set of 32 SSR markers that capture maximum genetic diversity as could be captured using complete set (413) of markers was identified.

Horsegram: Over 55 per cent of the dolichos bean markers were transferable to horsegram.

Rice: Two cycles of backcrosses to introgress blast disease resistance genes (pi9 and pi54) to promising quality rice genotype KMP 149 with foreground and background selection completed.

Groundnut: One cycle of backcross to introgress LLS resistance conferring QTL to popular variety TMV-2 with foreground and background selection completed

Maize: Two cycles of backcrosses to introgress LWD resistance conferring QTL to NAI-137, seed-parent of hybrid Hema with foreground and background selection completed

Endophyte-enabled seed bio-priming : Over 300 endophytes isolated from plants adapted to extreme habitats have been characterized and endophyte library specially adaptedfor abiotic stress tolerance has been established. Endophytic fungi capable of imparting salinity and drought stress tolerance to both field and horticultural crops have been identified. The select endophytes improved seedling growth and imparted abiotic stress tolerance in rice, tomato, chilli and maize.

Forecasting pest and disease outbreaks for effective management

Rice blast : We developed a Logistic regression model (accuracy=0.85) and Decision tree models (accuracy=0.96) from the 2017-2019 data, further 2020 data was used to validate the model.

Pigeon pea pod borer : A multiple regression analysis equation for pod borer larval population dynamics was developed. The lead time concept was used to identify major weather factors contributing to pigeon pea pod borer complex severity. Stepwise regression analysis equation for pod borer larval population dynamics (Y) = 2.569 + (-0.351 x Tmin)+(0.908 x Tmax) + (-0.212 x RH-I) + (- 0.109 x RH-II) + (1.465 x WS) with R2 value of 0.496 was built, further advanced analytical models will be taken up to improvise the prediction model.

Grape Downy mildew : Stepwise regression model and further enhanced with the machine and deep learning techniques like Logistic regression (accuracy=0.91) and Decision tree.

3.8.2. Human resource development

During the year 2020-21 as part of the HRD program (for staff and students), 16 Trainings/Skill Development/ Hands on Training, nine workshops, seven invited talks, seven series of webinars, two online hands on training, eight international training and seven exposure visits have been conducted in the specified areas of the project viz., protected cultivation under reduced run-off farming; genome editing for crop improvement; Endophyte and their applications in agriculture; Modeling and ICT applications in forecasting pest and diseases etc.Due to COVID-19 restriction international student and faculty training has been deferred.

3.8.3. Demonstration and Deployment

- Comprehensive Reduced Runoff Farming (RRF) facility for livelihood of climatic distressed drylands is demonstrated at UAS Bangalore at GKVK campus (Dryland and department of Horticulture)
- Roof top water harvesting storage tank is installed with capacity of 10,53,000 litre
- Web portal-NGT Forewarning Pest and Diseases and Android App (Agricultural Pest Prediction and Advisory -APPA) has been deployed

3.8.4 Strengthening infrastructure facilities

With the generous support from the Indian Council of Agricultural Research (ICAR), the University established one dedicated Common Laboratory Facility (CLF) with basic equipment and working facility to carryout common research activities in the South Block of the GKVK Campus. The University under the aegis of the Centre for Advanced Agricultural Sciences and Technology (CAAST) program of the National Agricultural Higher Education Project (NAHEP) established a Central Instrumentation Facility (CIF) in the North Block of the GKVK campus. With the high-end scientific instrument, the CIF will further contribute to pursuing research in many areas of

modern science and technology and development of the quality human resource, and thus help the University to keep pace internationally.

3.9 Advanced Research Center of Biofuels

The Hindustan Aeronautics Limited, Bengaluru has provided CSR funds for the establishment of Advanced Research Center of Biofuels with the objective of creation of infrastructure for research and development in the alternative energy sources which is very essential for the country.HAL has provided Rs. 2.00 Crores for construction of the HAL Advanced Research Center of Bio-Fuels and procurement of the lab equipment.

Activities

- The Centre shall take up research work on Bioenergy, develop improved technology, materials, machinery, process, designs and techniques for manufacturing, promoting& adoption of biofuels
- To Develop suitable end-use technologies to solve farmers' problems in agricultural production and arrange skill development for rural entrepreneurs in the field of alternative energy
- To ensure that the research findings and innovations, after their proven demonstration, are communicated to the farmers on a logistically feasible scale
- To disseminate the knowledge and technology to farmers on a wider scale by training the grass root level workers and officers of the concerned state departments

Equipment Procured: High performance liquid chromatography with PDA detector, Fluorescence detector and ELSD detector, Gas Chromatograph for gas analysis, Fourier Transform- Infrared spectrometer are the advanced equipments procured under the project.The facility will be a centralized facility created for helping students and researchers. Researchers and students outside the University can also utilize the facility and will be charged nominally for the analysis which provides financial support for running the Centre.

Chapter IV

4. Agricultural Extension Education & Services

The University of Agricultural Sciences, Bangalore is performing three prime activities namely teaching, research and extension. The Directorate of Extension is vested with the responsibility to carry out the extension services in ten districts of Southern Karnataka viz., Bengaluru Rural, Bengaluru Urban, Ramanagara, Mandya, Kolar, Chikkaballapur, Hassan, Tumakuru, Chamarajanagar and Mysuru.

4.1 Mandates

a) The extension education programmes shall ensure technology assessment and refinement and facilitate adoption of technologies by farmers and others for accelerated agricultural growth. It shall conduct demonstrations and training programmes for the benefit of various stake holders. Director of Extension shall Coordinate with various units of the University and other appropriate agencies of the centre and the state

b) The University shall be responsible for developing models of Agricultural Extension in the state

4.2 Objectives

The University Extension Service has three fold objectives:

a) To provide new, dependable, profitable, socially acceptable, ecologically sustainable and timely information to the farmers

b) To provide feedback on adoption of new technologies by the farmers to research system in order to examine the problems in adoption and modify / reorient the technologies, if any

c) To device ways and means for improving the quality and effectiveness of extension work

4.3 Functions

In order to accomplish the above stated objectives, the Directorate of Extension is carrying out the following functions:

- Serving is the primary source of agricultural information for the agricultural field extension functionaries and farmers
- Rendering advisory services to field extension functionaries and farming community
- Conducting farm trials on new research findings and organise front line demonstrations
- Organizing training programmes to extension professionals and farmers on latest farm technologies and
- To stimulate research and impart teaching

4.4 Units of Directorate of Extension and their Activities

Following 11 units are functioning under the Directorate of Extension

1. Staff Training Unit (STU)
2. State Agricultural Management and Extension Training Institute (SAMETI)
3. Bakery Training Unit (BTU)
4. Farmers Training Institute (FTI)
5. Farm Information Unit (FIU)

6. Distance Education Unit (DEU)
7. Agricultural Technology Information Centre (ATIC)
8. Agricultural Sciences Museum (ASM)
9. Extension Education Units (EEUs) (2)
10. National Agricultural Extension Project (NAEP)
11. Krishi Vigyan Kendras (KVKs) (7)

4.4.1 Staff Training Unit (STU)

The Staff Training Unit located at GKVK campus has the mandates of organizing Institutional and field oriented training for various government personnal, quasi government and private organizations; Coordinating between sponsoring agencies & the University and to monitor the effectiveness and redesign the training programmes. Keeping these mandates in view, the STU has organized two (02) trainings for 39 Lab Assistants, Field Assistants and Assistants of UAS-B and 19 training programmes under SAMETI(S) involving 955 extension functionaries during 2020-21. The details are provided in Annexure 3.1. Participatory approach, Emphasis on skill teaching, online registration, prepost evaluation and feedback from the participants and other innovative ideas were adopted for continuous improvement.

4.4.2 State Agricultural Management and Extension Training Institute (SAMETI)

During the year 2020-21, Diploma in Agriculture Extension Service for Input dealers(DAESI) programme sponsored by MANAGE, Hyderabad in 25 batches covering 1000 input dealers / Agro Company workers / Cooperative Society workers and Prospective input dealers @ 40 per batch were organised in nodal training centres. The details are provided in Annexure 3.2

4.4.3 Bakery Training Unit (BTU)

The primary objectives of BTU are to impart knowledge on quality baking and bakery, to impart professional management skills and to promote technical personnel in the field of bakery industry. The products of the unit are sold in the university outlets. The details of the training programmes conducted and other activities are provided in Annexure 3.3.

The unit has organized two programmes of 14 weeks certificate course on Bakery technology for 56 participants and three baking courses of four weeks duration for 36 participants during 2020-21. Besides, the unit conducted five on campus short courses of different duration involving 96 trainees, six Collaborative/Sponsored Training Programmes organized for 190 members and 16 training programmes were organized under SDC, UAS (B) Sponsored projects in which 470 members benefited.

Further, the unit organized 470 method / skill demonstrations of bakery and value addition products in training programmes on commercial baking, home baking and special cakes bakery products, nutritional importancein human health etc, for the benefit of 392 trainees.

4.4.4 Farmers Training Institute (FTI)

Farmers Training Institute has the mandate to organize sponsored need based training programmes to farmers / farm women / Farm Youth /members of Self Help Groups as per the requirements of sponsoring agencies on agriculture and allied aspects. During 2020-21, in total, 21 training programmes were organised for various departments and organizations viz., Karnataka State Department of Agriculture (KSDA), GoK under General Extension Service (GES), Command Area Development Authority (CADA), Cauvery Basin, Mysuru, ATMA, IFS (SCSP/TSP) projects and trained 532 farmers / farm women / youth. The details are provided in Annexure 3.4

Training Impact: The average knowledge gained by the participants was 16.82 per cent and average Training Management Efficiency Index (TMEI) was 96.79 per cent and Subject Matter Efficiency Index (SMEI) was 96.85 per cent. The details are provided in Annexure 3.5

Field Visit: In each of GES and CADA training programmes, field visits were arranged for the benefit of trainees. About **58** field visits were made as a part of training programme to the progressive farmers field, research centres of State and Central Government, etc. In ATMA programmes, various exposure visits to Progressive farmers fields and agriculture related institutions were arranged and method demonstrations / Skill training on various aspects such as collection of soil samples for soil testing, grafting/layering / mulching, preparation of compost pit, Mushroom Cultivation, Bee keeping, waste management by manuring, value addition and food processing, plant protection techniques and silkworm & mulberry technologies were conducted.

Study centre for Distance Education Unit (one year Diploma in Agriculture): As a study centre for Distance Education Unit, FTI has conducted online contact classes of one year Diploma in Agriculture course due to COVID-19 situation. As many as 37 candidates attended the contact classes and 34 candidates attended online examinations for I Semester (Annexure 3.6) Contact classes and preparations to conduct written examination for II Semester for 25 students have been made on offline mode.

As a nodal training centre, one batch of DAESI (Diploma in Agriculture Extension Service for Input Dealers) sponsored by MANAGE, Hyderabad was started and 30 classes, three Field visits, three Quiz and one Midterm exam were conducted.

4.4.5 Farm Information Unit (FIU)

The objectives of the Farm Information Unit (FIU) are to co-ordinate with mass media, publication of package of practices / management practices, publication of technical literature, organizing / participating in agricultural exhibitions & Krishimelas and developing audio-visual aids. The unit carried out the following activities during 2020-21.

a) **Press releases:** The unit released 56 press releases to the mass media. The releases were on U.G., P.G and Diploma courses notifications & admissions, convocation, foundation day, krishimela, seminars / workshops / symposium, celebration of events, awards and achievements of the University.

b) **Press visits and media coverage:** The unit made 16 press visits to different print and electronic media. As many as 383 press coverage's of the University activities were covered through different media.

c) **Press Conference:** It is a customary of the University to organize Press Conference by the Vice-Chancellor and Officers of the University prior to organizing important functions / activities to brief the press about the aims and objectives and also to share the achievements of the University. Two (02) press conferences were addressed by the Vice-Chancellor and Officers of the University in view of Convocation, Krishimela and other important activities of the University.

d) **Popular / success stories:** During the year, the unit published 11 Popular Articles / Success Stories on the technologies of the University and Success Stories of the Award Winning and Progressive Farmers / Farm Women in leading newspapers and magazines.

e) **TV / Radio programmes Co-ordinated:** The unit co-ordinated with Prasarabharathi (Doordarshan & Akashavani) / Other Electronic Media in telecasting / broad casting 195 programmes on University activities and technologies.

f) **Special / Feature article:** The Unit co-ordinated with electronic and print media for publication / telecasting 55 special articles / features on agricultural technologies.

g) **Krishimela / Agricultural Exhibitions:** The Unit arranged / participated in three (03) Krishimelas / Agricultural Exhibitions at regional, state and national level to showcase the technologies of the University. In order to exhibit the technologies effectively during the year Six (06) exhibits were prepared and the exhibits related to agriculture and allied activities on the important technologies released by UAS-B were displayed in the exhibitions.

h) **Publication of Technical Literature:** The unit has published Package of Practices of Agriculture Crops (3rd edition) and Improved Sericutlure Package of Practices.

4.4.6 Distance Education Unit (DEU)

The unit is offering following Diploma and certificate programmes for the benefit of farmers and farm youth; 1) Post Graduate Diploma in Agriculture (PGDA). 2) One Year Diploma in Agriculture. 3) Integrated Farming System. 4) Organic Farming. 5) Jenusakane (Apiculture). In addition, DEU is a Nodal Center for MANAGE sponsored one year Post Graduate Diploma in Agricultural Extension Management (PGDAEM). The details are provided in Annexure 3.6.

4.4.7 Agricultural Technology Information Centre (ATIC)

The main objectives of the Centre are 1) To serve as single window delivery system for agricultural inputs and other products at institutional level 2)To render farm advisory services to solve problems through multidisciplinary approach from different Subject Matter Specialists 3) To provide agriculture improved technologies through publications and other medias to the farmers 4) To establish a mechanism to get the feedback from the users to the University 5) To disseminate technical information through Information and communication tools. In order to accomplish the objectives, the following activities were taken up during the year.

Advisory Services: The ATIC rendered 33,287 farm advisories comprising of 18 field visits, 2185 telephone calls, 2281 consultations, 26289 visit of farmers and extension workers to the centre and 2514 whatsapp messages.

Marketing of different products / plants / literatures: The ATIC realized an amount of Rs.1,09,57,415/- (Rupees one crore nine lakhs fifty seven thousand four hundred and fifteen only) by sale of products, plants, literature, seeds, etc., and the details are provided in Annexure 3.7

e-Krishi UASB portal : It contains technical information on production technologies of agricultural and horticultural crops, animal husbandry, sericulture, fisheries, etc. So far 31,54,817 visitors viewed the agri-portal (up to 31st March, 2021) and the unit provided KIOSK facility for the farmers / farm women / farm youth/ extension personnel and other stake holders to view the uploaded information in the UAS-B agri-portal.

Video Conference Facility: The unit organized four meetings through Video-Conferencing facility during the year 2020-21 that facilitated on spot technical solutions to the stakeholders.

4.4.8 Agricultural Sciences Museum (ASM)

Information about history, technologies, innovations and other information related to agriculture have been displayed systemically at Agricultural Sciences Museum for the benefit of student, farmers and general public. The museum has been established at the entrance of GKVK Campus. Posters, charts, photographs, graphics, modals, live specimens and other audio visual format have been developed and employed to depict the information convincingly to the visitors. Nearly 800 Sq.mts building has been constructed exclusively for the said purpose. Exhibits related to history of agriculture, Karnataka agriculture, genesis of growth of agricultural university, sericulture, apiculture, farm forestry, climate change and farm mechanization have been developed and displayed. During the year display work with respect to bio-energy, grain storage and extension technologies have been completed. Blue print on topics related to agriculture marketing, animal husbandry, poultry and fisheries have been developed for implementation. Due to Covid-19 and closer of schools & collages only 1,800 people visited the museum during the year 2020-21.

4.4.9 Extension Education Units (EEUs)

The Extension Education Unit (EEU), Naganahalli, Mysuru and Kolar functioning in the staff training unit have the mandate to evaluate the performance of research findings, to demonstrate the proven research findings and to conduct training programmes and other extension educational activities in collaboration with developmental departments, input agencies and NGO's. The following activities were performed during the year under report.

Farm trials: The farm trials were conducted to evaluate the performance of research findings in the farmer's field as a tail end research. In total 16 farm trials (1 trail is continuing) were conducted by involving **60** farmers. The details are provided in annexure 3.8.

Highlights

1. KMP-220 paddy variety recorded higher grain yield of 59.80 q/ha over check variety of Jyothi (49.40 q/ha) and resulted in 21.05 per cent increase in grain yield
2. Paddy variety of MSN-99 resulted in13.60 per cent higher grain yield than check variety of Raksha
3. Application of 175 per cent recommended dose of nitrogen (RDN) resulted higher green fodder yield of Napier grass (272 t/ha) compared to 100 per cent recommended dose of nitrogen (193 t/ha) and resulted 40.93 per cent increase in grain yield
4. Application of Bensulfuron methyl 0.6 per cent G @ 60 G + Pretilachlor 6 per cent G @ 600 g/a.i/ha (10 kg/ha) 5 days after sowing in drum seeded rice resulted in 7.40 higher yield with better weed control compared to hand weeding at 25 and 45 days after sowing
5. Grain amaranthus variety of KBJA-15 recorded higher grain yield of 1635 kg/ha than check variety of KBJA-4 (1420 kg/ha) and resulted in 15.14 per cent increase in grain yield
6. Application of 75 per cent recommended dose of NPK+ microbial consortium (Azatobacter + Azospirulum+Bacillus+Pseudomonas) through flood irrigation in sugarcane recorded higher yield of 212 t/ha, compared to check RDF (250 : 100 : 125 kg N:P:K/ha) + (Azatobacter 2.5kg + Agrobacterium /Aspergilus 10kg/ha) (196t/ha) and resulted 8.1 per cent increase in sugarcane yield
7. Application of 5000 ml microbial consortium liquid formulation (Pseudomonas + bacillus + cellulomonas) +5000 g powder form (Azospirillum + Phenorokete +Pleurotus +Ttrichoderma) + 30 kg Cow dung + 30 kg urea/ha recorded 7.89 per cent higher sugarcane in comparison with check 40 kg urea : 20 kg cowdung:10 kg pleurotus (Urea: Cowdung; Pleurotus)
8. Varietal performance of CoVC 18061 variety of sugarcane resulted in 15.38 per cent higher yield than check variety of Co-86032
9. Ragi variety KMR 316 performed better compared to check KMR 630 in respect of yield (35.23 Q/ha), tillers 4.86, fingers 6.86 and fodder 5.16 t /ha
10. Foxtail variety (Navane) of GPUF-3 recorded higher grain yield of 1920 kg/ha than check variety of SIA-3156 (1700 kg/ha), which in turn resulted in 15.20q/ha. increase in yield.
11. Proso millet (Baragu) variety of GPUP-28 resulted in 17q/ha. higher grain yield over check variety of GPUP-21 (13.92q/ha.)
12. GPUL-6 variety of little millet resulted in 15.19 q/ha. higher grain yield than check variety of BL 6 (11.60 q/ha.)

Demonstrations: The Extension Education Unit, Naganahalli, Mysuru and Kolar conducted 22 demonstrations in 946 locations involving 946 farmers in an area of 157.2 ha. In EEU, Naganahalli the demonstrations conducted

were SRI method of Rice Cultivation, DSR method of paddy cultivation, Integrated Crop Management in Paddy, Integrated Crop Management in Finger millet, Demonstration of Red gram variety and field bean variety, IPDM practices in tomato, IPDM in Chilli, mushroom production Technology, Nutritional garden, Silkworm bivoltine production, Integrated management on fall Armyworm in Maize, paddy production in organic farming, introduction of navane, haraka and multicut fodder varieties.

Highlights of demonstrations:

1. Demonstration of Integrated crop management in paddy involving Hybrid KRH-4 with improved production technologies recorded 12.92 per cent higher grain yield than private hybrid (VNR) with farmer practice.
2. System of rice Intensification method of rice cultivation resulted in 17.28 per cent higher grain yield beside water saving and reduction in cost of cultivation.
3. Demonstration of Direct seeded rice method of rice cultivation recorded in 19.33 per cent higher yield and 12-15 per cent reduction in cost of prodution compared to conventional method of rice cultivation.
4. Organic farming rice cultivation recorded 12.99 per cent higher yield than farmer practice of organic cultivation and also the per cent of organic carbon increased in demonstration plot than check plot.
5. ICM in finger millet (KMR-630 with improved production technologies) resulted in 17.0 per cent higher grain yield than farmers practice (Local variety).
6. ICM in Maize (Introduction of MAH 14-5 newly released hybrid with improved production technologies) recorded 20.88 per cent higher seed yield than farmers practice.
7. Integrated management on fall army worm in maize resulted in reduction in pest (5.0 per cent) with increased yield of 10.60 per cent compared to farmers practice
8. In foxtail millet variety SIA-3156 with improved crop management practice produced 18.82 per cent higher grain yield than farmers practice
9. Demonstration of Red gram variety BRG-5 recorded 18.77 per cent increase in yield where as in EEU, Kolar, BRG-3 (14.62q/ha.) recorded higher yield as compared to BRG-2 (12.75q/ha.) variety.
10. Demonstration of Hebbal avare variety HA-4 produced higher green pod yield and resulted in 14.81 per cent increase in yield.
11. Demonstration of IPDM practice in Ginger recorded 12.90 per cent higher yield beside reduction in pest (6.0%) and disease (9.0%).
12. Introduction of New silkworm Hybrid recorded higher cocoon yield of 90kg/100 DFL's compared to check yield of 74kg/100 DFL's.
13. Demonstration of Nutritional garden for farm families has increased nutritional status due to consumption of fresh vegetables.
14. Demonstration of multicut fodder variety COFS-31 (375 Q/ha) recorded 20.96 per cent higher yield compared to check COFS-29 (310 Q/ha). The palatability of COFS-31 is better.

Training Programmes: The Extension Education Unit, Naganahalli, Mysuru and Kolar was organized 14 need based on campus training programmes on organic farming, seed treatment in field crops, mechanized paddy transplanting, integrated crop management in ginger and Maize, production technologies of vegetable crops, agronomic practices in pulse crops etc., for the benefit of 611 farmers, farm women and youths to upgrade their knowledge and skills. Further units also organized 19 off campus training programmes on integrated crop

management in rice, ragi, fall army worm management in maize, oyster mushroom production & process technologies, scientific cultivation of small millets, redgram, avare & fodder for the benefit of 1440 farmers. The details are provided in Annexure 3.10.

The Extension Education Unit, Naganahalli, Mysuru conducting 2 batches of DAESI with a capacity of 40 input dealers in each batch.

Educational activities: The EEU, Naganahalli, Mysore and Kolar organized 338 (2031) group discussion meetings, 63 (348) method demonstrations 508 (2915) field visits and 15 (1030) field days. The scientists of EEU, Mysuru participated in three bimonthly technical workshops, two TV programs, three radio programs and participated in two Krishimela and three exhibitions and provided 1775 advisory services to the farmers.

4.4.10 National Agricultural Extension Project (NAEP)

National Agricultural Extension Project (NAEP) was established to provide training to increase knowledge level and to develop skills of extension functionaries of the state department of agriculture and other line department. The objective of this project is to organize district level bi-monthly technical workshops. District level pest and disease surveillance, developing and distribution of literature on crops and agri-enterprises of the district as well as to organize farmer's discussion forums. Under the leadership of Associate Directors of Extension working at Bengaluru and Mandya have carried out the following activities during 2020-21

a) **Bi-monthly Technical Workshop:** 18 bi-monthly technical workshops were organized in 10 districts. Taluka wise weather data was analyzed, field problems observed by extension functionaries were discussed and suitable solutions were worked out with the assistance the University scientists. Accordingly 14 lesson plans were developed and advocated to the extension functionaries. Depending on the requirement 9 special guest lecturers were arranged. In addition 35 method demonstrations, 22 group discussions were conducted. 82 field visits and advisory services were provided to the farmers. Participated in three important days celebration, seven important events and participated in 90 meetings conducted at the university and the government level

b) **Skill Demonstrations:** Scientific method of mango harvesting, during Covid-19 lockdown period packing of grapes using locally available material, nipping in caster, control army warm in maize, fertigation in pomegranate, formation of trenches and application fertilizers in mango, preparation of spray solutions with NPV and spraying of it, seeds treatment in paddy, ragi and pulses, tray nursery in paddy, seed hardening and zinc sulphate treatment in ragi, mechanized sowing of ragi, Azospirullum and rhizobium treatment in redgram, diagnosis of sugarcane diseases, method of identifying saline and alkali soil, foliar application of water soluble fertilizers in ginger and other important technologies which were demanding skill improvement was undertaken in jurisdictional districts.

c) **Diagnostic Field Visits:** Arranged Diagnostic Field Visits to pomegranate plots in Tavarekere and surrounding villages, Sira Taluk, Tumakur district along with the officers of department horticulture and scientists of KVK Hirehalli and provided required solution to the field problems. Arranged diagnostic field visits to ragi, paddy, sugarcane and maize crops in Mandya, Maysore, Hassan and Chamarajanagara districts and diagnosed field problems and provided suitable solutions. The problems identified during seven diagnostic field visits at Mandya district were problematic paddy fields, paddy fieds affected by neckblast, udubatta disease, sugarcane leaf rust and yellow mosoic virus in green and black gram fields.

d) **Field problems reported in the bi-monthly workshops :** Yellow mosaic in blackgram, greengram & cowpea, fall army worm in maize, stem borer in ragi, early shoot borer & rootgrub in sugarcane, bacterial leaf streak, stem borer, brown spot, leaf blast & case worm in paddy, weed control in ragi, fusarium wilt in tomato, white flies in coconut, poor quality of pesticides and fungicides, non availability of sun flower seeds, milling and marketing problem in millets, non availability of mechanized ragi harvesters during harvesting

season, poor crop yields in millets, lodging problem in ragi and non availability of good quality field bean and fodder seeds

e) **Field Visit and Supervision of Farm Trials and Demonstrations:** During the year, farm trails were conducted on 15 technologies. Visited 70 farm trails plots spread over in the jurisdictional districts and 38 visits to the demonstration plots were carried out to observe the performance of the technologies and to guide the field functionaries. Farm trails on KMR -316 Ragi variety, GPUF- 3 Navane, GPUP- 28 Bargu, KBGA-15 Amaranthus, use of slag gypsum in groundnut and fodder Oats variety - RO-11-1, paddy varieties KMP-220 and MSN- 99 raksha, Saame variety GPUL-6 and BL-6, application of nitrogen to improve the fodder quality in napier and post emergent weedicides in drum seeded paddy were conducted by the KSDA and KVKs in the respective districts. Visited IPM demonstrations in maize, line sowing of ragi, IFS demonstrations, improve method of sesame cultivation, oil seeds production demonstrations, millets seed production, redgram varietal demonstrations, mango pruning, INM in sugarcane as well as paddy varietal demonstrations organized by KSDA and KVKs.

f) Field Problems and Feedback Presented at ZREP Meetings

Crop Improvement: Improved varieties in ragi for higher fodder and grain yield, drought & lodging tolerant and suitable for mechanized harvesting, high yielding varieties in millets, short duration and drought tolerant in redgram, downy mildew and leaf sport resistant varieties in maize, yellow mosaic resistant varieties in green gram, high yielding and uniform maturity varieties in groundnut, high yielding and disease resistant varieties in sesame and niger, sustainable and high yielding varieties in drumstick, virus resistant varieties in papaya and up gradation and genetic modification in silk worm races for higher cocoon productivity.

Crop Production: Cultivation practices for tree mulberry, non availability of post emergent weedicides, cultivation practices for gunipaddathi ragi, fertigation in horticulture crops, chloride and fluoride problem in bore well water, deficiency of zinc and boron in vegetable and fruits crops, use of hydrogel in vegetable cultivation and development of agronomic practices suitable for mechanization in ragi.

Crop Protection: Alternate chemical for DDVP for pest management in mulberry, control of army worm in different crops, spiraling white flies in horticulture crops, leaf miners in vegetables, fruit flies in vegetable creepers, yellow mosaic in green gram, rugosa white flies in areca nut and coconut, fruit flies in mango, panama wilt in banana and root knot, decaying of roots, mites problem in mulberry, development of combo products for disease and pest management.

Agricultural Engineering and Processing: Low cost de husking, popping and rosting equipments for millets, seed and husk separators in tamarind, harvesting and processing equipments for small farmers, establishment of coconut oil extractor & desiccators and small scale redgram processing equipments.

Others: Protection of soil health and soil improvement technologies, standardization of temperature and duration to dry pappads, crash in the price of tomato and mango due to excessive inflow in the market, maintaining quality and quantity of agri inputs and reduce the price of agri inputs, establishment of diagnostic labs for testing the quality of organic produce by the customers.

4.4.11 Krishi Vigyna Kendras (KVKs)

The Indian Council of Agricultural Research (ICAR) has created network of KVKs in the country. The KVKs aims at assessment, refinement and demonstration of technologies & products. The activities of KVKs include on-farm testing, frontline demonstrations and training. The KVKs also work as resource and knowledge centre of agricultural technology for supporting initiatives of public, private and voluntary sectors for improving the agricultural economy of the district. At present seven KVKs are working under the jurisdiction of UAS-B with the following objectives.

Objectives

a) Conducting on-farm testing to identify the location specificity of agricultural technologies under various farming systems

b) Organizing frontline demonstrations to establish production potentials of various crops and enterprises on the farmer's field

c) Organizing need based training for farmers to update their knowledge and skills in modern agricultural technologies related to technology assessment, refinement and demonstration and training of extension personnel to orient them in the frontier areas of technology development

d) Creating awareness about improved agricultural technologies among various clientels through an appropriate extension programmes

e) Production of quality seeds, planting material, livestock breeds, animal products, bio-products etc. as per the demand and supply the same to different clienteles

f) Work as resource and knowledge centre of agricultural technologies to support the initiatives of public, private and voluntary sectors for improving the agricultural economy of the district

Keeping in view the above objectives, seven KVKs have been established under the jurisdiction of UAS, Bangalore in the districts viz., Kandali (Hassan), Konehally (Tumakuru), Haradanahalli (Chamaraja-nagar), V.C. Farm (Mandya), Hadonahalli (Bengaluru Rural), Chintamani (Chickballapur) and Magadi (Ramanagara).

The following activities were carried out by seven KVKs during the period under report

4.4.11.1On Farm Testing (OFTs)

On-Farm Testings were conducted to identify the location specificity of agricultural technologies under various farming systems. About 27 technologies were assessed under different disciplines/areas during 2020- 21 involving 107 farmers in an area of 24.28 ha and 6 units. The details are furnished in the Annexure 3.11

Findings of On Farm Testings

1. Assessment of nutrient management in Potato: As a result of additional application of calcium and sulphur nutrition, resulted increase in yield and marketable quality of the tubers. Besides reduction in incidence of soft rot (6.10 %) was also noticed. Recorded the cost benefit ratio of 3.70 highest compared to other treatments.

2. Assessment of spray of Nano Nitrogen particles on yield of Potato: Spray of nanonitrogen particles on potato crop has resulted in 29.50% increase in tuber yield compared to farmers practice

3. Assessment of Bengal gram varieties against wilt: The Super Annigeri variety resistant to wilt and recorded 9.86 q/ha when compared with the farmer practice (JACKI)

4. Assessment of Foxtail Millet Varieties during Late Kharif for Higher Yield and Income: DHFT 109-3 variety has shown very good growth and yield parameters, can be used under contingency cropping system under late kharif season

5. Assessment of Chilli hybrids KBCH-1and Arka harita: Chilli hybrid KBCH-1 has obtained higher net return and reduced the disease incidence of powdery mildew, anthracnose and wilt.

6. Assessment of Redgram Varieties for Terminal Drought conditions: The higher yield was observed in BRG -2 variety compared to short duration varieties at the cost of 25 to 35 days more duration. Resulted in 25.63 % increase in yield besides reduced incidence of pod borer through adoption of insect trap.

7. Assessment of suitable redgram varieties for vegetable purpose: Ujjwala variety (PJTSAU, Telangana) recorded higher yield compared to BRG-1 (long duration variety – Direct sowing) 33.2 q/ha and the Cost Benefit ratio is 2.58.

8. Assessment on management of mosaic virus in ridge gourd through integrated approach: Maximum yield and higher net returns was recorded with IIVR, Varanasi technology through integrated disease management practices. The incidence of Mosaic Virus is less and yielded 33.73 t/ha with cost benefit ratio is 4.63.

9. Assessment of eco-friendly practices for management of root knot nematodes in mulberry: Using UAS(B) microbial consortium @ 40 ml/l resulted in significant reduction in nematode population (77.57 %), leaf yield increased by 40.97 % and Cocoon yield by 48.34 %.

10. Assessment of foliar nutritional management in mulberry through eco friendly approach: Using waste decomposer spray at 25-30 DAP enhances mulberry leaf quality (leaf nutrients like N, P, K, Ca, Mg, Zn, S, total protein, total sugars and moisture retention capacity), leaf yield (111.91 q/ha/crop) as well as cocoon productivity (454.60 kg/ha/crop) in silkworm.

11. Assessment of different compost cultures in composting of sericulture wastes: Composting of sericulture waste using compost culture from Department of Microbiology, UAS, Bengaluru or waste decomposer from National Centre of Organic Farming (NCOF), Ghaziabad results in speed up of decomposition process and obtain good quality compost (1.5-1.9 % N, 0.5-0.9 % P, 1.5-2.0 % K) within 80-90 days.

4.4.11.2 Front Line Demonstrations (FLDs)

The Krishi Vigyan Kendras conducted Front Line Demonstrations to demonstrate new proven technologies on farmers fields. The details of front line demonstrations conducted are furnished in Annexure 3.12. As many as 112 Front line demonstrations were conducted in an area of 288.55 ha. and 26 units covering 1023 farmers in the field of crop improvement, production, protection, horticulture, home science, engineering, animal science, etc.

Highlights of Frontline Demonstrations

1. Demonstration of blackgram variety LBG-791: The yellow mosaic tolerant Blackgram variety LBG-791 along with ICM practices, has recorded higher grain yield of 95.7% and recorded no incidence of YMV as compared to farmers practices (66.6%). .

2. Integrated pest and disease management in Maize: Adoption of IPDM practices in maize resulted in reduced incidence of fall army worm @ 30 & 60 days after sowing (30.31% and 8.03%) as compared to farmers practice (44.4% and 22.2%). Further, 22.29% of grain yield was increased as compared to farmers practice. Application of pre-emergent herbicide @ 1 kg a.i./ha during 3 DAS, has helped the farmer in reducing the cost of weeding by ¹ 5000/ha.

3. Demonstration of Sunflower Hybrid KBSH-78: Under less rainfall conditions KBSH-78 has performed well due to its short duration nature (80 - 85 days). Further application of Borax to soil as well as foliar application has resulted in complete filling of sunflower head. Inturn, 265.3% increased yield was observed with KBSH-78 as compared to farmers practice.

4. Integrated nutrient management in in Garlic: 17.9% higher yield was recorded in the demonstration plot. The quality of the garlic cloves were superior with respect to size, aroma and hardiness because of additional sulphur nutrition in the demonstration plot.

5. Integrated Crop Management in Potato: Due to the demonstration of variety Khufri Jyothi, the farmers has got additional yield of 18.6% with minimum soft rot incidence as compared to local check variety. Even

the farmers are gain knowledge about selection of certified seeds and improved cultivation aspects. Rainfed suitable variety Khufri Jyothi is 22 days earlier than the locak check.

6. Demonstration of Multicut Fodder Sorghum COFS-3: As compared to single cut fodder sorghum, COFS-31 a multicut fodder sorghum variety has recorded 43.57% higher green fodder yield with good palatability under rainfed condition.

7. Pre and Post – partum management of crossbred dairy cattle: Usage of bypass fat and mineral mixture has resulted in increased milk yield and quality, besides improvement in farmers income by 138.17%.

8. Demonstration of Finger millet variety KMR – 630: KMR-630 Finger millet variety performed well in demonstration by yielding 18.50 q/ha compare to check variety GPU-28 which yielded 14.00q/ha besides KMR-630 is suitable for machine harvest.

9. Demonstration of paddy variety Gangavathi Sona: Paddy variety Gangavathi sona recorded 52.50q/ha compare to check variety IR-64 which yielded 41.50q/ha besides, Gangavathi sona performed resistant to blast disease.

10. Addressing Drought and Blast Vulnerability through Finger millet var. ML 365 under double cropping system: Demonstrated drought and blast resistant Ragi variety ML 365 in 4.0 ha. area and covered 10 farmers. When compared to Farmers practice (Solo crop Ragi) recorded 19.80 % increase in yield and obtained 22.4 q/ha. Additional income fetched through intercropping system with cowpea and BC ratio is 2.28. Average incidence of blast severity was 6.4% in demo plot and noticed 15.8% blast severity in check plot.

11. Integrated Crop Management in Redgram BRG-3: Redgram variety BRG-3 is resistant to Mosaic virus. An average of 14.6 q/ha. yield was recorded and the BC ratio is 1.84.

12. Demonstration of Popcorn as alternative crop for finger millet under rainfed situation: In demo plot the average yield obtained was 24.3 q/ha. when compared to Ragi yield (Farmers practice) and increase in yield recorded was 67.7% and the BC ratio is 1.98.

13. Demonstration of multicut fodder sorghum: COFS-31 for green fodder and silage: The multicut fodder sorghum Variety CoFS – 31 resulted an average yield 1160 q/ha., when compared to check plot and noticed 98.3% increase in yield and the B:C ratio is 2.69.

14. Integrated Crop Management in Tomato: In demonstration plot obtained an average yield of 671.20 q/ha as compared to check plots. Recorded 9.26% increase in yield and the average BC ratio of demo plots was 3.92.

15. Eco-friendly management of fall army worm in Maize: The eco-friendly technologies were followed to manage fall army worm and recorded 75.17 q/ha., when compared to check plot recorded 14.20 % increased in yield and the BC ratio is 2.19 was recorded in demo plots.

16. Integrated Crop Management in Brinjal: The demonstration plot recorded 319.50 q/ha compa-red to check plot 7.43 percent increase in yield and the cost benefit ratio is 4.34 in demo plots.

17. Ration Balancing through Integrated Approach in Dairy Animals: In the demonstration higher milk yield of 9.92 L/day/animal was recorded and the increased yield 11.21 %, was compared to farmers practices. The cost benefit ratio is 2.96 in 5 milching animals.

18. Integrated Nutrient Management in Mulberry: Demonstration on INM in mulberry resulted in increased leaf productivity (20.35%) and cocoon productivity (6.8%). The soil nutrient status (N-215.38 kg/ac, P-38/kg/ac, K-126.57/kg/ac, PH-6.69, OC-0.48%) was significantly improved due to incorporation green manure, bio fertilizers along with the enriched FYM and RDF

19. Popularization of Bivoltine Double Hybrid FC1 X FC2: Ten new farmers adopted the rearing of Bivoltine double hybrid FC1xFC2. The cost of production was significantly less for BV (Rs.13217/ 100 DFLs) compared CB (Rs.16774/ 100 DFLs) fetching higher BCR (3.55) against 1.99 in CB

20. Management of Uzi fly, Exorista bombysis in silkworm rearing: Using uzi pheromone traps @ 5 traps per / house increased the number of flies trapped (77/card), reduced uzi infested cocoons (69.73%) thereby increasing the cocoon yield (10.42%).The cocoons fetched higher price (5.86%).

21. Demonstration of Ragi Var. KMR 340: Demonstration and value addition of finger millet var. KMR 340 taken up by the self help group helped them to increase yield by 15 per cent and due to its attractive white colour, the value added products made out of it like Ragi malt, kurkure, mixture and laddu have increased their monthly income by Rs. 25,000/- which has developed entrepreneurship skill among them.

22. Demonstration of field bean variety HA 4 : Seed treatment with biofertilizer, INM, IPM technologies were demonstrated. By following these technologies 26.41 q/ha yield was obtained which was 10.6 % increase over check (23.91 q/ha).

23. Demonstration of Rice bean variety KBR 1: In demonstration, 15.4 t/ha yield was obtained and the variety showed less incidence of yellow mosaic..

24. Integrated nutrient and pest management in Cabbage: Reduced fertilizer usage due adoption of fertigation schedule method in cabbage crop and spraying of vegetable special enhanced the good quality head. Less use of plant protection chemicals (4 against 8) and also additional yield and income obtained.

25. Integrated nutrient and pest management in Pomegranate: Use of Arka Microbial Consortia and Arka Actino plus in pomegranate reduces blight and wilt disease incidence. Adoption of soil test based fertilizer recommendation and IPM practices help in reduced disease & pest incidence, quality produce and enhanced returns.

26. Integrated Crop Management in Chilli: Use of bioagents enriched FYM, sticky cards, pheromone traps and neem soap reduced disease and pest incidence in chilli. Spraying of vegetable special increased the quality of fruits and reduced the nutrient deficiencies. There was 12.92% increase in yield in demo plot compare to check.

27. Integrated Crop Management in Rose: Timely pruning and application of rose mixture increased the quality of flowers and yield in rose. Application of bio agent enriched FYM and use of sticky cards reduced disease and pest incidence. There was 11.47% increase in yield in demo plot compare to check.

28. Integrated crop management in Tomato: Use of Trichoderma, sticky cards, pheromone traps, neem soap and growing marigold as trap crop reduced disease and pest incidence in Tomato. Spraying of vegetable special increased the quality of fruits and reduced the nutrient deficiencies. There was 7.13% increase in yield in demo plot compare to check.

29. Integrated management of Downey mildew in Cucumber: Seed treatment with Metalaxyl (2g/kg seeds) and Trichoderma enriched farm yard manure application, reduced Downey mildew in cucumber. There was 13.5% increase in yield in demo plot compared to check.

30. Management of yellow vein mosaic in pole bean: Seed treatment with Thiomethaxam 25 WG – 5g/kg seeds, Soil application of *Pseudomonas fluorescens* along with neem cake and installation of yellow sticky trap reduced yellow mosaic virus in Polebean. There was 15.35% increase in yield in demo plot compare to check.

31. Nutri-garden: Demonstration of nutri garden in farmers field has helped children, farm women, adults and elderly to maintain good health by increasing 20 per cent of iron and calcium intake along with 28 per cent increase in vitamin A, B, C and D intake by consuming organically cultivated fruits and vegetables .

4.4.11.3 Training Programmes

The details of training programmes (on and off campus) organised by KVKs during 2020-21 are furnished in Annexure 3.13.

1. **On campus training programmes:** The seven KVKs put together organized 218 need based on-campus training programmes benefiting 7492 farmers, farm women and youth in the discipline of crop improvement, crop production, protection, horticulture, animal science, home science, sericulture, soil science, Agricultural Engineering, Agricultural Extension, Veterinary etc., to upgrade their knowledge and skill.

2. **Off campus training programmes:** To reach large number of farmers, the KVKs organized 308 need based off campus training programmes benefitting 10780 farmers, farm women and youth in the discipline of crop improvement, crop production, protection, horticulture, animal science, home science, sericulture, soil science, Agricultural Engineering, Agricultural Extension, Veterinary etc, to upgrade their knowledge and skill.

3. **Training for extension personnel:** The KVKs also organized training for extensional personnel of line departments / organizations / NGOs to up grade their knowledge and skill. In total 32 training programmes benefiting 1123 extension personal benefited in various disciplines of agriculture and allied subjects.

4.4.11.4 Technological services provided

In addition to providing advisory service, the KVKs provided quality seed, planing material and other inputs like – bio-control agents, micro nutrients, livestock etc., Accordingly the KVKs produced following critical inputs during the year under the report for the benefit of farming community.

- KVKs together analyzed 3281 (2594 farmers) soil samples and 1841 (1503 farmers) water samples and gave suitable recommendations
- Produced 20.95 q. of quality seeds of cereals, pulses, etc. In addition planting material (174370-1035 farmers) like mango, papaya, cury leaf, drum stick, vegetable seedlings and fodder slips (53155-888 farmers), fodder seeds 243kg (191 farmers) were produced and sold to farmers.
- Produced and sold 3591 kgs (145 farmers) of biocontrol agents like trichoderma, 2537 (112 farmers) pseudomonas etc and 841 kgs. (119 farmers) micro nutrients mixture (vegetable, mango, banana special)
- Distributed 3502 live stock (sheep, goat, pig, poultry etc.) to 205 farmers

4.4.11.5 Village adoption programme

Each KVK adopted one village to demonstrate all the technical interventions in the field of agriculture and allied subjects involving animal husbandry, forestry, health, nutrition and swacha Bharath to demonstrate the changes in the farming system so as to create an impact among farmers and other stake holders for a period of three years in collaboration with developmental departments. During the reporting year various activities conducted were crop / livestock demonstrations (41), animal health camps (08), health camps (05), Field day (05), soil health camps (08), training programmes (77), exposure visits (60), important day/events celebration (03), Vanamahotsava (01), Method demonstration (03) and other (15) activities.

4.4.11.6 National Initiative on Climate Resilient Agriculture (NICRA) Activities

The KVK, Chikkaballapura is implementing the project to develop resilience to climate and to enhance productivity of crops / live stocks through various technologies at S. Raguttahalli of Chintamani taluk. Various technological interventions implemented during the year are; Trench cum bunding, Contour trenching, Community ponds, Farm ponds, Check dams, Open well, Finger millet-ML 365 (improved varieties), Horse gram (PHG 9) Contingency crop, Redgram (BRG-1) dual purpose and high yielding, Foxtail millet (DHFT-103-1) (Crop

diversification), Introduction of gift thilapia fingerlings, and swarnadhara poultry birds, Improves the Azola production and Introduction of new fodder crops or new varieties (COFS 31).

4.4.11.7 Attracting and Retaining Youth in Agriculture (ARYA)

The KVK Hadonahalli, Bengaluru Rural district imparted skill training on Vermi Compost Production, Coconut climbing and Bee keeping. Organised 3 on campus training programmes for 100 trainees and 2 field visits were conducted under bee keeping to entrepreneur units who were trained by ICAR – KVK, BRD in the previous training programme. The trainees gained knowledge through method demonstrations (6) *i.e.,* coconut palm climbing and cultivation management, vermi composting and bee keeping.

4.4.11.8 Linking KVKs to FPO for technical support under CHD scheme

The KVKs (Hassan, Mandya and Bangalore Rural District) working under the jurisdiction of UASB technically supported eight FPOs under CHD scheme of Departmentt. of Horticulture. The activities carried out are Front Line Demonstrations of Horticulture crops (20), Exposure visits to other states (05), Training programmes (18) and Field visits (76).

4.4.11.9 Other Extension Activities

The KVKs organized various extension educational activities to create awareness among larger number of farmers and other stakeholders regarding improved technologies. Accordingly, the following extension educational activities were organized.

- Organized 151 (2395 farmers) Group discussion meetings, 1420 field visits covering 6568 farmers, 173 diagnostic visits, 35 Radio / 50 TV programs and 51 popular articles were published.
- Organized 121 important days/events, 9 exhibitions, 95 (3821) field days, 197 (4706) method demonstrations, 16 (1262) animal health camps, 42 (1212) soil heath camps, 58 bimonthly technical workshops, provided consultancy through face to face contact 13461 and through telephone 21454 for farmers and 193 SMS were sent to 240015 registered farmers.
- The KVK Scientists delivered 521 lectures as resource persons, 361 news paper coverage's and answered 1134 whats app SMS quiries

4.4.11.10 New Initiatives

a) **Skill Training for Rural Youth:** Extension Education Unit, Mysore, Krishi Vigyan Kendra, Bangalore Rural, Tumkur, Mandya and Ramanagar organised five skill trainings on Organic farming, Nursery management, Soil testing & Integrated Nutrient Management and Production, usage & importance of organic fertilizer and pesticides in organic farming topics for six days duration for 75 rural youth sponsored by MANAGE, Hyderabad.

b) **District Agro Met Units (DAMU)**: KVK, Mandya, Chamarajanagara, Tumkur and Ramanagar established District Agro Met Units with the support of Indian Metrological Department and ICAR, New Delhi. During the period the KVKs disseminated 4003 Agro. Met advisories to 11530 registered farmers.

c) **Paramparagath Krishi Vikas Yojana:** The programme is an ongoing programme implemented in KVK Hassan initiated in the year 2019-20. Value addition and market linkage to the farmers were milestones of the programme. The significant extension activities conducted under this programme were created awareness on organic farming, preparation of biofertilizers, liquid organic manures, awareness on formation of organic paddy growers groups, use of organic manures (AMC, azospirullum and PSB etc.), training programmes,field days, filed visits etc.,

d) **Nutri Farms:** To overcome malnutrition among rural farmers, KVKs, established 122 nutri gardens at village level. After the introduction of nutrigardens the consumption rate of milk & milk products, vegetables and fruits increased to 5.07 per cent, 7.58 per cent and 4.23 per cent among the beneficiaries.

4.4.12 Krishimela

The University of Agricultural Sciences, Bangalore used to organize Krishimela every year in collaboration with development departments of Karnataka. Due to Covid-19 Pandemic throughout the country this year University of Agricultural Sciences Bangalore has organized both physical and digital Krishimela to disseminate the agricultural technologies to the farmers timely from November 11th to 13th, 2020 at Gandhi Krishi Vigyan Kendra, Bengaluru.

18 exhibition stalls were arranged by the various Departments of UAS, Bangalore and Indian Institute of Horticultural Research, Bangalore by exhibiting their technologies and products. Demonstrated 28 crop demonstrations on recently released different crop varieties by the University. About 1.1 lakhs farmers and general public were participated in the mela both online and offline.

During the Krishimela various farmers awards were felicitated such as District Level Progressive Farmers / Farmwomen awards (17), Taluk Level Best Youth Farmer / Farmwomen awards (94) and State Level Best Farmers awards (6).

In the programme, provided the suitable agriculture solutions to the farmers on their queries related to agriculture through the physical (498), whats app (383) and online (50) consultancy services.

On 11-11-2020, the programme was started from morning 10.00 a.m. Dr. M. Byregowda, Director of Extension, UAS-B welcomed all the dignitaries Dr. Indresh, Vice-Chancellor, University of Horticultural Sciences, Bagalkot, Dr. Kotikal, Director of Extension, University of Horticultural Sciences, Bagalkot were present. He welcomed Dr. A.K. Singh, DG, ICAR; Dr. Pandey, ADG and member of Board Management; Dr. V. Venkatasubranian, Director, ICAR-Agricultural Technology Application and Research Institute, Bangalore and Dr. S. Rajendra Prasad, Vice-Chancellor, UAS, Bangalore and also Members of Board of Management: Dr. Ramanjigowda, Sri Dayanad, Sri T.M. Aravind, Sri Suresh Muragad and Press and Public gathered there to the simple Krishimela. Followed by this, he described the features of Krishimela. Further, he said the new varieties to be released in the Krishimela which included GKVK 27 in Groundnut, K.C. 8 in Cowpea and M.F.C-09-3 in fodder crop cowpea. Added to this, he said 17 other technologies have been developed and released on the occasion and also, highlighted the Awards to be given.

Dr. S.Rajendra Prasad, Vice-Chancellor of University of Agricultural Sciences, Bangalore lit the lamp along with other dignitaries. Dr. A.K. Singh, Deputy Director General (Agil. Extension), ICAR, New Delhi address the gathering virtually, he admired that UAS-B for conducting 107th Science Congress and recalled his stay in Bangalore as very pleasant. He appreciated UAS-B seeds production activates and briefed the programmes of ICAR which are in the pipeline: Direct Marketing export promotion in Horticulture crops, Processing and IFS and establishment of Farmers Producer Organizations (FPOs) for sustainable agriculture.

Dr. V. Venkatasubramaniyan, Director, ICAR-ATARI, Bangalore addressed the gathering and said focus should be given to the climate resilient agriculture to mitigate the challenges of agriculture. Further, he said the cost of production should be reduced. Farmers income should doubled diversification of farming activities looking to market demand, encouragement of nutrition garden, Attracting Rural Youth to Agriculture (ARYA) should be focused in coming days. On the same occasion, District Level and Taluk Level awards were given to the Farmers of Ramanagaram, Hassan and Tumakur District farmers. The Programme ended with vote of thanks by Dr. Y.G. Shadakshari, Director of Research, UAS, Bangalore.

On 12-11-2020 (Thursday), the second day programme started at 10.00 AM. Dr. D.L. Savithramma, Dean (Agri), UAS, Bangalore welcomed all the dignitaries to the programme. Dr. M.K. Nayak, Vice-Chancellor of

UAHS Shivamogga, while addressing the gathering virtually he said the market facility should be given to the farmers and value addition yields good remuneration in the covid-19 period, social media, Whatsapp helped farmers. Dr. Kattimani, Vice-Chancellor of UAS Raichur, said to increase our agriculture production, we should encourage the people who were coming back to agriculture 22-25 per cent from the overseas, also minimum support price should be extended to the farmers by the government. Integrated Farming System is more beneficial to the farmers. The Awardee farmer should translate their activities by imparting what they have done to the other farmers then only this award is meaningful he said.

Sri T.M. Aravind, Member of Board of Management said the Integrated Farming System is most suitable in the present days to conserve the water drip irrigation should be increased, by conserving wastage of water we can grow more crops he said, Further he said UAS, Bangalore scientists could be developed pest resistant varieties in the coming days and agro forestry will yield good returns he said.

Dr. P.H. Ramanjinigowda, Member of Board of Management opined that marketing was the major problem, but not cultivation. He appealed to the farmers to use Drip Irrigation and consolidate themselves in to FPOs on the lines of KMF in Karnataka, also organic cell for certification of organic products should be encouraged at the state level.

Further, the farmers of Chamarajanagar, Mysore and Mandya districts and Taluks award winners were felicitated on the occasion. Dr. Srinivasa, Dean (PGS) proposed vote of thanks.

On 13-11-2020 Krishimela valedictory and award distribution programme started at 11.30 a.m., Hon'ble Vice-Chancellor Dr. S. Rajendra Prasad, UAS, Bangalore welcomed all the dignitaries of the programme Sri D.V. Sadananda Gowda, Union Minister of Chemicals and Fertilizers, GoI who participated virtually in the programme. Hon'ble Minister of Agriculture, Government of Karnataka and Pro-Chancellor of UAS, Bangalore Sri B.C. Patil and Minister of Horticulture and Sericulture, GoK Sri K.C. Narayanagowda were the chief guest. Members of Board of Management namely: Sri Dayanad, Sri T.M. Aravind, Sri Suresh Margad, Sri Srirama were present on stage the Vice-Chancellor also welcomed press and media to the Programme.

The Vice-chancellor of UAS, Bangalore briefed the audience about three new varieties and 17 technologies released during the Krishimela and he also informed the gathering that due to pandemic covid-19 situation university organised simple krishimela with 25 stalls as compared to the previous year 800 to 900 stalls. He also sensitized the gathering about special feature of Krishimela *i.e.,* demonstration on use of censors in agriculture to regulate water in poly house.

Sri D.V. Sadananda Gowda, Union Minister of Chemicals and Fertilizers, GoI sent his good wishes to Krishimela-2020 through video speech. He appreciated the efforts of State Agriculture Universities (SAUs) for developing the new varieties and technologies for the benefit of the farmers.

Hon'ble Minister for Municipal Administration, Horticulture and Sericulture, GoK, Sri. K.C. Narayanagowda said that during their visits along with agriculture ministers in the state visited various districts to frame specific stratagies to solve the problems. In addition efforts will be made to create better marketing facilities for horticultural crops and establishment of cold storages at taluk level.

Sri B.C. Patil, Minister for Agriculture, Government of Karnataka expressed his ambition to serve the farmers of this state and informed about the flagship programmes of (i) Issuing ID cards to Farmers, (ii) Deployment of Mobile soil testing vans in Koppal district on experimental basis and called the neighbouring farmers to utilise the opportunity created and he also informed that in future days the scheme will be extended to the entire state. Under this scheme diploma holders will be accommodated to serve the farmers in mobile vans.

On this occasion, the awards: Sri H.D. Devegowda State Level Best Farmer award, Dr. M.H. Marigowda State Level Best Horticulture Farmer award, Sri C. Byregowda State Level Best Farmer award, Canara Bank

State Level Best Farmer award, Dr. R. Dwarakinath State Level Best Extension Worker award, Dr. R. Dwarakinath State Level Best Farmer award, besides, district and taluk level award winner farmers of Kolar, Chikkaballapura and Bengaluru Rural districts were felicitated. Dr. M. Byregowda, Director of Extension, UAS, Bangalore proposed vote of thanks to all the dignitaries, press and media besides, public who gathered in the programme.

4.4.13 Significant Achievements

Establishment of UAS-B Agri WarUnit: The unit was established at ATIC during COVID19 pandemic situation on 18.04.2020 with a team of 22 scientists from different disciplines. The unit provided technical advisory services and acted as linkage between farmers and the consumers for marketing of Agriculture produce. Hon'ble Agriculture Minister Shri B.C. Patil visited the unit and monitored the activities.

The unit facilitated for the marketing of 310 tonnes of fruits and 116 tonnes of vegetables & flowers. Besides this, the unit provided 15,574 advisory services and answered 1501 plant protection queries through whatsapp were advised.

Launching of UAS-B short videos, youtube channel and facebook: Farm information Unit Developed 4 to 6 minutes videos (6 Nos.) in Kannada on (1) Hitihasa – Kru.Vi.Vi, Bangalore (2) Sadhaneya Hadhiyalli-Kru.Vi.Vi, Bangalore, (3) Krushi Shiskhana - Kru.Vi.Vi, Bangalore (4) Krushi Samshodhane - Kru.Vi.Vi, Bangalore, (5) Krushi Vistharane - Kru.Vi.Vi, Bangalore and (6) Krushi Belegala Aptha Margadarshi and uploaded in UAS-B Official Youtube and Facebook.

Launched UAS-B official You-Tube (https://www.youtube.com/channel/UCT3_lfb8uL8g XMJtckT3Bqg), Facebook (https://www.facebook.com/sis.uasb), Instagram (https://www.instagram.com/ uasbangalore1964/ ?hl=en) and Twitter (https://twitter.com/BangaloreUas). The unit also uploaded the soft copy of Improved Package of Practices in Agriculture to 2,82,994 Farmers and Farmers groups through WhatsApp.

Commercialization of Technologies: Coconut Flour Based Cookies and Coconut Flour ladoo technologies were commercialized and also four Coconut flour based convenience foods products were commercialized and Approved by TECC and TCC.

Evaluation and introduction of apical rooted potato saplings in Hassan district (ARC): Potato is an important commercial crop in Hassan district, but now a days due to non-availability of quality seed materia; disease incidenc; dependency on Punjab for seed material; available seed material being 6th to 7th generation, the area under potato cultivation in the district has reduced drastically. To mitigate this problem, KVK introduced apical rooted cutings (ARC) technology through project sponsored by ATMA Hassan. Under this project evaluation study, field days, training programme, group discussion, filed visits were made. 36.98 tonnes of seed tubers produced from this project in Rabi is sufficient for 211 ha for Kharif season. About 1.8 lakh ARC saplings produced in nursery has created employment for 36 youths in the district.

Management of Diamond back moth in cabbage through integrated approach: Cabbage is one of the important vegetable crop of Karnataka and is being cultivated in an area of 447 ha with production of 12063t/ ha in Bengaluru Rural District. The average yield of cabbage in Bengaluru Rural District is 36 t/ha as against potential yield 48 t/ha which accounts 25% lesser yield. This is mainly due to the damage caused by Diamond Back Moth (DBM) to the extent of 42% crop loss. The technology was demonstrated in Rameswara village, Doddaballapura Taluk, Bengaluru Rural District was selected for the case study, where farmers were growing cabbage as main crop by following their own practices with indiscriminate use of pesticides which leads to more cost of cultivation. By considering the above fact, KVK has disseminated the new technology developed by Indian Institute of Vegetable Research, Varanasi in farmers field by comparing their own technology. This technology reduced the cost of cultivation, leads to less incidence of DBM and realised more profit. Further, the technology has out reached 340 farmers in the district covering an area of 400 hectare.

Chapter V

5. *Events Organised, Capacity Building Programmes, Awards & Recognitions and Publications*

Details of Celebration of State, National Days and International Events by the University; Presentation of papers by the faculty, Number of conferences /seminars /workshops /Training programmes, etc., attended and organised; Nominations for different assignments; Extension activities organised and number of Publications brought out by the faculty are presented in this chapter

5.1 Celebration of State and National Days / International Events and Programmes

All the Colleges / Units of different Directorates of the University celebrated many State, National and International Days/Events, the details of which are given below :

- World honey bee day and Training Programme was organized on 20.05.2020 by The Department of Apiculture and AICRP (Honey bees and Pollinators), CoA, GKVK.
- International virtual summer school (IVSS) 2020 Kickoff Programme was organized by Department of Agricultural Economics, UAS-B through online on 20-05-2020
- World Environmental Day was organized on 5th June 2020 by the Department of Forestry & Environmental Science, CoA, GKVK, Bengaluru. College of Sericulture, Chintamani in collaboration with NSS and Indian Youth Red Cross Society also celebrated the day wherein 100 saplings of different species were planted. The day was also celebrated at College of Agriculture, Hassan and Mandya. All India Coordinated Research Project for Dry land Agriculture, GKVK, Bengaluru also organised the event at Gidaganahalli, Tumkur in the On-farm Research Village.
- 6th International Yoga Day was organized at College of Agriculture, GKVK on 21.06.2020 through online at GKVK Campus, Bengaluru. College of Agriculture, Hassan conducted Yoga classes for staff from 09-06-2020 to 21-06-2020. College of Sericulture, Chintamani also organised the Yoga Day on 21st June 2020 in collaboration with Sri Pathanjali Yoga Shikshana Samithi (R) Chintamani. International yoga day was celebrated at CoA, Mandya on 21.06.2020 by conducting Yoga camp to the students.
- The 74th Independence Day was celebrated religiously on 15th August, 2020 at GKVK, Bengaluru. Dr. S. Rajendra Prasad, Vice-Chancellor, conveyed his best wishes to all and hoisted the tricolour National Flag accompanied by Dr. T. Narendrappa, Dean, Student Welfare in commemoration of completing 73 years of India's freedom from British rule. The day was organised in all the units of the University
- Parthenium Awareness week was organised by AICRP on Weed Management, Bengaluru unit from 16-22 August 2020 at KVKs of UAS-B jurisdiction
- College of Agriculture, GKVK organized 'Fit India Run' on 03.9.2020 conducted as part of Sadbhavana Day 2020 at GKVK Campus in co-ordination with State NSS Cell. Sadbavana Day' was organized on 20th August 2020 at College of Sericulture, Chintamani and College of Agriculture, GKVK, Hassan and Mandya on the eve of 76th birth anniversary of Rajiv Gandhi, Former Prime Minister of India
- In commemoration with Nutrition Week, All India Coordinated Research Project on Home Science (Food & Nutrition), GKVK, Bangalore organized National Nutrition week Nutrition on 3rd September 2020
- The students of College of Agriculture, Chamarajanagra organized Teachers day on 5th September 2020

- Gandhi Jayanthi was celebrated on 2nd October, 2020 at University main campus and also in all other constituent Colleges/KVKs/Units of the University
- World Cotton Day was celebrated on 07.10.2020 at Kalanahundi, Chamarajanagar by All India Coordinated Research Project on Cotton, Chamarajanagar
- College of Agriculture, GKVK, Bengaluru organized Vigilance Awareness Week-2020 on 28.10.2020 and pledge taking on 'Anti-corruption' was administered
- Vigilance Awareness Week 2020 was celebrated on 02.11.2020 at College of Agriculture, V.C. Farm, Mandya wherein Dean (Agri.) administered the oath to the faculty. College of Sericulture, Chintamani organized 'Vigilance Awareness Week – 2020' on 2nd November 2020
- World Fisheries Day was organized on 21.11.2020 by Inland Fisheries unit along with KVK, Ramanagara District
- Celebrated Kannada Rajyothasava on 30.11.2020 at Examination Hall, College of Agriculture, V.C. Farm, Mandya
- Swachatha pakwad was organised at GKVK from 17th to 31st Dec., 2020 by All India Coordinated Research Project on Home Science (Food & Nutrition), GKVK, Bengaluru
- Agriculture Education Day was celebrated at College of Agriculture, GKVK in collaboration with Directorate of Post Graduate Studies; College of Agriculture, Chamarajanagar; College of Sericulture, Chintamani and College of Agriculture, Mandya on 18th, 3rd, 7th and 9th December 2020, respectively in commemoration of the Birth Anniversary of Dr. Babu Rajendra Prasad, the first President of India
- World Soil Day was celebrated on 5th December 2020 by the various units of the University with the theme 'Keep soil alive, protect soil biodiversity'. Students, Teachers, Officers and farmers at KVKs participated in the event.
- World Aids day and World human rights day was celebrated on 11.12.2020 at College of Agriculture, Karekere, Hassan in collaboration with Red Cross Society, Hassan
- Jai Kisan Jai Vigyan Week and Kisan Day was celebrated by all the KVKs of UAS-B and College of Sericulture, Chintamani and College of Agriculture, Hassan on 23rd December, 2020 to commemorate the remembrance of Shri Chaudhary Charan Singh and Shri Bihari Vajpayee, Former Prime Ministers of India and their contribution to Agriculture and Technology
- 72nd Republic Day was celebrated at GKVK, UAS, Bangalore with great gratification and joy. Unfurling the tri-colour National Flag, Dr. S. Rajendra Prasad, Vice-Chancellor of UAS-B echoed that the Republic Day is celebrated on January 26th every year to remember the day when the Constitution of India came into effect after India gained independence after a very long freedom struggle.
- Colleges and many units of the University including seven Krishi Vigyan Kendras coming under the jurisdiction of UAS-B celebrated World Environment day on 05.06.2020, World Yoga day on 21.06.2020, Parthenium Awareness week, Gandhi Jayanthi on 02.10.2020, Women in Agriculture Day on 04.12.2020, World Soil day on 05.12.2020, Farmers Day on 23.12.2020, International Women's day on 08.03.2021 and World Water Day on 22.03.2021 to create awareness among the farmers and students.
- World Water Day was organised in the Department of Agronomy, College of Agriculture, GKVK, Bengaluru on 22nd March, 2021

5.2 Conferences / Seminars / Workshops / Training Programmes organized

All the directorates of the University have organised Conferences / Seminars / Workshops / Training Programmes and the details of the programmes are presented as below :

- All India Coordinated Research Project on Dry land Agriculture (AICRPDA) organised *Kharif* Planning cum Training and demonstration of bullock drawn automatic seed drill at OFR (On farm Research) Village in RIFS (Rainfed integrated farming system) at Gidaganahalli, Tumakuru taluk, Tumakuru district on 5th June, 2020. Training programme on Scientific cultivation techniques in French beans at OFR Villages namely Gidaganahalli and Kalenahalli of Tumakuru taluk and district was also conducted on 19th October 2020. The centre organised training programme on Integrated nutrient management in fruit crops at D. Hosahalli and C. Hosahalli, Kolar district on 21st October 2020.

- Department of Agricultural Economics, CoA, GKVK, Bengaluru organised Workshop on video preparation and editing and hands on training on video and audio editing programme was organized from 2-6 June 2020. Also organised release of Research Bulletin as a part of 'Prof. Nanjundaswamy Research Chair' activities on 20th November 2020.

- Department of Horticulture, GKVK, Bengaluru organized online training programme on 'Medicinal Plants and their Utilization' to Self help groups on 07.06.2020 and 16.06.2020. Organized a SDC-Entrepreneurship Development training Programme on 'Plant Tissue Culture Techniques in Horticulture Crops' on 5th January 2021 to UG and PG Students Under ICAR SC-SP. Organised training Programme on 'Entrepreneurship Development Programme on Ikebana' on 19.12.2020 for UG and PG students under Skill Development Centre (SDC) ICAR /SC-SP. EDP on Bonsai was organised on 09-01-2021 for UG and PG students under SDC. Training programme on 'Preparation of Natural Cosmetic Products for women' was organised from 11-12-2020 to 12-12-2020. In collaboration with ICAR-KVK, Chamarajanagar and Skill Development Center jointly organized two days training programme on 'Capacity Building – Horticulture Nursery Management' from 23-03-2021 to 24-03-2021 under ICAR /SC-SP grants at ICAR-KVK, Chamarajanagar.

- Seminar on National and International Mango Marketing: Opportunities and Challenges was organised on 8th June 2020 through online as a part of Prof. Nanjundaswamy Research Chair activities

- Department of Crop Physiology, CoA, GKVK was organized International Webinar (Conference) on 'Endophytes and Climate Resilience in Plants' on 12-06-2020 under the ICAR-CAAST program. The Department conducted following Stand-Alone (online) Seminars (Webinars) under the ICAR/NAHEP–CAAST Project (Activity 1C)
  - 'On Asking the Right Question' by Dr. Uma Shaanker, ICAR Emeritus Scientist on 22 May, 2020
  - 'How elementary statistics lead to major discoveries in biology' by Dr. Anil Gore on 26th May, 2020
  - 'Publishing research papers in top journals: Why and How' by Yateendra Joshi on 2 June, 2020
  - 'Bamboos, Cicadas and Locusts -What binds them together? by Prof. K. Chanadrashekara, on 9th June 2020

- Department of Agricultural Marketing, Co-operation & Business Management, CoA, GKVK, Bengaluru organised Brainstorming session on APMC Act amendments in Karnataka-2020 on 03-06-2020. A workshop on 'Recent Amendments to APMC Act 2020' was organised on 15.06.2020. Farmers training Programme on Marketing Awareness in Sidlakatte village of Chikkanayakanahalli, Tumkur was organized by the KSAMB Marketing Chair on 31-08-2020. State level workshop on Cost of Cultivation & Market Intelligence Cell was held on 9th December 2020. Organized 20 days training programme on 'Tally, Tableau and Alteryx application in Agriculture & Agri. Business Management' from 25.01.2021 to 13.02.2021 under Skill Development Centre for the benefit to the PG students. Organized Skill Development Training Programme

for Farmers of Chikkanayakanahalli on Agricultural Marketing, Agriculture, Horticulture and Animal Husbandry Schemes Awareness Program on 18-03-2021 at Chikkanayakanahalli, Tumkur.

- Department of Plant Pathology, CoA, GKVK, Bengaluru was organized webinar on 'Bamboos, Cicadas and Locusts What binds them together? was organised on 09.06.2020. Webinar on Leslie Coleman Lecture Series' was organized on 16.06.2020. Organized a webinar on 'The future of protein production and its implication' on 23.06.2020. The department organized workshop on 'Agricultural pest and disease simulation modelling under climate change scenario' from 24.08.2020 to 28.08.2020. The Department organized ten days Short Course on 'Analytic Techniques for Pest and Disease Forecasting Models from 08.01.2020 to 28.01.2020. Workshop on 'Career opportunities in Agriculture and allied sector' was organised on 29.02.2020. One-day lecture workshop on 'Predictive analytics for crop biology and breeding' was organised on 04.03.2020. Two days' lecture workshop on 'Role of endophytes in modulating crop growth and productivity: molecular mechanisms associated with plant- endophyte interactions' was organised from 27.03.2020 to 28.03.2020.

- Webinar on Amendment to Karnataka Land Reforms Act: Pros and Cons was organised on 24th June, 2020 as a part of Prof. Nanjundaswamy Research Chair activities

- Department of Genetics and Plant Breeding, College of Agriculture, UAS, GKVK, Bengaluru organised a two day lecture series on Practical Experiences Based IPR in Commercial Plant Breeding from 26th to 27th June, 2020. Organized online refresher course on 'Application of Population Genetics Concepts in Plant Breeding' from 27th July, 2020 to 21st August, 2020. Online refresher course on Prequels to Plant Breeding by Design and prediction was organised from 28th January, 2021 to 18th February 2021.

- Department of Agricultural Extension, CoA, UAS, GKVK organized Webinar on Farmers Producer Organizations: An effective institutional model for welfare of small and marginal farmers in collaboration with CARDS from 9-10 July 2020. Also organised an webinar on 'Empowerment and Entrepreneurship Development in Agriculture' sponsored by DST, GoI from 9-13 November 2020. Webinar on Impact of spitting on COVID-19 was organied on 28.09.2020 wherein about 450 NSS Programme Officers and volunteers participated. A training programme on 'Communication and Personality Development Skills' was organised on 31.12.2020. Training programme on 'Leadership Development: Challenges for 21st Century' was organised on 11.01.2021. Organized a two-days training programme on 'Writing thesis and research papers: the nitty-gritty of style and presentation' on 18th and 19th January 2021. Training programme on 'Digital Teaching Techniques' was organised on 17th and 18th February 2021 under SDC for PG students. The Department also organized training programme on 'Leadership in Journalism and Media' on 03.03.2021.

- Bakery Training Unit, Directorate of Extension, University of Agricultural Sciences, Bangalore organized National Webinar on 'Diet and Nutrition for Life style Disease Management during Covid-19 pandemic' from 25-27th August 2020.

- All India Coordinated Research Project on Honey Bees and Pollinators, GKVK, Bengaluru in collaboration with Department of Apiculture, College of Agriculture, GKVK, Bengaluru organised the National Webinar on 'Future Prospects of Apiculture in India' on 28th July, 2020. Also organised Workshop on Bee Keeping on 15th September 2020 through zoom cloud app. Entrepreneurship Development programme on Bee keeping was also organied from 28th to 30th December 2020. The centre in collaboration with Department of Apiculture organised Skill Development Programme in Apiculture at Channahalli, Devanahalli taluk on 29th and 30th January 2021. In collaboration with Rotary Club of Bengaluru Platinum City, Beekeeping training on 2nd and 3rd February 2021 was also organised. Beekeeping training programme and distribution of beekeeping inputs under Tribal Sub Plan was organised on 23rd Feb 2021 at Ranga samudra village of Pavgada taluk of Tumkuru. Organised Beekeeping training programme and distribution of beekeeping inputs under Tribal Sub Plan from 25-26 March 2021 at Department of Apiculture, UAS, GKVK, Bengaluru.

- All India Coordinated Research Project on Long Term Fertilizer Experiments, GKVK, Bengaluru organised training programme on Method of soil sample collection and INM in finger millet and maize crops. at Sadapalli village, Bhagepalli taluk, Chikkaballapur district on 30th July, 2020
- Directorate of Post Graduate Studies was organized UAS-B Science Week 2020 from 25th to 28th August, 2020. Due to COVID-19 pandemic, this academic year's PG Science Week-2020 was organized in 'Online' mode renamed as UAS-B Science Week-2020
- Department of Soil Science and Agriculture Chemistry, CoA, Mandya organized a webinar series on Desi Cow based Agriculture on 30.08.2020 and 18.10.2020 in association with Srisamsthana Gokarna Sri Ramachandrapura Matha. Also organised Webinar on Milk: The Complete Food on 22.11.2020 jointly with Samshodhana Khanda, Go Phala Trust and Bharathiya Gou Parivara of Sri Ramachandrapura Matha
- All India Coordinated Research Project on Home Science (Food & Nutrition), GKVK, Bengaluru organized a one-day Webinar titled 'Food & immunity' with special emphasis to immune boosting against Covid-19 on 3rd September, 2020 in commemoration with Nutrition week. The centre also organised a webinar titled 'Opportunities for micro food processing enterprises under promotion and publicity of Prime Minister formalisation of micro food processing enterprise (PMFME) scheme' on 20th October, 2020.
- National Seed Project, GKVK, Bengaluru organised a Webinar on Quality Seed Production by using Scientific Methods on 7th September to farmers and students
- Project Planning and Monitoring Cell, UAS, GKVK, Bengaluru organised a one day online workshop on 'Patent filing and commercialization of technologies' for the benefit of Research Scholars and Faculty of UAS-B, on Monday, 14th September 2020
- All India Coordinated Research Project on Small millets, GKVK organised webinar on production technology of Nutri cereals on the occasion of Poshan Maasa-2020 in Association with STU, GKVK, Bengaluru on 16th Sep., 2020. The centre also organised Field day on Ragi and Foxtail millet at Karmanahalli, Kolar Dist., on 28th October 2020.
- All India Coordinated Research Project on Cotton, KVK, Chamarajanagar, organised Field day on cotton at Kalanahundi, Chamarajanagar on 1st October 2020
- All India Coordinated Research Project on Maize organised Maize Field day on newly released Maize Hybrid (MAH-14-5) on 23rd Oct. 2020 at Chudichamanahalli, H.D. Kote Tq., Mysore Dist. organized under IIMR Ludhiana FLD programme
- ARS, Pavagada organised a field day on foxtail millet variety DHFT 103-9; Demonstration of nutri cereals, Demonstration of medicinal and aromatic block & improved groundnut varieties on 15th October 2020.
- ARS, Balajigapade organised a field day on Seed production in groundnut, ragi, redgram, fodder cowpea, fodder maize; Demonstration of fodder crops and organic cultivation of small millets on 27nd October 2020
- ARS, Chintamani organised a field day cum interaction programme on 5th November 2020. Field day on seed production in Ragi (variety: GPU 67), Fieldbean (variety: HA 4) and Horsegram (variety: PHG 9), Breeder seed production in Groundnut (variety: KCG 6), demonstration of fodder crops (30 species) and organic nutri-millets was organised
- ARS, Arasikere organised Field day-cum-interaction with farmers on 6th November 2020. Millets and fodder crops were the important attractions of the field day
- Field day on Redgram (BRG 2) and Horsegram (variety: PHG 9) cum farmers scientist interaction programme was organized at ARS, Nelamakanahalli on 18th Nov. 2020

- Field day on improved varieties of Ragi, Redgram and Millets cum interaction with farmers was organized at Agricultural Research Station, Tipaturu, Tumakuru on 20th November, 2020.
- Field day on improved varieties of Ragi and Redgram cum interaction with farmers was organized at Agricultural Research Station, Madenur, Hassan on 23th November 2020
- Field day on local paddy (24) varieties, fodder crops (25 species), redgram breeder seed production (BRG 3) and paddy foundation and certified seed production (MTU 1001) cum interaction with farmers was organized at Organic Farming Research Station, Naganahalli, Mysore on 24th November 2020
- Field day and Agri-tourism programme was organised at ARS, Gunjevu, Hassan district on 26th November 2020
- Krishimela was organised at ZARS ,VC farm Mandya on 8th December 2020 both virtually and physically with the theme 'Youth Movement Towards the Agriculture'. Ragi Brahma Dr. C.H. Lakmanaiah Raitha Salaha Kendra established by ZARS, Mandya at Agricultural Produce Marketing Co-Operative Society, Mandya was inaugurated.
- Department of Agronomy, CoA, GKVK, Bengaluru organized training programme on 'Nano technology and its application in agricultural inputs use' on 11th December 2020 for PG students. Training programme on 'Precision Farming' was also organised on 25.01.2021 under Skill Development Centre for PG students.
- The field day and Kisan Ghosti was organized on 16th December 2020 at ARS, Kunigal
- All India Coordinated Research Project on Castor, GKVK, Bengaluru organised training programme on improved cultivation aspects on Castor at C. Hosahalli, Mulbagil taluk, Kolar district on 11th December 2020
- Department of Food Science and Nutrition, CoA, GKVK, Bengaluru organized awareness programme on 'Maintenance of cleanliness in the premises, Food safety, Sanitation and personal hygiene' on 17th December 2020 under Skill Development Centre for the benefit to the PG students. Organized training programme on Human Resource Development (HRD) Awareness 'Health Check-Up Camps on TB, AIDS, Dental Checkups and non communicable Diseases from 24.02.2021 to 25.02.2021. Organized training programme on 'Effects of tobacco and liquor consumption' on 6.02.2021 for PG students. The department organized training programme on Education on superstitions / belief / taboos on 06.02.2021 for II B.Sc. (Ag.Maco.), IV B.Sc. (Agri.) and PG students. Organized training programme on Education on superstitions/belief/ taboos on 6.02.2021 for PG students. Four training programmes on Sewing and Embroidery work, Dress designing under Enterpreneurship development (EDP) was organized on 12.02.2021 and 23.02.2021. The department organised three awareness training programmes on State / Central Government programmes and plans like-Right to Education-Girl Child education-Beti bachavo Beti padavo.
- Department of Agricultural Microbiology, CoA, GKVK, Bengaluru organized Entrepreneurship development programme on 'Mushroom cultivation, processing & marketing' on 18.12.2020 under Skill Development Centre for the benefit to the PG students
- Department of Agricultural Statistics, CoA, GKVK, Bengaluru organized six days training programme on 'Big Data Analytics & Digital in Agriculture' from 21-26 December 2020 under Skill Development Centre-ICAR SC-SP for PG students. Organized ten days training programme on 'R Software-Application in Agriculture Research & Education' from 11-21 January under Skill Development Centre. organized eight days training programme on 'Python - An Application in Agriculture Research and Education' from 28-01-2021 to 04-02-2021. Four days training programme on 'Analysis of Experimental Data in Post Graduate Research' from 15-18 February 2021 was organised under Skill Development Centre for the benefit to the PG students.

- Department of Seed Science and Technology, CoA, GKVK, Bengaluru organized a training programme on 'Post harvest Technology for Seed Processing' from 19th to 23rd December 2020 to PG students. The training programme on 'Recent Advances in Post-Harvest Techniques of Seed Crops' was organized on 23.12.2020. Training programme on 'Seed Quality Awareness and Popularisation of High Yielding Verity Seeds to enhance the Yield and Sustainability' was organized from 23rd Feb to 1st March 2021 at EEU, Naganahalli, Mysore to the farmers.

- Department of Apiculture, College of Agriculture, GKVK, Bengaluru organised a training programme on 'Entrepreneurship Development Programme (EDP) Beekeeping, Honey Extraction, Bee Hive Products their Processing and Marketing' under ICAR SC-SP from 28.12.2020 to 30.12.2020. One day training programme on beekeeping was jointly organised on 27.03.2021 at Thokkasandhra village, Kanakapura taluk, Ramanagara district in collaboration with Thokkasandhra Sheep and Wool Producer Society and Gram Panchayath, Thokkasandhra

- Workshop on 'Potential Crops for Food and Nutrition security' was organized by AICRN on Potential Crops scheme on 6th and 8th January 2021 to create awareness on nutritional importance of Potential Crops like Grain Amaranth, Quinoa, Chia and Teff crops. Also organised one day training programme on potential crops under RKVY project at Arasana Koppalu, KR Nagar taluk on 12th January 2021. Training programme on potential crops under RKVY project was conducted at Yalachagere Nanjanagud taluk of Mysore district on 22nd January 2021.

- AICRP on Rice, ZARS, V.C. Farm, Mandya in collaboration with KVK, Chamarajanagar organized field day and training on 'Large scale demonstration of new rice variety KMP 220 in drum seeded method of crop establishment' at Kunturu-Kattanavadi village, Yalanduru (Tq), Chamarajanagar District on 07.01.2021

- College of Agriculture, Hassan organized 'Wine Education, Appreciation and Tasting (WEAT) Workshop' for the students of final year B.Tech. (Food Technology) on 15th and 16th January 2021 in collaboration with Karnataka Wine Board, Bengaluru.

- Dept. of Sericulture, CoA, GKVK, Bengaluru in Coordination with Directorate of Post Graduate Studies organized training programme on 'Silkworm rearing for cocoon production' on 19.01.2021 under Skill Development Centre- ICAR SC-SP for the benefit to the PG students. Personality Development Programme on 'Importance of Concentration in Youths' and 'Challenges in Life and right answers' on 19-02-2021.

- National Seed Project, UAS, GKVK, Bengaluru organized a Field Day on Redgram Seed Production of BRG 5 variety at KVK, Hadonahalli on 08-01-2021. Field day on Sunflower Seed Production of hybrids KBSH 41 and KBSH 53 was organised at Gundagatti, Rattihalli taluk, Haveri district on 03-02-2021. Field day on Bengalgram seed production under seed village scheme was organised at Ibasapura of Devanahalli taluk on 09.02.2021. Field day on Field Bean Seed Production in HA 5 was conducted at Thuruvanahalli, Doddaballapur taluk, Bangalore Rural district on 26-02-2021.

- National Hands-on-Training Programme on Freshwater Pearl Culture was conducted at the Inland Fisheries Unit, Main Research Station, Hebbal from 11-13th January 2021 on payment basis for 15 trainees from three States

- AICRP on Agrometerology conducted farmers awareness program on climate change and its impact on agriculture and popularization of mobile apps in dissemination of agromet advisories at Hospalya, Magadi Taluk, Ramanagara, on 18th January 2021

- AICRP on PHET, Bengaluru organized an EDP Programme on 'Post Harvest Technology for Fruits and Vegetables Processing' under ICAR- funds of Skill Development Centre on 21st and 22nd, January 2021

- Department of Entomology, CoA, GKVK, Bengaluru organised five-days training programme on 'Orientation Training Programme on Integrated Pest Management, *Rabi* 2020-21' from 01-05 February 2021 for the extension officers of Karnataka, Andhra Pradesh, Tamil Nadu and Kerala

- One day Training programme on 'Technologies for enhancing oilseeds production' under NFSM for the Extension officers / Input dealers was conducted on 04-02-2021 at EEU, Naganahalli, Mysore organized by AICRP (Sunflower), ZARS, GKVK, Bengaluru-560 065 and IIOR, Hyderabad. Similar programme was organised at KVK, Chmarajanagara on 05-02-2021.

- Youth Red Cross, UAS, GKVK, Bengaluru organized two days Personality Development Programme on 'Getting Ready for Future' at the Conference Hall, Dept. of Plant Biotechnology, CoA, GKVK on 9th & 10th February 2021.

- Prof. M.D. Nanjundaswamy's 8th Birth Anniversary at Department of Agricultural Economics, CoA, GKVK, Bengaluru was organised on 13-02-2021

- A One day workshop on Personality Development was organized on 25-02-2021 at College of Agriculture, Chamarajanagara by NSS Unit in collaboration with Skill Development Centre and Department of Food Science and Nutrition

- College of Agricultural Engineering, GKVK, Bengaluru organised Three days training programme on 'Applications of Drone in Agriculture' from 17-19th December 2020 under Skill Development Centre for UG B.Tech. (Agril. Engg.) students. One day training and capicity building programme on 'Skill Development Training Programme on Maintenance and Servicing of Tractor and Agricultural Machinery for SC formers and Rural Youths was organised at Nelamathanahalli on 02.03.2021 and at ARS pavagada on 04.03.2021 for formers under under Skill Development Centre, UAS, GKVK. VST Centre of Excellence for Farm Mechanization and Skill Development located in the premises of College of Agricultural Engineering conducted 43 numbers of training programmes on field operation, servicing, minor and major repairs for 839 farmers, students and entrepreneurs. Biogas Development and Training centre, College of Agriculture Engineering, GKVK organised 10 biogas training programme on construction cum maintenance course for masons of 10 days duration and two biogas turnkey workers training course of 15 days duration each in Karnataka and Goa states.

- Nodal Agricultural Education Cell-ICAR, Office of the Vice-Chancellor, UAS, GKVK, Bengaluru organised online/offline workshop on 'Agri- Education in sync with National Education Policy 2020' on 22.02.2021 at GKVK, UAS, Bengaluru

- Lecture workshop on 'LC-GC-MS/MS, Confocal Inverted Microscope and Scanning Electron Microscope' was organised on 20.03.2021 under CASST to educate the researcher and PG students on the principles and applications

- Department of Plant Biotechnology, CoA, GKVK, Bengaluru organized 6-days training programme on 'Advances in Biochemical and Molecular Techniques' from 22-27 March, 2021 for PG students

- The Department of Genetics & Plant Breeding, CoA, Mandya organized Hands-on training on 'Data Analytics using Advanced Excel/SPSS/R Interface for Postgraduate Students' from 23-27 March 2021 supported by CAAST, ICAR, New Delhi.

- Guest Lecture on 'Writing of Winning Research Proposals and Thrust Areas of Research in Agricultural Economics' was organised by Department of Agricultural Economics, UAS, GKVK on 25-03-2021 at Cost of Cultivation Scheme. Guest Lecture on 'Laneaster's Theory of Hedonic Pricing – A Treasure House of Agricultural Marketing Research' was organised on 20-03-2021. Guest Lecture on 'Paradigm Shifts in

Macroeconomic Policy Cycle' was also organised on 27-03-2021. Guest Lecture on Data Management and Econometrics models building in Social Science Studies was also organised by on 19-03-2021.

- Skill Development Center, Office of the Vice-Chancellor, UAS, GKVK, Bengaluru funded and coordinated 35 training programmes under ICAR-SC SP grants

5.3 Participation in Conferences / Seminars / Workshops / Other activities (Abroad only)

The details of participation in Conferences / Seminars / Workshops by the teachers are presented here under:

- Dr. Anand S. R, Agronomist, AICRP on Potential crops; Dr. P.S. Fathima, Professor; Dr. Ashoka, K.R., Assistant Professor; Dr. Bhagyalakshmi, T., Assistant Professor; Dr. M.S. Shashibhashkar, Assistant Professor; Dr. Savitha, H.R., Assistant Professor and Dr. Somyalatha, B.S, Assistant Professor, CoA, Mandya attended the Short course on 'Precision Agriculture: A Technology for income augmentation & entrepreneurship development' from 07.07.2020 to 18.07.2020 at Multi-Technology Testing Centre & Vocational Training Centre, College of Fisheries, Central Agricultural University (Imphal) India.

- Dr. K. B. Umesh, Professor and University Head, Department of Agricultural Economics, CoA, GKVK had participated on online Symposium on 'Global Reach 2020 Symposium on Solving Agricultural Problems through Research and Innovation' on 22-07-2020 and 23-07-2020 (2 Days) in Dalhousie University, Canada.

- Dr. M. S. Uma, Professor and Scheme Head, AICRP on Sunflower participated in International webinar on Public Health Epidemiology – Strategies for Health and Nutrition Security organized by Tamil Nadu Agricultural University, Madurai on 22.07.2020.

- Mr. Uday Kumar M. S. and Mr. Arnob Roy Ph.D. Students of Department of Agricultural Economics, CoA, GKVK, Bengaluru attended Symposium on 'Global Reach 2020 Symposium on Solving Agricultural Problems through Research and Innovation' from 22-23 July 2020 in Dalhousie University, Canada.

- Dr. G.M. Gaddi, Associate Professor and Dr. Mahin Sharif, Assistant Professor, Department of Agricultural Economics, CoA, GKVK had participated International workshop Teaching and Learning in Intercultural and Digital Settings from 16-09-2020 to 12-12-2020 at Georg-August-University Göttingen, Göttingen (Online).

- Dr. Vijaykumar K.T., Scheme Head, AICRP (HB&P) participated in International Webinar on Importance of honey bee in Agriculture and their pest management organized by Musiri Institution of Technology, Musiri, TN through Goolge meet on 20.08.2020

- Dr. Darshan, M.B., Asst. Research Engineer ICAR-AICRP on PHET, Bengaluru participated in International Webinar on Process-driven organic contaminants in food and mitigation strategies organized by Department of Agriculture and Environmental Sciences, NIFTEM on 10.09.2020. He also participated in 3 days online International Webinar on Innovations and Advances in Agricultural Engineering funded by Directorate of Agri Business Development under NAHEP- Institutional Development Programme organized by Agricultural Engineering College and Research Institute, Trichy under aegis of Tamil Nadu Agricultural University, Coimbatore from 02.12.2020 to 04.12.2020

- Dr. K. N. Geetha, Agronomist and Scheme Head, AICRP Weed Management participated in International Webinar on Plant Physiological Paradigms towards Agricultural Sustainability Under Climate Change organised by Bihar Agricultural University, Bihar on 15.09.2020. Dr. K.N. Geetha and Dr. S. Kamala Bai, AICRP on Weed management participated in online International Training Course on Perspectives of Present and Future Weed Research under Climate Smart Agriculture organized by Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra sponsored by World Bank under NAHEP- ICAR from 17.08.20 to 20.08.20. Dr. K. N. Geetha, Agronomist and Scheme Head, AICRP Weed Management & Dr. Sukanya T.S., AICRP on Small Millets participated in online International Training Agriculture: Precision and Automated Agri.

Technologies organised by Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra sponsored by World Bank under NAHEP-ICAR from 28.09.20 to 02.10.20

- Dr. P. K. Basavaraj, Scheme Head, AICRP on STCR, participated in International Webinar on Soil Spectroscopy: An Emerging Technique for Rapid Soil Health Assessment organized by ICAR Indian Institute of Soil Science, Bhopal & World Agroforestry (ICRAF), Nairobi on 01.10.2020
- Dr. Sanjay, M.T., Scheme Head, AICRP on IFS, participated in One week online international training programme on Secondary Agriculture for Doubling farmers income using efficient Technologies organized by SKUAST-Jammu from 05.10.20 to 11.10.20
- Dr. T.R. Kavitha, Dr. H.R. Raveendra, Dr. Sukanya, T.S. and Dr. Manjula, C.P. participated in International E-Conference on Multidisciplinary approaches for plant disease management in achieving sustainability in agriculture organised by University of Horticultural Sciences, Bagalkot from 6-9 Ocotober 2020.
- Dr. S.B. Yogananda, Associate Professor of Agronomy, CoA, Mandya attended the Online International Training Programme on Climate risk assessment and its management through agrometeorological approaches on 21-10-2020 to 30-10-2020 at Dryland Agriculture Research Station, Rangreth SKUASTK, Kashmir.
- Dr. Sukanya T.S., AICRP on Small Millets, participated in Online International training programme: Climate risk assessment and its management through agro-meteorological approaches from organized by DARS-Rangreth SKUAST-Kashmir from 21.10.20 to 30.10.2020
- Dr. Yamanura, Jr. Breeder and Scheme Head, AICRP on Castor, ZARS, GKVK participated in International E-conference on Advances and Future Outlook in Biotechnology and Crop Improvement for Sustainable Productivity organized by Col. of Horticulture, Bengaluru, UHS, Bagalkot at Col. of Horticulture, Bengaluru through Zoom meeting from 24-27 Nov. 2020
- Dr. C. Manjanaik, Professor (Seed Entomology) participated in the International webinar on Advances in stored grain pest management, organized by NIPHM, Hyderbad on 25.11.2020
- Dr. Atheekur Rehman, H.M., Scientist (Agronomy), AICRP on Pigeonpea participated in International E-Conference on Advances and Future Outlook in Biotechnology and Crop Improvement for Sustainable Productivity on 27th November organized by College of Horticulture, Bengaluru, University of Horticultural Sciences, Bagalkot. Dr. Rehman participated in International training programme on Research methodology organized by Dept. of Business Management, RBVRR Woman's College from 28.12.20 to 06.01.21.
- Dr. Prabhu Ganiger, Associate Professor, AICRP on Small Millets, participated in International Webinar on Insect Systematics: Importance, challenges and way forward organized by ICAR-NBAIR on 29.01.2020

5.4 Presentation of Paper in Seminar / Conference

The details of presentation of papers by the teachers/students in Seminar / Conference are detailed below:

- Dr. Murali Mohan, K., Associate Professor, Department of Entomology participated in the one-day National Webinar on 'Challenges and Recent Initiatives on Sustainable Management on Fall Armyworm (CRISM-FAW:2020)' organized by Bihar Agricultural University, Bhagalpur, Bihar on 16th July, 2020 and delivered keynote lecture on 'Insecticide Resistance Management (IRM) Strategy against Fall Armyworm'. He also participated in the webinar on 'Use of hazardous pesticides and impact on environment and health: legal and social implications' organized by National School of Law University on 18th December 2020 and delivered invited talk on 'Hazardous pesticides used in agriculture and sustainable alternatives'.
- Dr. Usha Ravindra, Professor, Department of Food Science and Nutrition, College of Agriculture, GKVK participated in the Symposium on Nutrigarden on 11.09.2020 organised by GoI and delivered invited Guest Speaker Talk on 'How to get micronutrients from kitchen garden'.

- Dr. Umashankar Kumar, N, Department of Plant Pathology, CoA, Hassan participated in International E-Conference and presented a paper on 'Effect of various soil factors on population of *Radopholus similis* and *Phytophthora capsici* infecting Black pepper (*Piper nigrum* L.) in Malnad areas of Karnataka' held at College of Horticulture, Bangalore, University of Horticultural Sciences, Bagalkot, during 6-9 Oct. 2020

- Dr. B. Krishnamurthy, Professor and Head, Department of Agricultural Extension, CoA, GKVK, Bengaluru along with the PG students attended International Conference on Market Led Extension through online hled at NIAM, Jaipur during 17-18 October 2020 and presented four papers. He along with the PG students also participated in National Conference on ICT based e-resources for smart agriculture – A Journey Towards Atmanirbhar Bharat Post COVID-19 Pandemic Situation organized by UAS, Raichur under (NAHEP-IG) held during 16-17 March 2021 presented eigth papers.

- Dr. M. L. Revanna, Professor & Head, Department of Food Science & Nutrition, College of Agriculture, GKVK attended Workshop at AWAKE, Rajajinagar on 29.10.2020 and presented a paper on 'Importance and Invention of Technology and innovation in food processing industries for sustenance and ease of doing business for women who are taking small scale food industries as Enterprise'.

- Dr. Sheshshayee, Professor and Head, Dept. of Crop Physiology, CoA, GKVK delivered the talk on Improve productivity under drought: Water use and water use efficiency as adaptive traits in the International e-Conference on 'Advances and Future Outlook in Biotechnology and Crop Improvement for Sustainable Productivity' organized by the University of Horticultural Sciences, Bagalkote, College of Horticulture, Bengaluru held on 26.11.2020

- Dr. C. P. Manjula, Jr. Pathologist, AICRP on Sunflower, ZARS, GKVK, received 2nd best poster presentation in National Symposium on Advances in crop health management organised by IPS South zone held at ICAR-IARI Regional Station, Nilgiris, Tamil Nadu during 1-2nd December 2020 (Online) for the research 'Management of sunflower Alternariar leaf blight using combined fungicide products'

- Dr. V. Palanimuthu, Professor & Head, AICRP on Post Harvest Technology, GKVK received Certificate of Appreciation for his presentation entitled 'Entrepreneurial Opportunities in Millet Processing and Value Addition' in the National Webinar on 'Entrepreneurial Opportunities in Micro Food Processing Industry' organized on 4-1-2021 by BESST-HORT ICAR-Indian Institute of Horticultural Research, Bengaluru, Karnataka, Bangalore

- Dr. K.B. Pallana., Pathologist, AICRP on Small Millets, GKVK was awarded P R Verma Student Award-2020 to the research paper entitled "Characterisation, Host range and Virulence analysis of Bipolarissetariae causing Browntop millet leaf blight in India' presented by G V Ramesh and KB Palanna, UAS, GKVK, Bengaluru at the ISMPP 41 Annual Conference and National e-Symposium during January 28-30 , 2021.

- Dr. K. Shivaramu, Professor & Senior Information Specialist, Farm Information Unit, Directorate of Extension, GKVK participated in the International Conference of Agricultural Librarians & Users Community (ICALUC - 2021) on 'Management of Knowledge Resource Centres in the Networked Digital Environment : Trends, Challenges and Opportunities' held from 25-02-2021 & 26-02-2021 at UAS, Bangalore and presented Research Paper entitled Extent of Usefulness of UAS-B Library as Perceived by Post Graduate Students

- Dr. Y.A. Nanja Reddy, Professor of Crop Physiology, CoA, GKVK participated and presented a lead paper on 'Finger millet for changing climate scenario' in virtual International symposium on 'Physiological interventions for climate smart agriculture' held between 11-12 March, 2021 at Sugarcane Breeding Institute, Coimbatore

- Dr. Nataraja Karaba, Professor, Dept of Crop Physiology, CoA, GKVK delivered the talk on Improving stress resilience in tomato using endophytic fungi in the International Plant Physiology Virtual Symposium -

2021 (IPPVS -2021) on 'Physiological Interventions for Climate Smart Agriculture' held on 11-12 March 2021, organized by the ICAR-SBI, Coimbatore and ISPP-New Delhi.

- Dr. P.S. Srikantha Murthy and Dr. G. \M. Gaddi, Department of Agricultural Economics participated in the online National Seminar on 'Strengthening Agricultural Water Use Law, Policy and Management in India' on 28th March, 2021 organised by CEERA, NSLIU and UASB in collaboration with ICAR-IIWM, Bhubaneswar and presented the abstract
- Dr. M. Shalini, Assistant Professor (Horticulture), ATIC, GKVK participated in the National conference virtually on 'ICT Based e-Resources for Smart Agriculture-A Journey towards Atmanirbhar Bharat Post Covid-19 Pandemic Situation" held on 16th & 17th March, 2021 organised by UAS, Raichur and presented the paper on the topic 'e-krishi – Farmers friendly Agricultural portal of University of Agricultural Sciences, Bangalore'

b) Students

- Mr. Shubbajit Sarkhel and Ms. K. Rakshitha, Sr. M.Tech. students, College of Agricultural Engineering, GKVK participated in KRIAGYA- A National level Agtech Hackathon on 'Promoting Innovation in Farm Mechanization' organized by ICAR-National Agriculture Higher Education Project and Agricultural Engineering Division of ICAR on 15th December 2020 and stood first place at South Zonal Level technical Evaluation
- Seven PG Students participated in the National Conference on ICT based e-resources for smart agriculture – A Journey Towards Atmanirbhar Bharat Post COVID-19 Pandemic Situation under NAHEP at UAS, Raichur on 16th &17th March 2021 and received best oral presentation awards for the papers

5.5 Recognitions /Awards Conferred on Faculty & Students

Many teachers have been bestowed with several awards and were recognised for their contribution in the field of teaching / research / extension. The details are given :

a) Teachers

- Dr. Nataraja Karaba, Professor, Dept of Crop Physiology, CoA, GKVK, Bengaluru has been awarded the prestigious INSA Teachers Award 2020, from Indian National Science Academy, New Delhi
- Dr. Sheshshayee, Prof. & Head, Dept of Crop Physiology, CoA, GKVK has been conferred with Prof. G.V. Joshi memorial Lecture award by the Indian Society for Plant Physiology, New Delhi
- Dr. S. Chandrashekhar, Professor & Head, Department of Sericulture CoA, GKVK, Bengaluru is awarded with 'Eminent Scientist Award' by AEDS-Agro Environmental and Development Society Rampur, Uttar Pradesh, India during June 2020
- Dr. N. Umashakar, Professor of Agril. Microbiology, CoA, GKVK, Bengaluru received 'Reviewer Excellence Award' by Indian Journal of Agricultural Research during 2020-21
- Dr. R. Muthuraju, Assistant Professor of Agril. Microbiology, CoA, GKVK, Bengaluru was awarded ESDA Green Leadership Award by ESDA, New Delhi during 2020
- Dr. V. Govinda Gowda, Associate Professor, Agril. Extension, CoA, Chamarajanagara is honoured with Indo-Asian Leagans distinguished Scientist Award in Agricultural Extension from Red Talks International Organization; Certificate of excellence in Reviewing Journal of Experimental Agriculture and Certificate of excellence in International Journal of Environment and Climate change

- Dr. Gopika C. Muttagi, Asst. Professor of Food Processing Technology, CoA, Hassan got Recognition for building a good research proposal by R.V. Institute of Management, Bengaluru
- Dr. G.M. Sujith, Technical Officer, Directorate of Research was presented Dr. R. Dwarkinath Best Article Award 2020 in Krishimela 2020 for the article published in Krishi Vignana Magazine during 2019.
- Dr. Jadesha. G.D., Assisstant Maize Pathologist, AICRP on Maize, ZARS, VC Farm, Mandya was awarded 'Young Researcher Award -2020' for the publication of Research paper on Management of Phytophthora blight of Pigeonpea using a *Trichoderma asperellum* and a chemical fungicide. Awarded by Institute of Scholars. New Delhi
- Dr. Lohithaswa, Professor and Scheme Head., AICRP on Pigeonpea, GKVK received Broadening International Participation Award by the Maize Genetics Steering Committee at 63rd Annual Maize Genetics Meeting which was held virtually from March 8 -12, 2021
- Dr. K.R Shreenivasa, Scientist (Plant Protection) has received Dr. R Dwarkinath Best Extension Worker Award from Alumini Association, UAS, Bangalore. He also received Best Oral Presentation Award during 06th National Conference on Biological Control-Innovative approaches for greem India held during 03-05th March 2021 at NBAIR, Bangalore.
- Dr. Roopa B Patil, Scientist (Home Science) has receivd 'Adarsha Vidya Saraswathi Rashriya Puraskar'
- Ms. Bhavana, A., Scientist (Home Science), ICAR-Krishi Vigyan Kendra, Chintamani was honoured with Best paper presentation award during virtually held 2nd National Conference on 'Advances in Sustainable Agriculture' conducted by Society of Krishi Vigyan during 26-28 September 2020
- Dr. Sunil. C.M., Scientist (Agronomy), ICAR KVK, Chamarajangara is awarded with National Young Agronomist Award-2020 by Agricultural and Environmental Technology Development Society, Uttarkhand, India for his outstanding contribution and recognition in the field of Agronomy
- Dr. Vinoda K. S., Scientist (Sericulture), ICAR-Krishi Vigyan Kendra, Chintamani, was honoured with Best Women Scientist award during virtually held International web conference conducted by Society of Biotic and Environmental Research during 15th October 2020
- Dr. Gayathri. B., Scientist (Soil Science), ICAR-Krishi Vigyan Kendra, Chintamani was honoured with Best KVK Scientist award during virtually held International web conference Perspective on Agricultural and Applied Sciences in COVID-19 conducted by AETDS during 4-6 October 2020
- Dr. H. S. Mamatha was awarded the 'Zuari Best Extension award' of the year for her enormous contribution in the field of the Extension during Foundation Day programme organized at GKVK, Bangalore
- Dr. Tanweer Ahmed, Scientist (Agricultural Extension), ICAR-Krishi Vigyan Kendra, Chintamani, is honoured with Best oral presentation award during virtually held International web conference on 'Global Research Initiatives for Sustainable Agriculture and Allied Sciences' conducted by ASTHA foundation during 28 to 30 Dcember 2020.
- Dr. K. Venkataranga Naika, Professor, Distance Education Unit, GKVK is honoured with outstanding Academician National Award 2020 by the Kamarajar Institute of Education and Research, Theni. Tamil Nadu during December 30, 2020. He is awarded with Certificate of Excellence for reviewing articles of an outstanding contribution to the Quality of the Journal of Education, Society and behavioral sciences, United Kingdom.
- Dr. Shivaramu. K, Professor and Senior Information Specialist, Farm Information Unit, GKVK, Bengaluru is honored with Dr. R. Dwarakinath Best Extension Worker Award during Krishimela-2020 organized at GKVK during 11 to 13th November 2020.

- Veena Bushetti and B. Krishnamurthy, Department of Agricultural Extension, CoA, UAS, GKVK, Bengaluru received Best Oral Presentation Award in the National Conference on ICT based e-resources for smart agriculture–A Journey Towards Atmanirbhar Bharat Post COVID-19 Pandemic Situation organized by UAS, Raichur under (NAHEP-IG) held during 16-17 March 2021 and presented a paper entitled 'ICT tools access and usage by the farmers in Dharwad and Haveri districts of Karnataka'. Mutteppa Chigadolli, Dr. Y.N. Shivalingaiah, Premkishor S.N. & Prashant Shivaji Lohar also received Best Oral Presentation Award for the title 'Smart Agriculture to Feed the Burgeoning Global Population and overcome Current Agricultural Problems'. D.V. Kusumalatha & Dr. N.S. Shivalinge Gowda, Department of Agricultural Extension also received Best Poster Presentation Award for the title 'Do Health Monitoring Apps provide profitable market for farm produce?'. Sagar S. Pujar, Krishnamurthy B. and Shivani Dechamm also received Best Poster Presentation Award for the title 'Agri Start-ups: Industrial Scope for Agriculture'. Kavyashree C., Krishnamurthy B., Basavaraj Beerannavar, received Best Oral Presentation Award for the title 'Smart village for sustainable growth of farmers and villages'. Sampraja Bandi, Dr. Vinay Kumar R and Lohar Prashant Shivaji received Best Poster (Virtual) Presentation Award for the title 'Digitalization of Education to Bridge the Learning Barriers' in the same conference.

5. 6 Nominations of teachers for different assignment in Govt. and other agencies

The details of teachers who were nominated for different assignment in Government and other agencies as members during 2020-21 are presented here under

- Dr. S. Rajendra Prasad, Vice -Chancellor has been nominated as Chairman of ICAR Accreditation Peer Review Team (SSR) of Don Bosco College of Agriculture, Goa. He is nominated as Member of Karnataka State Policy and Planning Board, Government of Karnataka; Board of Management, Sher –e–Kashmir, University of Agricultural Sciences and Technology of Kashmir; Board of Management, Indian Agricultural Research Institute (IARI), New Delhi; ICAR, Accreditation Peer Review Team (SSR) of Indian Agricultural Research Institute (IARI), New Delhi; Advisory Committee of National Agricultural Science Fund (NASF) OF ICAR; Expert Scrutiny Committee for Various National and State award committees nominated by Hon'ble Governor of Karnataka and also a member for Committee of Experts to advise Government of Goa in Agriculture
- Dr. Sheshshayee, Professor and Head, Dept. of Crop Physiology, CoA, GKVK, Bengaluru is nominated as member of Technical Expert Committee, Integrated Biological Sciences, SERB, DST, Govt of India
- Dr. Nataraja Karaba, Professor, Dept of Crop Physiology, CoA, GKVK nominated as member for Life Sciences Selection Committee, 2021-Summer Research Fellowship Programme for students and teachers by the National Science Academies
- Dr. K.C. Narayanaswamy is nominated as an expert member of Institutional Bio-Safety committee (IBSC) of APSSRDI, Hindupur for a period of 3 years and he is also nominated as a member in the Assessment Committee to interview the candidates for the Scientist position in Central Silk Board
- Dr. B.V. Krishnamurthy, Chief Scientific officer, Inland Fisheries Unit, UAS (B) has been included as a Member of the State Level Steering-cum-Monitoring Committee to regulate responsible culture of Tilapia in Karnataka
- Dr. C. Doreswamy, Professor, Dept. of Sericulture, CoA, Chamarajanagara has been nominated as Nodal Officer for District wise committees to keep vigil on the issues observed and action taken with respect to agricultural sector during COVID-19 Pandemic

- Dr. P. J. Devaraju, Professor and University Head, DSST, has been nominated as Liaison Officer for SC/ ST between UAS, Bangalore and Government of Karnataka
- Dr. B.T. Krishnaprasad, Professor of Biotechno-logy, CoA, Hassan has been nominated as Master Trainer for PIMS-Project Management Information System for implementation and operationalization activities of PIMS applications
- Dr. B. Krishnamurthy, Professor and Head, Dept. of Agril. Extension, CoA, GKVK is nominated as Vice-President of Indian Society of Extension Education, South Zone. He is nominated as Member of Board of Studies, Banaras Hindu University, Varanasi. He is nominated as Trustee, Canara Bank Financial Advisory Trust, Canara Bank, Head Office, Bengaluru. He is also nominated as content reviewer and editor for NAHEP Component e-notes for UAS, Bangalore during November 2020.
- Dr. Y.N. Shivalingaiah, Professor, Department of Agricultural Extension, College of Agriculture, GKVK is nominted as Professor -IFFCO Chair
- Dr. K.P. Raghuprasad, Professor, Department of Agricultural Extension, College of Agriculture, GKVK is serving as the Moderator of Krishidarshana Programme of Dooradarshana.
- Dr. Manjunath Gowda, Professor, Department of Sericulture, College of Agriculture, GKVK is nominated as the member of Research Advisory Committee of Central Sericultural Germplasm Resources Centre, Central Silk Board, Hosur, Tamil Nadu, Since September 2020. He is also nominated as a member of Board of Studies in Sericulture (PG) of University of Mysore, since 2020. He served as an External Member to conduct M.Sc. Dissertation evaluation of the Department of Studies in Sericulture, University of Mysore during 2020.
- Dr. M. S. Ganapathy, Professor & Head, Department of Agricultural Marketing, Co-operation & Business Management is serving as Mentor to Beegle Agritech and Agriproducts Pvt. Ltd. and Scion Agricos Pvt. Ltd. He is also serving as a team member for drafting the New Agricultural policy of Karnataka State.
- Dr. Siddayya, Professor, Department of Agricultural Marketing, Co-operation & Business Management was nominated as Organizing Secretary of 28th Annual Conference of Agricultural Economics Research Association (AERA), India themed 'Future of Indian Agriculture: Opportunities and Challenges' held from 16th -18th Dec. 2020 through virtual mode
- Dr. M. R. Girish, Associate Professor, Department of Agricultural Marketing, Co-operation & Business Management, College of Agriculture, GKVK is serving as a team member for drafting the New Agricultural policy of Karnataka State. He is serving as Subject Matter Expert in Agribusiness for TCS iON.
- Dr. V. Kumargouda, Assistant Professor, College of Agricultural Engineering is nominated as Expert Committee Member for Gobardhan scheme under the chairmanship of Development Commissioner and Additional Chief Secretary, Government of Karnataka. He is also nominated as Expert Committee Member on small scale family type biogas plant approval committee under chairmanship of Joint Secretary, MNRE, Government of India.
- Dr. K. S. Jagadish, Professor & Head and Dr. B.V. Shwetha, Asst. Prfoessor, Dept. of Apiculture, UAS, GKVK, Bengalauru are nominated as Principal Member and Alternate Member repectively to Apiary Industry, Sectional Committee (FAD 03) of Bureau of Indian Standards, Govt. of India. w.e.f. 09.06.2020
- Dr. Krishna Murthy, Professor, Department of Forestry and Environmental Science is nominated as members of Tree Expert Committee by Government of Karnataka
- Dr. Rinku Verma, Assistant Professor, Department of Forestry and Environmental Science, College of Agriculture, GKVK has been nominated as member for Board of Studies in Environmental Science of Bangalore University for a period of 3 years

- Dr. M. Mahadevamurthy, Professor, Department of Forestry and Environmental Science, College of Agriculture, GKVK, Bangalore has been nominated as a member for Karnataka Rajya Vignana Parishath for two years
- Dr. A.A. Fazal, Prof. of FS&N, CoA, Hassan has been nominated for Confidential Academic Assignments at ASRB, ICAR, New Delhi and also as a External Examiner for 6 other Universities
- Mrs. Rekha, B, Asst. Professor of Horticulture, CoA, Hassan has been nominated as external evaluator for horticulture training students, Somanahalli kavalu, Horticulture department
- Dr. S.S. Prakash, Professor & Head (SS&AC), CoA, Mandya is nominated as subject expert for the Board of Studies of Annamalai University, Tamil Nadu
- Dr. M. Raju, Professor, Dept. of Sericulture, Dr. J. Mahadeva, Assistant Professor of Forestry, CoA, Mandya are nominated as members of Board of Studies (UG) at Yuvarajas College, Mysore
- Dr. J. Mahadeva, Assistant Professor is nominated as member of Board of Studies (UG), Mandya University, Mandya Govt. Boys College, Mandya
- Dr. Rajegowda, Senior Scientist and Head, ICAR-KVK, Kandali, Hassan has been nominated as Nodal Officer for the District Raitha Samparka Kendara (RSK) review committee. Nominated as committee member for Agricultural technology Management Agency (ATMA), District Agricultural Committee, District Horticulture Committee, District Skill development committee, Foundation Member for the FPO on Rajmudi Rice in Hassan and also for the committee on district monitoring and helping the farmers for marketing of agriculture produce during COVID-19.
- Dr. M. Shivashankar, Scientist (Home Science), ICAR-KVK, Kandali, Hassan, has been nominated as committee member for the committee on district monitoring and helping the farmers for marketing of agriculture produce during COVID-19.
- Dr. O R Nataraju, Senior Scientist & Head has been nominated as External Expert for the selection of Associate Professor under CAS by the KVAFSU, Bidar.

5.7 Other important events organised

Events organised by different units of all the Directorates of the University are presented here under:

- All the colleges under UAS jurisdiction started to conduct 'Online classes' for UG Students during lockdown period on 7.4.2020 and online examinations are conducted in COVID-19 pandemic situation
- Kharif 2020 - The Workshop on Zonal Research and Extension Programme of Zone VI was organized at ZARS, Mandya on 6th May, 2020 through online cloud meeting
- Kharif 2020 - The Workshop on Zonal Research and Extension Programme of Zone V was organized at GKVK on 13th May 2020 through online cloud meeting
- Shri B.C. Patil, Honb'le Minister of Agriculture, Govt. of Karnataka inaugurated the Digital Class rooms at South Block, College of Agriculture, GKVK and Green House facility of the department of Plant Pathology on 13.6.2020. He also visited the Exhibition of insects displayed at the department of Agricultural Entomology and Examination Hall, College of Agriculture, GKVK.
- Famers Training Institute, GKVK, Bengaluru under the project 'Empowerment of Scheduled Caste Farm Families through Integrated Farming System for Sustainable Livelihood' organised programme for Self

Help Groups (SHG's) formed in Chikkaballapura and Tumakuru districts. Dr. S. Rajendra Prasad, Hon'ble Vice-Chancellor inducted farm equipments to these SHGs on 07.10.2020

- 12th Scientific Advisory Committee Meeting of ICAR – Krishi Vigyan Kendra, Bengaluru Rural District was organized on 29.01.2021. The 14th Scientific Advisory Committee (SAC) meeting of Krishi Vigyan Kendra, Chintamani was held on 12.01.2021 under the Chairmanship of the Dr. S. Rajendra Prasad, Hon'ble Vice Chancellor.
- Dr. Siddaiah, Professor, Department of Agricultural Marketing Cooperation & Business Management, CoA, GKVK organized 28th Annual AERA Conference 2020 on 'Future of Indian Agriculture: Challenges and opportunities' from 16th to 18th December 2020
- ICAR SCP-TSP sponsored entrepreneurship development programme on Bakery production and management programme was held at CoA, Hassan on 30th & 31st December 2020
- College of Sericulture, Chintamani has organized orientation programme for two years Diploma (Seri.) students admitted for the academic year 2020-21 on 18.01.2021 and also organized orientation programme on 15.02.2021 for I B.Sc. (Hons.) Agriculture and Sericulture students admitted for the academic year 2020-21
- One day Workshop on Entrepreneurship Development Programme for Agricultural Sector was conducted (Under EDP, SDC, UAS, Bangalore) to the final year students at CoA, Hassan on 21st January 2021
- EDP on 'Dairy Production, Processing and management programme' was organized under ICAR – SCP-TSP at CoA, Hassan for final year B.Tech. (Food Tech.) students on 22nd February 2021
- NSS organized Personality Development programme for 1st and 2nd year B.Sc. (Agri.), B.Tech.(Biotechnology) and B.Tech (Food Technology) on 9th & 10th March 2021
- Dr. Trilochan Mohapatra, Director General, ICAR and Secretary (DARE), GoI visited UAS, Bangalore on 20th March 2021 and inaugurated the new facilities / infrastructure created apart from interacting with students and faculty. He inaugurated the Central Instrumentation Facility established under CAAST project. He laid Foundation Stone for the Skill Development Center and inaugurated the outdoor Gym established at GKVK Girls Hostel complex and faculty club at GKVK.
- ICAR-Krishi Vigyan Kendra, Bengaluru Rural district organised the Foot prints of 15 years programme on 23rd March 2021 at Hadonahalli, Doddaballapura taluk, Bengaluru Rural District
- As a part of 'One Year Certificate Course in Beekeeping' offered by Distance Education Unit, Directorate of Extension and Dept. of Apiculture, UAS-B, Contact classes were conducted for batch of 12 candidates at the Dept. of Apiculture, College of Agriculture, GKVK from 01.03.2021 to 10.03.2021 followed by final exam on 12.03.2021

5.8 Abstract of different programmes organised/ participated, extension activities carried out and number of publications brought out by the faculty of UAS-B

Details of number of conferences /seminars /workshops / training programmes etc. attended and organised; Extension activities organised and Number of Publications brought out by the faculty of all the Directorates and colleges are presented in the below tables :

Table 27 : Conferences / Seminars / Workshops / Summer schools / Training Programmes organised by the faculty during the year 2020-21

Sl. No.	Colleges and other Directorates	Number of Programmes organised				
		Seminars / Workshops	Training Programmes	Conferences	Summer / Winter Schools	Others
1.	College of Agriculture, Bengaluru	19	63	01	-	08
2.	College of Agriculture, Mandya	=	05	-	-	-
3.	College of Agriculture, Hassan	2	2	-	-	1
4.	College of Sericulture, Chintamani	-	-	-	-	9
5.	College of Agriculture, Chamarajanagara	-	-	-	-	2
6.	Directorate of Research	11	18	-	-	2
7.	Directorate of Extension	1	618	-	2	1
8.	Directorate of Post Grduate Studies	31	72	3	1	13
9.	Directorate of Education & PPMC/Nodal Agricultural Education	44	-	-	-	-
	Total	**108**	**778**	**4**	**1**	**33**

Table 28 : Conferences / Seminars / Workshops / Summer schools / Training Programmes attended by the faculty during the year 2020-21

Sl. No.	Colleges and other Directorates	Number of Programmes attended						
		Seminars / Workshops		Training Programmes		Conferences		Summer / Winter Schools
		National	International	National	International	National	International	
1.	College of Agriculture, Bengaluru	157	26	15	01	07	02	01
2.	College of Agriculture, Mandya	35	-	24	04	10	-	-
3.	College of Agriculture, Hassan	165	14	65	-	29	8	-
4.	College of Sericulture, Chintamani	05	01	53	-	-	01	-
5.	College of Agriculture, Chamarajanagar	1	-	2	-	-	-	-
6.	Directorate of Research	176	10	54	6	3	4	1
7.	Directorate of Extension	34	4	7	-	3	3	-
8.	Directorate of Education & PPMC/ Nodel Agricultural Education Cell-ICAR, GKVK	14	-	1	-	-	-	-
	Total	587	55	221	11	52	18	2

** Includes On-line/Off-line mode*

Table 29 : Extension Activities carried out by the faculty during the year 2020-21

Sl. No.	Colleges and other Directorates	Number of Extension carried out					
		Radio Talks	TV Programs	Field Visits	Field Days	Demonstrations / Awareness	Others (As Resource Persons/ Farm queries)
1.	College of Agriculture, Bengaluru	19	67	88	16	–	07
2.	College of Agriculture, Mandya	–	–	477	–	–	–
3.	College of Agriculture, Hassan	–	22	–	3	3	60
4.	College of Sericulture, Chintamani	04	09	–	01	–	–
5.	Directorate of Research	33	66	265	19	6	151
6.	Directorate of Extension	36	26	977	79	951	2807
7.	Directorate of Education & PPMC/Nodal–Agricultural Education Cell-ICAR, GKVK		1	1	–	2	–
	Total	92	191	1808	118	962	3025

5.9 Important publications brought out by the faculty

ಬೋಧಕ ಸಿಬ್ಬಂದಿಯು ಹೊರತಂದ ಮುಖ್ಯ ಪ್ರಕಟಣೆಗಳು

5.9.1 Review Articles

CHITNIS, V. R., SURYANARAYANAN, T. S., NATARAJA, K. N., PRASAD, S. R., RALF, O. AND SHAANKER, R. U., 2020, Fungal endophyte-mediated crop improvement: The way ahead, frontiers in plant sciences, doi.10.3389/fpls.2020.561007.

DHANYALAKSHMI, K. H., CHAITHRA, H. V., SAJEEVAN, R. S. AND NATARAJA, K. N., 2020, Transgenics for targeted trait manipulation: The current status of genetically engineered mulberry crop. In: genetically modified crops, springer nature singapore Pvt. Ltd. (Accepted).

DHANAPAL, G. N., SAMARDI GANAPATHI, KAMALA BAI, S., NAGARJUN. P. AND SINDHU, K. K., 2020, Nanotechnology in weed management - A review. *Mysore J. Agric. Sci.,* **54** (3) : 19-25.

HEMAPRIYA, M., NATARAJA, K. N., SURYANARAYANAN, T. S. AND UMASHAANKER, R., 2020, Threshing yards: graveyard of maternally borne seed microbiome? trends in ecology and evolution, DOI: https://doi.org/10.1016/j.tree.2020.08.010.

MOHAN KUMAR, R., YAMANURA AND BORAIAH, B., 2021, Bio irrigation –A drought alleviation strategy through induced hydro-parasitazation under bi-cropping practices of rainfed agro-ecosystem : A review. *Agricultural Reviews,* R-2139:1-6.

MOHAN RAO, A., GANESH PRASAD AND BALARAJU SUSMITHA, 2020, The leaf curling in capsicum species : A review. *Mysore J. Agric. Sci.,* **54** (2) : 1-13.

MUNISHAMANNA, K. B., PALANIMUTHU, V., VEENA, R., DARSHAN, M. B., SURESHA, K. B. AND KALPANA, B., 2020, Utilization pattern of banana pseudostem - A review. *Mysore J. Agric. Sci.,* **54** (3) : 26-51.

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Table 30 : Number of Publications brought out by the faculty during the year 2020-21

Sl. No.	Colleges and Directorates	Number of Publications				
		Research Papers / Review Articles / Notes	Popular Articles	Books / Bulletins	Leaflets / Folders	Others Abstracts/ Chapter in Books, etc.
1.	College of Agriculture, Bengaluru	144	03	07	23	15
2.	College of Agriculture, Mandya	45	–	–	–	–
3.	College of Agriculture, Hassan	44	01	–	–	55
4.	College of Sericulture, Chintamani	25	-	-	01	-
5.	College of Sericulture, Chamarajanagara	7	-	-	1	-
5.	Directorate of Research	229	19	25	1	4
6.	Directorate of Extension	40	63	21	63	10
7.	Directorate of Education & PPMC/Nodal Agricultural Education Cell-ICAR, GKVK	26	–	–	1	1
	Total	560	86	53	90	35

Chapter VI

6. Financial Resources, Allocation, Accounting and Management

6.1 Source of Finance

The State Government provided grants under Grant-in-aid salaries to continue the ongoing commitments under establishment. Further, the grants under Grant-in-aid general were provided for strengthening the existing programmes and to establish new activities under teaching, research and extension education programmes including general administration.

The State Govt. Departments provided certain grants to undertake Ad-hoc research schemes and extension educational activities.

Indian Council of Agricultural Research provided funds for the continuation of the existing schemes and establishment of new Teaching, Research and Extension Education Programmes. Grants were also provided under All India Co-ordinated Research Schemes and Ad-hoc Research programmes.

Several Departments of Government of India also provided financial assistance to conduct specific research in agriculture.

Grants are also being provided quite often by several National and International Organizations/Agencies to conduct Research and Extension Programmes in the University.

Revenue is also generated by effectively utilizing the internal resources through crop cultivation, sale of seeds, nursery activities, collection of student's fees etc.

6.2 Receipts 2020-21

6.2.1 Grants from State Government

6.2.1.1 Grant-in-Aid Salary

The State Government has released Rs.11050.86 lakh during the year 2020-21 as Grant-in-Aid salaries.

6.2.1.2 Grant-in-Aid Pension

The State Government has released Rs. 12597.15 lakhs during the year 2020-21 as Grant-in-Aid Pension.

6.2.1.3 Grant-in-Aid Contract/outsource

The State Government has released Rs. 840.00 lakhs during the year 2020-21 as Grant-in-Aid Contract / outsource.

6.2.1.4 Grant-in-aid Daily wages

The State Government has released Rs.363.00 lakhs during the year 2020-21 as Grant-in-Aid Daily wages.

6.2.1.5 Grant-in-aid Scheduled Cast sub Plan-Research

The State Government has released Rs.87.75 lakhs under Research head during the year 2020-21 as Grant-in-Aid Schedules Caste sub Plan.

6.2.1.6 Grant-in-aid Tribal Sub Plan-Research

The State Government has released Rs.35.50 lakhs under Research head during the year 2020-21 as Grant-in-Aid Tribal sub Plan

6.2.1.7 Grant-in-Aid General

The State Government has released Rs. 912.00 lakhs for Agricultural Research and Rs.454.00 lakhs towards Agricultural Education with a total of Rs.1366.00 lakhs during the year 2020-21 towards the continuation of ongoing activities under Teaching, Research, Extension Education and General Administration.

6.2.1.8 Grant-in-aid Asset Creation

The State Government has released Rs.500.00 lakhs during the year 2020-21 as Grant-in-Aid Asset Creation.

6.2.1.9 Grant-in-aid Scheduled Cast Sub Plan-Education

The State Government has released Rs.116.25 lakhs under Education head during the year 2020-21 as Grant-in-Aid Schedule Cast Sub Plan.

6.2.1.10 Grant-in-aid Tribal Sub Plan-Education

The State Government has released Rs.45.50 lakhs under Education head during 2020-21 as Grant-in-Aid Tribal Sub Plan.

6.2.1.11 RAWEP (RSK'S)

The State Government has not released any funds for RAWEP Schemes.

6.2.1.12 Ad-hoc Schemes of Departments of State Government

University received Rs.203.08 lakhs towards ad-hoc research schemes from the Departments of State Government and Rs.589.30 lakhs under RKVY projects during the year 2020-21.

6.2.1.13 Grants from ICAR

Indian Council of Agricultural Research has released Rs 2873.61 lakhs during the year 2020-21 as indicated in the following Table.

6.2.1.14 Grants from Government of India

During 2020-21, University received Rs 976.60 lakhs from different Departments of Government of India *viz.,* Ministry of Science & Technology, Department of Biotechnology, CSIR, Department of Agriculture and Co-operation, etc. towards specific research programmes.

Table 31 : Grants Received from ICAR

Sl.No.	Heads	Amount released in Lakhs
1.	Development and strengthening of Agricultural Universities	858.47
2.	All India Co-ordinated Research Projects and Ad-hoc Projects	2015.14
	Total	**2873.61**

6.2.1.15 Schemes sponsored by other Agencies

The fund received by other agencies amounted to Rs 285.68 lakhs during 2020-21.

6.2.1.16 Summary of receipts for the year 2020-21

The following Table provides the details of total grants received and Expenditure (Provisional) by the University during 2020-21.

Table 32 : Grants and Expenditure during the year 2020-21

(Rs. in lakhs)

Sl.No.	Particulars	Grants	Expenditure	Per cent share (%)
I	***State Government***			
i	Grant-In-Aid Salary 2415-80-004-1-01-101	11050.86	11050.86	31.86
ii	*Grant-In-Aid Pension* 2415-80-004-1-01-118	12597.15	12597.15	36.31
iii	Grant-in -Aid - Contract/outsource 2415-80-004-1-01-115	840.00	840.00	2.42
iv	Daily wages 2415-80-004-1-01-033	363.00	363.00	1.05
v	Grant-in- aid General- Agriculture Research 2415-80-004-1-01-103	912.00	912.00	2.63
vi	Grant-in- aid General Agricultural Education 2415-80-277-1-01-103	454.00	454.00	1.31
vii	SCSP Research 2415-80-277-1-01-422	87.75	87.75	0.25
viii	SCSP 2415-80-277-1-01-422	116.25	116.25	0.34
ix	TSP Research 2415-80-277-1-01-423	35.50	35.50	0.10
x	TSP Education 2415-80-277-1-01-423	45.50	45.50	0.13
xi	Grant-in-aid Asset Creation 2415-80-277-1-01-423	500.00	500.00	1.44
xii	RAWE (RSK'S)	0.00	0.00	0.00
xiii	Ad-hoc Schemes	0.00	0.00	0.00
xiv	Internal Receipts	4364.72	4364.72	12.58
	Total - I	**31366.73**	**31366.73**	**90.42**
II	***ICAR***			
i	Development Grants	858.47	858.47	2.47
ii	Co-ordinated Research Projects	2015.14	1866.12	5.38
	Total - II	**2873.61**	**2724.59**	**7.85**
III	***Government of India***			
i	Other Agencies	613.76	288.20	0.83
ii	RKVY	1947.27	310.75	0.90
	Total - III	**2561.03**	**598.95**	**1.73**
	Grand Total (I+II+III)	**36801.37**	**34690.27**	**100**

* The balance of Rs. 2111.10 lakhs (Rs. 36801.37 – 34690.27 = 2111.10) is available on account of capital expenditure sanctioned by ICAR under All India Coordinated Research projects and the grants were received by GOI for Research project during fag end of the financial year. It also includes funds by RKVY for committed activities as per the DPR. The grant is revalidated for the ensuing Financial year and is utilized.

6.3 Expenditure during 2020-21

6.3.1 Expenditure towards Grants Received from State Government

6.3.1.1 Expenditure towards Grant-in-aid Salary

The State Government has released Rs.11050.86 lakhs towards Salary during the year 2020-21 and had been fully utilized.

6.3.1.2 Expenditure towards Grant-in-aid Pension

The State Government has Released Rs.12597.15 lakhs towards Pension during the year 2020-21 and had been fully utilized.

6.3.1.3 Expenditure towards Grant-in-aid Contract/outsource

The State Government has released Rs.840.00 lakhs towards Contract/outsource during the year 2020-21 and had been fully utilized.

6.3.1.4 Expenditure towards Grant-in-aid Daily wages

The State Government has released Rs.363.00 lakhs towards Daily wages during the year 2020-21 and has been fully utilized.

6.3.1.5 Expenditure towards Grant-in-Aid Scheduled Cast Sub Plan - Research

The State Government has released Rs. 87.75 lakhs under Research head towards Scheduled Cast Sub Plan during the year 2020-21 and has been fully utilized.

6.3.1.6 Expenditure towards Grant-in-aid Tribal Sub Plan - Research

The State Government has released Rs.35.50 lakhs Under Research Head towards Tribal Sub Plan during the year 2020-21 and has been fully utilized.

6.3.1.7 Expenditure towards Grant-in-Aid General

The State Government has released Grant-in-Aid General of Rs.912.00 lakhs towards Agricultural Research and Rs.454.00 lakhs towards Agricultural Education during the year 2020-21 and has been fully utilized.

6.3.1.8 Expenditure towards Grant-in-Aid Asset Creation

The State Government has released Grant-in-Aid Asset Creation of Rs.500.00 lakhs during the year 2020-21 and has been fully utilized.

6.3.1.6 Expenditure towards Grant-in-Aid Schedule Cast Sub Plan- Education

The State Government has released Rs.116.25 lakhs towards Sub Cast Plan during the year 2020-21 and has been fully utilized.

6.3.1.7 Expenditure towards Grant-in-aid Tribal Sub Plan - Education

The State Government has released Rs. 45.50 lakhs towards Tribal Sub Plan during the year 2020-21 and has been fully utilized.

6.3.1.8 RAWEP (RSK'S)

No funds were released by the State Government towards RAWEP

6.3.1.9 ICAR Funded Project

a) ***Development Grants :*** The amount spent during 2020-21 for severa ICAR approved development programmes was Rs.858.47 lakhs.

b) ***Research Projects – ICAR :*** An amount of Rs.3143.13 lakhs during 2020-21 has been spent for continued & new programmes (120 projects).

6.3.1.10 Schemes funded by various departments of Government of India

An amount of Rs. 1039.43 lakhs was spent for various projects funded by several departments of Government of India (115 projects).

6.3.1.11 Schemes funded by other agencies

A total of 58 projects were in operation during 2020-21 funded by other agencies. The total receipt from other agency was Rs.613.76 lakhs out of that the expenditure was Rs.288.20 lakhs. During 2020-21, the total receipts for the University was Rs.9225.92 lakhs out of which the expenditure was Rs.6091.74 lakhs.

6.4 Details of Retirement Benefits

6.4.1 Provident Fund

As on 01.04.2020 there were 848 accounts out of which 158 GPF accounts amounting to Rs. 5,35,88,492/- were processed for final settlement and paid to the claimants due to retirement / VRS / death of the subscribers. Thus, as on 31.03.2021 there were 690 accounts.

During the period from 01.04.2020 to 31.03.2021, as many as 212 temporary advances and 141 partial final withdrawals amounting to the sum of Rs.4,61,05,400 and Rs. 2,71,28,000 respectively were disbursed to the subscribers.

6.4.2 Family Benefit Fund

There were 799 members as on 01.04.2020. Admission of members to this fund was stopped w.e.f. 1st August 1991 consequent on the introduction of the Group Savings Linked Insurance Scheme for the benefits of the employees. The fund had 799 accounts as on 31.03.2021

6.4.3 Group Savings Linked Insurance Scheme

Group Savings Linked Insurance Scheme was introduced for the benefit of the employee's w.e.f. 1st August 1991. As on 01.04.2020 there were 928 employees. The claim forms of 61 employees were sent to LIC of India on account of retirement / death / resignation covering Rs.30,21,907/-. As on 31.03.2021, there were 858 employees covered in the above scheme.

6.4.4 Pension Fund

As on 01.04.2020, the University had 2193 pensioners in total comprising of 1556 regular pensioners and 637 family pensioners. During the period from 01.04.2020 to 31.03.2021payment to 63 new pensioners and 45 family pensioners commenced. The pension has been stopped to 68 pensioners and 10 family pensioners due to their death. Due to non-submission of life certificate, 15 pensioners and 07 family pensioner's pension has been stopped temporarily. 18 pensioners and 3 family pensioners have submitted their life certificate, hence their pension is released Thus, as on 31.03.2021 there were 2222 pensioners comprising of 1554 regular pensioners and 668 family pensioners. During the period from 01.04.2020 to 31.03.2021 Rs. 12,597.15 was disbursed to pensioners / family pensioners towards Pension, Gratuity & Commutation.

6.5 Details of Loans and Advances

6.5.1 House Building / Site Purchase / House Repair Advances

Three applications were received towards HBA / HPA / HRA / SPA / Redemption of loan and sanctions were accorded for a sum of Rs. 66,60,000.00 to the employees during the year *i.e.,* from 01.04.2020 to 31.03.2021 out of GPF accumulation as per Statute 34 (3) (a) (ii) of University of Agricultural Sciences, Bangalore.

6.5.2 Conveyance Advance

During the year 2020-21, the Conveyance advance sanctions were accorded for a sum of Rs.21,99,000.00 to the employees for the purchase of Motor Car, Motor Cycle and Moped out of GPF accumulation as per Statute 34 (3)(a)(ii) of University of Agricultural Sciences, Bangalore.

6.6 Audit of Accounts by the Statutory Auditors

The annual accounts for the year 2019-20 is completed. It is submitted to the Secretary, Agriculture Department, Government of Karnataka and the Principal Director of Karnataka State Audit and Additional Director to conduct audit of accounts.

In respect of the Account for the year 2020-21, the finalization of accounts is in progress. The annual accounts will be prepared by the end of 30.06.2021 as per the mandate and will be submitted to the Secretary, Agriculture Department, Government of Karnataka and the Principal Direcctor of Karnataka State Audit and Additional Director Government of Karnataka to conduct audit of accounts. The audited accounts along with audit report and replies thereon will be submitted to Finance Committee and Board of Management. After approval from the Board of Management, the same will be sent to the Government of Karnataka.

Chapter VII

7. Human Resource Development

The University of Agricultural Sciences has its Administrative Office headed by the Administrative Officer directly under the control of the Honourable Vice Chancellor who looks after the Human Resource Developmental activities from recruitment to retirement of faculty and supporting staff of the University.

7.1 Appointments

During 2020-21, there were no fresh appointments undertaken for the posts of teaching and non teaching staff under direct recruitment while three non teaching posts were filled up under compassionate grounds.

7.1.1 Promotions

During the year 2020-21, 60 teachers were promoted from the cadre of Assistant Professor to Asst. Professor (Sel. Grade) / Associate Professor and Associate Professors were promoted to the post of Professors. Similarly, 60 Non-teaching staff were also promoted.

7.2 Staff Position of Teaching and Service Personnel during the year 2020-21

The University has sanctioned posts of Six Professors (HAG), 49 Professors, 144 Associate Professors and 387 Assistant Professors. Out of 586 sanctioned posts, 383 were filled and 203 are vacant (34.64%). Efforts are being made to fill up these posts through approved recruitment. Looking into the need, teaching and non teaching staff were appointed on contractual basis also. In addition, the University has 55 sanctioned posts of T4 series, out of which 22 are vacant.

The University has 1564 sanctioned posts of supporting staff, of which 997 are vacant. The University has been making sincere efforts in approaching the Government to seek permission for recruitments.

Table 33 : Number of Sanctioned, Filled and Vaccant Teaching positions

Cadre	Sanctioned	Filled	Vacant
Professor (HAG)	06	03	03
Professor	49	26	23
Assoc. Professor	144	103	41
Asst. Professor	387	251	136
Total	**586**	**383**	**203**

Table 34 : Number of Sanctioned, Filled and Vaccant T4 Series positions

Cadre	Sanctioned	Filled	Vacant
Training Assistant	07	07	00
Farm Manager	07	03	04
Programme Asst.	07	05	02
Technical Assistant	30	18	12
Field Supervisor	04	0	04
Total	55	33	22

Table 35 : Number of Sanctioned, Filled and Vaccant Non-Teaching positions

Cadre	Sanctioned	Filled	Vacant
Group-A	56	33	23
Group-B	49	14	35
Group-C	1053	421	632
Group-D	406	99	307
Total	**1564**	**567**	**997**

7.3 Court Cases, RTI and Enquiries : The details are provided in the following table

Table 36 : Number of enquiries, court cases and RTIs during the the year 2020-21

Particulars	Opening Balance	No. of cases Received	No. of cases Disposed	No. of cases Pending
Enquiry Cases/ವಿಚಾರಣೆ	02	02	02	02
Writ Petitions/ನ್ಯಾಯಲಯದಲ್ಲಿ ದಾವೆ	45	07	08	44
RTI/ ಮಾಹಿತಿ ಹಕ್ಕು	**06**	**78**	**82**	**02**

7.4 Retirements

During the period, Four Officers, 13 faculty and 52 non-teaching staff got superannuated. Overall, 69 employees of UAS-B attained superannuation during 2020-21. The details are given in the Annexure 4.

Chapter VIII

8. Research Chairs and their Activities

8.1 Prof. M.D. Nanjundaswamy Research Chair

The Hon'ble Chief Minister, Government of Karnataka in his 2018-19 budget speech dated 16-02-2018 had announced the establishment of Prof. Nanjundaswamy Research Chair at the University of Agricultural Sciences, GKVK, Bengaluru with a budget outlay of one crore rupees. The University constituted a committee on 06-06-2018 to prepare an action plan and guidelines for the establishment of Prof. Nanjundaswamy Research chair with Dr. K.B. Umesh as Chairman of the committee and Dr. G.N. Nagaraja, Dr. B.M. Shashidhar, Dr. R.C. Gowda and Dr. G.S. Mahadevaiah as members of the committee. The committee submitted the guidelines and activities to be carried out under Prof. Nanjundaswamy Research chair to the University on 07-08-2018. The University submitted the proposal to the Government of Karnataka on 08-08-2018. The Government of Karnataka released the budget of one crore rupees to the University on 25-03-2019. The University nominated Dr. K.B. Umesh, Professor and University Head of Department of Agricultural Economics, UAS, GKVK, Bengaluru as the chairperson vide the notification dated 17-06-2019. A team of farmers association along with Lakshmi Narayanagowda (President, Karnataka Rajya Raitha Sangha), Pacche Nanjundaswamy (S/o Prof. Nanjundaswamy) met the Hon'ble Vice-Chancellor, Director of Research and the Chair Professor Dr. K.B. Umesh on 01-07-2019 at the Vice-Chancellor's office and discussed the establishment and activities to be taken up under the chair. Finally Prof. Nanjundaswamy Research Chair was inaugurated on 18-07-2019.

Proposed Activities

1. Undertake need based research and outreach activities to address emerging issues in agriculture *viz.,* conservation of biodiversity, food sovereignty, farmer's direct market and trade in agriculture
2. Generate empirical research-based evidences and solutions through Post-Graduate research activities and provide policy inputs to enhance the socio-economic status of the farmers
3. Empowering marginal and small farmers and resource poor rural households through interactive workshops/ symposiums/seminars/conferences for skill development and capacity building
4. Bring out reports/books/research papers, bulletins, videos on the activities and outcome of the Prof. Nanjundaswamy research chair
5. Organize special memorial lecture on 13th February every year on Prof. Nanjundaswamy birth anniversary

Research Activities carried out during 2020-21

1. Empowerment of small farm households and women empowerment
2. Water use efficiency
3. Empowering marginal and small farmers and resource poor rural households through one interactive workshops/symposiums/conferences for skill development and capacity building
4. Brought out reports/books/research papers, bulletins, videos on the activities and outcome of the Prof. Nanjundaswamy research chair
5. Organised special memorial lecture on 13th February on Prof. Nanjundaswamy birth anniversary

Ongoing PG research during 2020-21 under Prof. Nanjundaswamy research chair (initiated during August 2020-21)

1. Empowerment of small farm households vis-à-vis livestock rearing in Tumakuru district of Karnataka - An economic analysis
2. Comparative economics of Sugarcane cultivation of small and marginal farmers under different methods of irrigation in Vijayapura district of Karnataka
3. Economic analysis of empowerment of women in Cashewnut processing industry in Kollam district of Kerala

PG research taken up during 2019-20 and completed during 2020-21

I An economic analysis of mango agro-eco-tourism in Eastern Dry Zone of Karnataka - M.S. Ramu

Major Outcomes

1. The farmers practicing tourism (FPT) in mango realized better prices compared to farmers who were not practicing tourism (FNPT)
2. In the process of mango marketing six different marketing channels were identified in the study area. Producer share in consumer rupee was highest (96.24 %) in channel VI [Producer-Consumer (Mango tourism)] followed by channel I (94.54 %) [Producer - Consumer]
3. The important factors that motivated farmers to take-up agro-eco-tourism were better price realization, consumers demand for on-farm fresh fruits, low marketing cost, transportation facility by mango board, low labour and time requirement and less risky
4. The location of the tourism spot in rural areas, rural pollution free environment, picking facility in the orchard, availability of fresh and more number of mango varieties were the major factors which influenced the consumers to take part in agro-eco-tourism

Policy Recommendations

1. The Karnataka State Mango Development and Marketing Corporation (KSMDMC) has initiated 'Mango tourism' to help the farmers in realizing better prices for their produce. This needs to be further strengthened and popularized to cover all mango growing farmers.
2. The KSMDMC need to give incentives for mango farmers to take tourism activities, discounts to tourists and promote through different mass media and publications
3. Goverrnment and other institutions must encourage small and marginal farmers with respect to agri-tourism
4. The KSMDMC need to make effort to develop a road map to link mango-tourism with Agri-tourism through Karnataka tourism (Karnataka State Tourism Development Corporation) to promote mango tourism among consumers

II Institutional intervention in marketing of organic millets in Eastern Dry Zone of Karnataka - H.N. Nayana

Major Outcomes

a. The return per every rupee of expenditure in small millets cultivation was high for member farmers compared to non-members

b. In case of value-added products returns per rupee of expenditure was higher in organic millet malt (Rs. 2.11) followed by minor millet malt (Rs. 1.65), papad (Rs. 1.64), upma mix (Rs. 1.45) and dosa mix (Rs. 1.40).

c. Two marketing channels were identified in the study area for marketing of whole grains of small millets. Channel-I was followed by member farmers of federation. Channel-II was followed by non-member farmers. (Channel I: Producer-Federation cum processor-Retailer-Consumer; Channel II: Producer-Village Trader-Wholesaler cum processor -Retailer-Consumer)

Policy Recommendations

a. Government of Karnataka has established Regional Federations of organic farmer's associations to provide marketing facilities for organics and millets, this needs to be sustained in the long run by taking follow up action and performance appraisal to identify constrains and take it forward.

b. Government has to provide financial assistance to millet farmers groups for establishing small millets primary processing units at the hobli level.

c. Value addition in millets helps in increasing farmer's income significantly. Farmers need to be encouraged to take up value addition at farm level and Government and Agricultural Universities should extend training in value addition and marketing that will aid in empowering farmers.

Programmes/Workshops/Webinars organized during 2020-21

a. Online Seminar on National and International Mango Marketing: Opportunities and Challenges

Online seminar on ***"National and International Mango Marketing: Opportunities and Challenges"*** was organized on 8th June 2020. Owing to COVID-19 pandemic information about different marketing avenues, institutions, inter and intra state trading, direct marketing strategies, post-harvest handling and processing of mango covered.

b. Webinar on Amendment to Karnataka Land Reforms Act: Pros and Cons

Organised webinar on ***'Amendment to Karnataka Land Reforms Act: Pros and Cons'*** was organized on 24th June 2020. The webinar was attended by about 80 participants from State Agriculture Universities of Karnataka. Dr. P.S. Srikantha Murthy, Dr. G.M. Gaddi and Dr. K.B. Umesh were the resource persons.

c) Release of Research Bulletins

Release of Research Bulletin was organized on 20th November 2020 at VC office meeting hall. Dr. S. Rajendra Prasad, Honorable Vice-Chancellor released the two research bulletins entitled 'An economic analysis of Mango Agro-eco tourism in Eastern Dry Zone of Karnataka' and 'Institutional intervention in marketing of Organic Millets in Eastern Dry Zone of Karnataka: An economic analysis'.

d) Livestock farmer's capacity building programme

One-day programme on '***Calf rally, infertility camp cum livestock farmer's capacity building'*** was organized on 28th December 2020 at Bukkapatna village, Koratagere taluk, Tumkur district in association with Department of Animal Husbandry and Veterinary Services, GoK, Koratagere. The programme was attended by about 90 livestock farmers from Bukkapatna and surrounding villages. Dr. B.S. Lalitha, Dr. Chikkalingegowdru Kotresh and Dr. M. Nagabhushan were the resource persons.

e) Prof. M.D. Nanjundaswamy's 85th Birth anniversary

Prof. M.D. Nanjundaswamy's 85th Birth anniversary was organized on 13th February, 2021 under the aegis of Prof. M.D.N. Research Chair, Department of Agricultural Economics, University of Agricultural Sciences, Bangalore. Dr. K.B. Umesh, Research Chair Professor welcomed the gathering and gave a brief overview on Prof. Nanjundaswamy and the activities conducted under the research chair. The Honourable Vice-Chancellor, Dr. S. Rajendra Prasad addressed the gathering highlighting the contributions made by Prof. M.D.N. and he thanked the State Government for supporting the university in establishing the research chair. While appreciating the research activities undertaken under the chair he reoriented the role of FPOs, Agri-eco-tourism and Farmers federations in facilitating remunerative prices to the farmers. The Director of Research, Dr. Y.G. Shadakshari in his address stressed the need for taking up of research in emerging areas having direct relevance to farmers welfare. Dr. G.N. Dhanapal (Registrar), Dr. N. Srinivas (Dean PGs), Dr. D.L. Savithramma (Dean Agri.), Dr. M. Byregowda (Directorate of Extension), Dr. T. Narendrappa, (Dean of Student Welfare), Dr. G. Gopinath (Administrative Officer), Dr. S.V. Suresh, (Comptroller) and Mr. D. Krishnamurthy (Estate Officer), along with the faculty, research staff and students of the Department of Agricultural Economics, UAS-B graced the birth anniversary programme.

Articles published in Kannada during 2020-21

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2. ರಾಮು, ಎಮ್.ಎಸ್. ಮತ್ತು ಉಮೇಶ್, ಕೆ.ಬಿ. 2020, ಕೃಷಿಯಲ್ಲಿ ಮುಂದೆ, ಮಾರಾಟದಲ್ಲಿ ಹಿಂದೆ, ಸರಿಪಡಿಸು ಇಂದೆ ***ಕೃಷಿ ಮುನ್ನಡೆ ಮಾಸ ಪತ್ರಿಕೆ, ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಧಾರವಾಡ,*** **33(8): 28–30**.
3. ಹಂಸ, ಕೆ.ಆರ್., ರಾಮು, ಎಂ.ಎಸ್., ಉಮೇಶ್, ಕೆ.ಬಿ., ವೀರಭದ್ರಪ್ಪ ಬೆಳ್ಳುಂಡಗಿ, ರವಿ, ಎಸ್.ಸಿ. ಮತ್ತು ಉದಯ್ ಕುಮಾರ್, ಎಂ.ಎಸ್., 2020, ಕೋವಿಡ್–19: ಕೃಷಿಗೆ ನೀಡಿದ ಹಿಮ್ಮುಖ ವಲಸೆಯ ಪೆಟ್ಟು, ***ಕೃಷಿ ವಿಜ್ಞಾನ ತ್ರೈಮಾಸಿಕ ಪತ್ರಿಕೆ, ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಬೆಂಗಳೂರು,*** **44(3): 04–06**.
4. ರಾಮು, ಎಮ್.ಎಸ್. ಮತ್ತು ಉಮೇಶ್, ಕೆ.ಬಿ. 2020, ಕರ್ನಾಟಕ ಭೂಸುಧಾರಣಾ ಕಾಯಿದೆಗೆ ಉದ್ದೇಶಿತ ತಿದ್ದುಪಡಿ: ನಿಮಗೆಷ್ಟು ಗೊತ್ತು???, ***ಕೃಷಿ ವಿಜ್ಞಾನ ತ್ರೈಮಾಸಿಕ ಪತ್ರಿಕೆ, ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಬೆಂಗಳೂರು,*** **44(4): 01–04**.
5. ರಾಮು, ಎಂ. ಸ್, ಹಂಸ, ಕೆ.ಆರ್. ಮತ್ತು ಉಮೇಶ್, ಕೆ.ಬಿ. 2021, ಭೂ ಸುಧಾರಣಾ ಕಾಯ್ದೆಗೆ ತಿದ್ದುಪಡಿಯೆಂಬ ಆಟ, ಕೃಷಿ ಆರ್ಥಿಕತೆಗೆ ಪಾಠ!!!, ***ವ್ಯವಹಾರ ಜಗತ್ತು, ಕೃಷಿ ಮಸೂದೆ ರೈತರ ಆಶಾಕಿರಣ, ದ್ವೈಮಾಸಿಕ ಪತ್ರಿಕೆ,*** ಜನವರಿ–ಫೆಬ್ರವರಿ.
6. ಪ್ರೊ. ಎಂ.ಡಿ.ಎನ್. ಜನ್ಮ ದಿನಾಚರಣೆ, ***ವಿಜಯ ಕರ್ನಾಟಕ ದಿನಪತ್ರಿಕೆ.*** ದಿನಾಂಕ: 16–02–2021

Research Bulletins

1. An economic analysis of Mango Agro-eco tourism in Eastern Dry Zone of Karnataka
2. Institutional intervention in marketing of Organic Millets in Eastern Dry Zone of Karnataka : An economic analysis

8.2 Centre for Agriculture and Rural Development Studies (CARDS)

About CARDS

The University of Agricultural Sciences, Bangalore established the Centre for Rural Development Studies (CRDS) during the year 1980. Its initial functioning started with the faculty of Agricultural Extension by following informal structure, arrangements and got impetus from the eminent professors of University *viz.,* Prof. Jade Srinivasamurthy, Prof. M.K. Sethu Rao, Prof. K.A. Jalihal, Prof. R. Ramanna, Prof. S. Bisaliah and Prof N.S.P. Rebello. However, during 1990s, the activities of CRDS withered due to the administrative and financial reforms taken by the university. The CRDS is committed towards reaching out to all agencies to conduct the evaluation of schemes or programmes which are focusing on rural society and especially the farming community.

CRDS also participate actively towards improving human resource in social science departments for addressing technical, economic policy issues related to the development of agriculture and rural society.

Revival of CARDS

In the recent times, the problem of farmers are more of social and economic in nature, which needs to be addressed through interdisciplinary approach. Hence, it was felt absolute necessity to conduct research studies on present and future problems of agricultural development in particular and rural development in general. CRDS acts as professionally competent independent agency to evaluate the centrally and state sponsored programmes implemented by the various organizations. It is revived as CARDS during July 2014.

Vision : To play a vibrant role in the evaluation of research and impact studies developing rural India through technological transformation and market led development; and participating in addressing policy, financial, development, market, technology, resource and capacity building related needs for livelihood security, farm profitability and sustainability of our environment and agriculture.

Mission: To acquire and transmit new economic knowledge to the farmers and other stakeholders for better informed decision-making and evolving policies in Agricultural Sector

Objectives

1. To Provide a broad range of educational programs in social sciences which contribute to the development of human capital in the field of agriculture and rural development
2. To coordinate and support research that improves understanding of agricultural and rural development issues, problem and opportunities
3. To provide policy support to state and central government on problems confronting rural communities
4. To foster inter-institutional collaboration at regional, national and international levels for research, training and development in select areas

Administration: CARDS has been revived with involving the four departments in the social science viz, Department of Agricultural Extension, Agricultural Economics, Agricultural Marketing Cooperation & Business Management and Agricultural Statistics, Applied Mathematics and Computer Science. The effective administration of the center is taken by the steering committee chaired by the Director of Education as its Chairman who meets twice an year and reviews the CARDS activities.

Functions

The important functions of CARDS are

1. Facilitating signing of MOUs with funding agencies
2. Identifying funding institution, schemes/programs evaluation opportunities
3. Facilitating conduct of workshop/symposium/ seminar/conference for the human resource development of Social Science departments in cooperation with heads of departments and university heads
4. Assisting for the smooth conduct of consultancy services coming under the provision of social science departments
5. Undertaking research studies including impact assessment of research received by the UASB

Institutional Linkages

The Centre has close working relationship with State and National level institutes like Karnataka State Department of Agriculture, Karnataka State Department of Horticulture, Karnataka State Marketing Board,

National Horticulture Mission, Karnataka Agriculture Price Commission, SAMETI, KVKs, Coffee Board, Silk Board, Tobacco Board, Spice Board, Coconut Board, Farmers Producer Organizations, NGO's etc. Estimating the cost of cultivation of major crops, developing regional agricultural model and implementing collaborative studies with the above institutions/organizations, Research priority setting, Land and Water resource management, Contract Farming, Local Governance and Rural Development, Infrastructure and Diversification, SHG and their participation in mitigating & alleviation of poverty, market intelligence, Value & Supply chain management, Gender studies, Rural Migration etc are the major research areas of interest for CARDS.

Activities carried out under CARDS

Events Organised

- Organized Training programme on **'Advances in ICT Based Research and Extension'** 11th July, 2019 **and released a Brochure on CARDS.** The programme was sponsored by Directorate of Post Graduate Studies and Nodal Agricultural Educational Cell to ICAR
- Organized a Guest lecture on 'Personality Development' delivered by Sri Chetan Ram, Principal, Parivarthana School, Srirangapatna for the Extension professionals of UAS-B during the Annual Technical Meet held at Mandya on 4th and 5th February 2020
- Organised an webinar on 'Farmer Producer Organizations as an Effective Institutional Model for Welfare of Small and Marginal Farmers' on 9th & 10th July 2020 in collaboration with Centre of Excellence for Farmer Producer Organisation, GoK and IFFCO Chair, College of Agriculture, Department of Agricultural Extension, UAS, GKVK, Bengaluru. About 85 participants participated in the programme.

Extension Activities

Conducted an Evaluation Study of Krishimela-2020 (held during 11th-13th November 2020) in both Versions English and Kannada. A survey was conducted by PG students of Department of Agril. Extension under CARDS to seek the opinion of the farmers regarding Krishimela and the following are the findings;

1. 82.66 per cent of the participants are male farmers and 17.34 per cent are the women
2. 83.53 per cent of the farmers had travelled less than 100 Kms from their native place to GKVK campus
3. 61.76 per cent of the farmers are regular visitors of Krishimela
4. Majority of farmers (98.24 %) were interested to participate in the Krishimela despite the COVID-19 situation
5. Cent per cent of the farmers have followed the covid safety measure while attending Krishimela
6. 76.30 per cent of the farmers visited Krishimela to gain the knowledge about new Agricultural innovations, latest technologies
7. Nearly half (45.09 and 36.99 %) of the respondents visited to interact with the scientist, get solution to their field problems and to purchase implements respectively
8. Majority (68.24 %) opined that good publicity of the Krishmela 2020 has to be given as it is been improving year by year
9. Even though Krishimela 2020 was delayed by 2 months compared to the previous year due to covid -19. Half of the respondents (55.88 %) felt the timing was very good as it did not interrupt their field operations and it was the right time to adopt some practices
10. Larger number of respondents revealed that arrangements for field visit were good (62.35 %). Regarding exhibition, almost three-fifth of the respondents (61.18 %) opined that the Krishimela was good.

11. 90 per cent of the farmers have gained knowledge and enhanced their skills on Integrated farming system, improvised farm mechanization and soil testing
12. 15.88 & 15.29 per cent of the farmers liked Water management strategies and IFS respectively
13. Nearly one-third (31.17 %) of the participants disliked online krishimela due to network issues. The second most disliked aspect of Krishimela was transportation arrangements as opined by 24.12 per cent and less machineries were available (21.17 %) was disliked many farmers
14. Majority of the farmers were dissatisfied due to less number of agricultural stalls compared to previous Krishimela
15. Majority (76.47 %) of them opined that they had obtained required information about farming even in covid19 situation
16. Some of the farmers had expressed they had faced problems like transportation, drinking water facility & lack of proper guidance
17. 29.41 per cent of the farmers have given the positive opinion about the online Krishi mela 2020

Majority of farmers suggested the following

- To continue conducting Krishimela very generously
- Region specific crops technologies to be given by scientists
- More skill oriented training activities need to be provided
- To give more publicity about Krishimela
- To arrange proper drinking water facilities

Research Activities

Project proposal entitled, 'Impact of Land Disputes on Farm Productivity and Livelihood Security of Indian Farmers' was prepared and uploaded successfully through online to NASF website, ICAR, New Delhi on 29th August 2020

Objectives of the project are as follows

1. To document the temporal variations in different land ownership systems prevailing across India and its relationship with land disputes
2. To analyze the socio-psychological, economic, geo-political and environmental factors effecting land disputes, their nature and manifestations
3. To assess the impact of land disputes on farmers' social capital in terms of farm productivity, production, profitability and livelihood security
4. To examine the prevailing land dispute redressal mechanisms across the country to devise extension strategies and policy frameworks

Duration and Budget of Pre-Proposed (NASF) Project

- Period of Proposed Project - 2020 to 2023
- Duration – 36 Months (3 years)
- Budget – Rs. 810 Lakhs

Expected Outcome

- Mapping the profile of temporal variations in land ownership systems of different regions
- Promising case studies on land disputes redressal mechanisms
- Enlisting conflicting legal provisions of acts, amendments and schedules that drag the farming community into land disputes
- Listing of socio-psychological, economic, geopolitical and environmental factors effecting land disputes
- Scientific classification of farmers land disputes in terms their nature, manifestations and ramifications - Types, causes, consequences, time, money, energy, loss of cohesion, peace, safety and security
- Assessment of farmers land dispute impacts on agricultural productivity, production, profitability, income and farmers' livelihood
- Enlisting of prevailing traditional, legal and non-legal mechanisms for land dispute redressal and their pros/cons
- Suggestive policy measures for integrating land ownership systems to minimize farmland disputes

- Development of Standard Operating Procedures (SOPs) for farmers in mitigating land disputes, protecting livelihood security and land rights of farmers
- Capacity building modules to sensitize farmers on their land rights, legal literacy/provisions, land dispute mitigation, alternate livelihood avenues, facing adverse/challenging socio-economic-geo-political-environmental climates
- Policy for mitigating land disputes indicating extension strategies / models for land dispute mitigations

8.3 Karnataka State Agricultural Marketing Board (KSAMB) Chair

The KSAMB Chair was instituted in the department of Agricultural Marketing and Co-operation, UAS, GKVK, Bengaluru during the year 2006 for the purpose of conducting Teaching, Research and Extension in Agricultural Marketing, identify or forecast the problems in the field of Agricultural Marketing and to suggest suitable remedial measures to the KSAMB. The KSAMB will assign, from time to time, research studies surveys, submission of report and such duties pertaining to the areas of Agricultural Marketing as decided by the Board in consultation with the University.

Activities carried out : Following training programmes were conducted under the Marketing Chair during 2020-21.

1. Training on production, marketing and post-harvest practices of maize, coconut and green gram in Ajjigudde village of Tumakur district
2. Training on online marketing and contract farming of Millets and Vegetables in Mandya district
3. Training on production and marketing of Organic produce in Kollegala taluk of Chamarajanagara district
4. Training program on cleaning, grading, processing, scientific storage and marketing of coconut, arecanut and pulses in Konehalli village of Tumkur district
5. Workshop on recent amendment to APMC Act at Ag. Maco. Department of UAS, GKVK, Bengaluru
6. Awareness program on agriculture, agricultural marketing, horticulture, animal husbandry and dairy schemes in Shidlakatte village of Chikkanayakanahalli taluk

7. Farmer and faculty interaction program on formation, benefits and legislative procedures in establishing FPOs (Farmer producer organization) in Ag. Maco. Department of UAS, Bangalore
8. Awareness program on establishment and working of FPOs (Farmers Produce Organisation) in Srinivasapura taluk of Kolar
9. Srinivasapura Mango Farmers Producer Company Limited Office was inaugurated
10. Website of Srinivasapura Mango Farmers Producer Company Limited was launched
11. Promoted of direct Marketing of Grapes

Chapter IX

9. Infrastructure Development and Maintenance

The University has Main Campus, Satellite College Campuses, Research Stations and Krishi Vigyan Kendras in the ten southern districts of the University Jurisdiction. In order to develop and maintain the infrastructure in all the campuses, the University has Estate Office headed by Estate Officer and supported by Executive and Assistant Executive Engineers in all the campuses. The Estate Office facilitates the tendering for various activities like procurement of chemicals, glassware, equipment, stationery through centralized Store Purchase Office. Besides, civil works were also tendered as per the KPWD procedures / KTP for the required civil works.

Infrastructure developed and new initiatives taken up by Estate Office during the year 2020-21 (from 1st April, 2020 to 31st March, 2021) under State Grants, ICAR Grants, RKVY Grants, SCSP & TSP Project and Govt. of India Project are detailed below.

8.1 State Grants

1) Construction of passenger lift at Agriculture College building (North Block), GKVK, Bengaluru was taken up for execution at a total cost of Rs.30.00 lakhs and the work is completed

2) Marketing System & Animal Husbandry models with respect to establishment of Agricultural Sciences Museum is taken up for execution at a total cost of Rs.40.00 lakhs at GKVK campus and the work is under progress

3) Poultry & fisheries models & interactive electrical display screen at Agricultural Sciences Museum at GKVK campus is planned for execution at a total cost of Rs.20.00 lakhs and the work has to be initiated

4) Construction of Record Room at GKVK campus is taken up for execution at a total cost of Rs. 63.00 lakhs and the work has to be initiated

5) Construction of compound wall at Agriculture College, Chamarajanagara is taken up for execution at a total cost of Rs. 56.06 Lakhs and work has to be initiated

6) Buildings maintenance works have been taken up for execution at a total cost of Rs.200.00 lakhs and the works are at various stages of progress

7) Construction of chain link fencing at agriculture college, Chamarajanagar is taken up for execution at a total cost of Rs.77.00 lakhs and work has to be initiated

8) Construction of audio-visual lab at Agriculture College, Chamarajanagar is taken up for execution at a total cost of Rs.88.00 lakhs and work has to be initiated

9) Construction of Skill Development Centre at GKVK is taken up for execution at a total cost of Rs.180.00 lakhs and the work has to be initiated

10) Construction of first floor over the existing admin building at Agriculture College, Chamarajanagar is taken up for execution at a total cost of Rs. 100.00 lakhs and the work is completed

11) Construction of first floor over the existing Farmers Hostel at Agricultural College, Chamarajanagar is taken up for execution at a total cost of Rs.82.00 lakhs and the work is completed

8.2 ICAR Grants

1) Construction of Girls Hostel at College of Agriculture, Mandya is taken up for execution at a total cost of Rs.750.00 lakhs under ICAR grants and the work is under progress. (ICAR share: Rs. 300.00 lakhs, State Share : Rs. 450.00 lakhs)

2) Construction of Girls Hostel at College of Agriculture, Hassan is taken up for execution at a total cost of Rs.780.00 lakhs under ICAR grants and the work is under progress. (ICAR share: Rs. 300.00 lakh, Rs. 480.00 lakh State share)

3) ICAR had allocated Rs.85.00 lakhs during the year 2019-20 under 1st installment for repair and renovation of Girls and Boys Hostel at GKVK; College of Agriculture, Mandya; College of Agriculture, Hassan and College of Sericulture, Chintamani and the works are at various stages of progress

4) Supply and installation of projector at Auditorium (North Block), GKVK campus is taken up for execution at a total cost of Rs.24.00 lakhs and the work is completed

5) Construction of Bio-fertilizer unit at Agriculture College, Mandya is taken up for execution at a total cost of Rs.24.00 lakhs and work is under progress

8.3 Government of India Grants

1) Extension of Seed Godown at NSP, GKVK is taken up for execution at a total cost of Rs.48.00 lakhs and the work is under progress

8.4 RKVY Grants

1) Establishment of Agricultural Sciences Museum in respect of renewable energy, grain storage and extension technologies at GKVK, is taken up for execution at a total cost of Rs. 60.00 lakhs and the work is under progress

2) Construction of re-breeding crossing block poly house under RKVY Project for Dept. of Genetics and Plant Breeding at K-Block of GKVK campus, is taken up for execution at a total cost of Rs.30.00 lakhs and the work is completed

3) Construction of data centre over existing white grub rearing facility (First Floor) at GKVK campus was taken up for execution at a total cost of Rs.20.00 lakhs and the work is completed

4) Construction of Phenotyping Platforms/ Green House under RKVY Project for Dept. of Genetics and Plant Breeding at K-Block, GKVK campus was taken up for execution at a total cost of Rs. 30.00 lakhs and the work is completed

5) Construction of farm pond under RKVY project at J-block, GKVK was taken up for execution at a total cost of Rs. 66.50 lakhs and the work is completed

6) Construction of medium term Gene Bank to house Crop Resources at GKVK campus was taken up for execution at a total cost of Rs.220.00 lakhs and the work is under progress

7) Supply of solar system and pump installation for farm pond at J-Block at GKVK campus was taken up for execution at a total cost of Rs.14.00 lakhs and the work is under progress

8) Supply, installation, testing and configuring of Software Data Centre at Department of Soil Science and Agril. Chemistry at GKVK has been taken up for execution at a total cost of Rs.30.00 lakhs and the work is to be initiated

9) Development of software for online fertilizer recommendation at department of Soil Science and Agriculture Chemistry at GKVK has been taken up for execution at a total cost of Rs.30.00 lakhs and the work to be initiated

8.5 SCSP & TSP Grants

Construction of Boys Hostel (balance portion) at 2nd floor of Diploma College at VC. Farm, Mandya is taken up for execution under SCSP &TSP savings amount at a total cost of Rs.265.00 lakhs and the work is under progress

Photographs

Governance of UAS, Bangalore

Shri Vajubhai Vala
Governor, GoK
& Chancellor

Shri B.C. Patil
Pro-Chancellor
(ll.2.2020 onwards)

Dr. S. Rajendra Prasad
Vice-Chancellor &
Chairman, BoM

Members, Board of Management, UAS-B

Shri Rajendra Kumar Kataria, IAS
Secretary to Government
Dept. of Agriculture
(from 1-4-2020 to June 2020)

Shri Raj Kumar Khatri, IAS
Addl. Secretary to Government
Dept. of Agriculture &
(from June 2020)

Shri Rajendra Kumar Kataria, IAS
Principal Secretary to Government
Dept. of Horticulture
(from 1-4-2020)

Shri I. S. N. Prasad, IAS
Addl. Chief Secretary
Dept. of Finance, GoK

Shri M.C. Venugopal
MLC
(from 1-4-2018 to 3.6.2020)

Shri M. Krishnappa
MLA
(from 1-9-2020)

Dr. P.H. Ramanjini Gowda
Member, BoM, UAS-B
(from 6-5-2020)

Shri T.M. Aravind
Member, BoM, UAS-B
(from 6-5-2020)

Shri O.S. Dayananda
Member, BoM, UAS-B
(from 9-7-2020)

Shri M. Suresh
Member, BoM, UAS-B
(from 9-7-2020)

Shri R. Srirama
Member, BoM, UAS-B
(from 9-7-2020)

Dr. P. S. Pandey
ADG ((EP&HS)

Dr. N. Devakumar
Dean (Agri.), CoA, Hassan
(from 1-4-2020 to 29-5-2020)

Dr. Mahabaleshwar Hegde
Registrar
(from 1-4-2020 to 30-9-2020)

Dr. G.N. Dhanapal
Registrar
(from 30-9-2020)

Photos depicting various activities / programmes

Hon'ble Minister of Agriculture inaugurating the Virtual Class Rooms at CoA, GKVK

Hon'ble Minister of Agriculture inaugurating athletic track at CoS, Chintamani

Hon'ble Minister of Agriculture interacting with students of CoA, Chamarajanagara

Minister of Agriculture presenting the Best Service Personnel Award during 55th Foundation Day

Hon'ble Minister of Agriculture releasing the new varities and technologies during Krishimela 2020

Dignitaries during the inaugural programme of Krishimela-2020 organised at VC Farm, Mandya

Dignitaries inaugurating the 15 Years of Foot Prints of KVK, Bengaluru Rural District

Dignitatries duirng field day cum training programme on seed production and nutri cereals at ARS Balajigapade

Director of Research inspecting the seed production plots & interacting with Scientists of KVK, Bengaluru Rural

Field day on Blackgram conducted by KVK, Chamarajanagara

Excellence in course and curriculum award to UAS-B by Agriculture Today Group

Filed Day on HA 4 variety of Field Bean organised by EEU, Mysuru

Members, BoM and Director of Extension at ATIC, GKVK

Minister of Agriculture addressing the gathering during 55th Foundation Day

Dignitaries distributing Gold Medal to the candidate during the Diploma (Agri.) Graduation Day at VC Farm Mandya

Students of College of Sericulture, Chintamani during World Environment Day celebration

Students of CoA, Hassan during Genetic Engineering Hands on Training Course

Vice-Chancellor flagging-off the run during Fit India Freedom Run programme at GKVK

Vice-Chancellor interacting with the students at CoS, Chinthamani

A view of the ragi demonstration conducted under climate-smart village project

Dr. K. Sivan, Chairman, ISRO delivering the 54th Convocation Address

Participants during the Field Day on INM in Arecanut conducted by KVK, Ramanagara

Demonstration of silage making at KVK, Ramanagara

Scientists of KVK, Chikkaballapura creating awareness on COVID-19 pandemic

Vice-Chancellor & Officers releasing the e-copy of the Package of Practices

Vice-Chancellor & Scientists with the Beneficiary at the Demo plot established under Tribal Sub Plan at Hanur of Chamarajanagara District

Vice-Chancellor and DC of Mandya releasing the Eco-friendly Seed Ganesha & Gowri Idles at Mandya

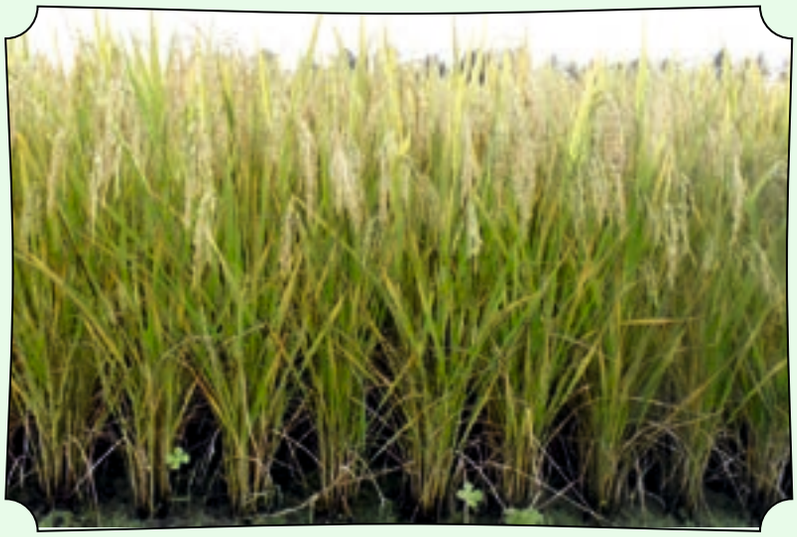
Vice-Chancellor inaugurating Seed Processing Unit at ARS, Konehally

Vice-Chancellor inaugurating the stall feeding sheep unit at KVK, Ramanagara

World Pulses Day Celebration at GKVK

New varieties released

Paddy : KMP 220



Little Millet : GPUL 6

Proso Millet : GPUP 28

Ragi : KMR-316

Foxtail Millet : GPUF 3

Grain Amaranth : KBGA 15

Fodder Oats : RO-11-1

Jack Fruit : Byrachandra

Sugarcane-CoVC 18061

Annexures

Annexure 1

1.1: Details of UG programmes and student intake in different Colleges 2020-21

Colleges / degree programme	Year of starting	Student intake during 2020-21						
		CET	ICAR	FN	NRI	Lateral entry	Super numerical quota	Total
1. College of Agriculture, GKVK, Bengaluru								
B. Sc. (Hons.) Agriculture	1965	220	41	14	27	11	-	313
B.Sc. (Hons.) Agri. Marketing & Business Management	1976	61	-	3	6	-	-	70
2. College of Agriculture, Mandya								
B. Sc. (Hons.) Agriculture	1991	81	15	5	10	4	-	115
3. College of Agriculture, Hassan								
B. Sc. (Hons.) Agriculture	1995	82	15	5	10	4	-	116
B. Tech. (Biotech.)	2006	61	11	4	7	-	-	83
B. Tech. (Food Technology)	2006	61	11	4	7	-	-	83
4. College of Sericulture, Chintamani								
B. Sc. (Hons.) Agriculture	2007	72	13	4	9	4	-	102
B. Sc.(Hons.) Sericulture	1982	31	5	2	4	-	-	42
5. College of Agriculture, Chamarajanagara								
B. Sc. (Hons.) Agriculture	2018	31	-	2	4	2	-	39
6. College of Agricultural Engineering, GKVK, Bengaluru								
B.Tech. (Agri. Engineering)	2018	61	11	4	8	3	-	87
Total		**761**	**122**	**47**	**92**	**28**	**-**	**1050**

1.2 : Details of Post-Graduate degree programme and intake in different Colleges during 2020–21

Colleges and Departments	Year of starting	University Intake	ICAR Intake	NRI Intake	FN Intake	Total seats
M.Sc. (Agri.) in						
I. Masters degree						
1. College of Agriculture, GKVK, Bengaluru						
M.Sc. (Agri.) in						
Agricultural Economics	1968	10	3	1	1	15
Agricultural Entomology	1966	10	3	1	1	15
Agricultural Extension	1966	10	3	1	1	15
Agricultural Marketing and Business Management	1994	10	3	1	1	15
Agricultural Microbiology	1966	10	3	1	1	15
Agricultural Statistics	1976	10	3	1	1	15
Agronomy	1973	10	3	1	1	15
Apiculture	1997	4	1	0	0	5
Crop Physiology	1974	10	3	1	1	15
Environmental Science	2007	6	2	1	1	10
Food Science and Nutrition	1975	10	3	1	1	15
Genetics and Plant Breeding	1973	10	3	1	1	15
Horticulture	1971	10	3	1	1	15
Plant Biochemistry	1976	2	1	1	1	3
Plant Biotechnology	1996	10	3	1	1	15
Plant Pathology	1996	10	3	1	1	15
Seed Science and Technology	1976	10	3	1	1	15
Sericulture	1981	10	3	1	1	15
Soil Sci. & Agril. Chemistry	1966	10	3	1	1	15
M.Tech. in						
Processing and Food Engineering	1987	10	3	1	1	15
Soil & Water Engineering	1989	6	-	1	1	8
	Total	**194**	**55**	**20**	**20**	**289**
MBA (Agri. Business Management)	2007	25	6	3	3	37
2. College of Agriculture, Mandya						
Agricultural Entomology	2013	5	1	1	-	7
Agronomy	2013	5	1	1	-	7
Genetics and Plant Breeding	2013	4	1	1	-	6
Plant Pathology	2013	4	1	1	-	6
Soil Science & Agril. Chemistry	2013	4	1	1	-	6
	]Total	**22**	**5**	**5**	**-**	**32**
II. Doctor of Philosophy (Ph.D.)						
1. College of Agriculture, GKVK, Bengaluru						
Ph.D. in						
Agricultural Economics	1974	6	2	1	1	10
Agricultural Entomology	1969	6	2	1	1	10
Agricultural Extension	1974	6	2	1	1	10
Agricultural Microbiology	1966	6	2	1	1	10
Agronomy	1975	6	2	1	1	10
Crop Physiology	1976	6	2	1	1	10
Food Science and Nutrition	1991	4	1	0	0	5
Genetics and Plant Breeding	1975	6	2	1	1	10
Plant Biotechnology	2003	4	1	0	0	5
Plant Pathology	1969	6	2	1	1	10
Seed Science and Technology	1987	4	1	0	0	5
Sericulture	1986	3	1	0	0	4
Soil Science & Agril. Chemistry	1966	6	2	1	1	10
Forestry & Environmental Science	2013	4	0	0	0	4
Horticulture	2016	6	0	1	1	8
Agri. Business Management	2019	4	0	0	0	4
	Total	**83**	**22**	**10**	**10**	**125**

1.3: Students enrolled in UG programmes during 2020-21

Class Degree			UG Students on Roll - category wise																																			
Year of Admi-ssion	In take	Admi ited	GM		SC		ST		Cat-I		IIA		IIB		IIIA		IIIB		Special Cat PC		Special Cat Others*		ICAR		ICAR W / I		FN		NRI		HK		L E		Total		
			B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	Total
College of Agriculture, GKVK, B.Sc. (Hons.) Agriculture																																						
I year 2020-21	313	281	5	9	11	14	2	3	6	4	15	19	2	6	24	22	9	15	7	4	5	11	17	15	0	0	1	0	17	10	14	3	5	6	140	141	281
II year 2019-20	313	299	0	6	13	10	6	2	6	2	26	16	3	3	24	16	15	18	6	5	6	12	17	29	0	0	0	0	16	11	13	7	6	5	157	142	299
III year 2018-19	311	294	5	6	12	16	2	2	3	5	26	15	1	6	17	16	16	24	3	7	9	8	18	21	0	0	0	0	12	17	10	6	8	3	142	152	294
IV year 2017-18	233	214	4	3	14	7	2	1	5	3	17	14	4	1	21	6	17	11	5	0	6	9	9	11	0	0	2	1	11	9	10	3	6	2	133	81	214
Total	1170	1088	14	24	50	47	12	8	20	14	84	64	10	16	86	60	57	68	21	16	26	40	61	76	0	0	3	1	56	47	47	19	25	16	572	516	1088
College of Agriculture, GKVK, B.Sc. (Hons.) Agri. Marketing and Business Managt.) for II, III, IV year, B.Sc. (Hons.) ABM for I year																																						
I year 2020-21	70	60	0	0	3	4	2	0	2	2	3	9	0	1	2	14	1	7	0	0	2	3	0	0	0	0	0	0	0	1	3	1	0	0	18	42	60
II year 2019-20	70	59	1	1	3	3	0	2	1	1	4	9	1	0	6	14	2	3	0	0	1	2	0	0	0	0	0	0	0	1	2	2	0	0	21	38	59
III year 2018-19	82	63	4	3	3	4	1	1	1	1	7	2	2	1	6	7	7	4	0	0	0	3	0	0	0	0	0	0	1	0	2	3	0	0	34	29	63
IV year 2017-18	81	49	1	1	3	4	0	2	1	0	5	6	3	0	2	5	6	2	1	0	3	1	0	0	0	0	0	0	0	0	1	2	0	0	26	23	49
Total	303	231	6	5	12	15	3	5	5	4	19	26	6	2	16	40	16	16	1	0	6	9	0	0	0	0	0	0	1	2	8	8	0	0	99	132	231

Year of Admission	Intake	Admitted	GM		SC		ST		Cat-I		IIA		IIB		IIIA		IIIB		Special Cat PC		Special Cat Others*		ICAR		ICAR W / I		FN		NRI		HK		L E		Total		
			B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	Total
College of Agriculture, GKVK, B.Tech. (Agri. Engineering)																																			
I year 2020-21	87	72	0	1	3	3	1	1	3	0	3	8	2	1	7	8	8	2	0	0	2	2	6	3	2	0	0	0	1	0	2	0	3	0	43	29	72
II year 2019-20	87	74	0	1	3	4	2	0	1	2	5	7	1	0	9	10	6	1	0	0	0	3	8	4	0	0	0	0	0	1	2	2	2	0	39	35	74
III year 2018-19	86	74	4	3	5	2	2	1	0	2	8	2	0	1	5	7	6	3	0	0	2	3	10	1	0	0	0	0	1	0	1	2	3	0	47	27	74
IV year 2017-18	84	64	4	4	6	0	1	2	1	3	4	5	1	1	5	2	1	4	0	0	2	2	5	1	0	0	1	0	1	0	5	0	2	1	39	25	64
Total	344	284	8	9	17	9	6	4	5	7	20	22	4	3	26	27	21	10	0	0	6	10	29	9	2	0	1	0	3	1	10	4	10	1	168	116	284
College of Agriculture, Mandya, B.Sc., (Hons.) Agriculture																																			
I year 2020-21	115	95	11	25	3	3	2	0	1	2	4	3	1	1	2	1	1	3	2	0	1	3	5	2	0	0	0	0	6	4	2	3	0	4	41	54	95
II year 2019-20	111	106	15	13	3	5	1	1	2	2	7	3	2	0	4	1	4	0	1	2	6	1	5	6	4	1	0	0	5	3	4	1	3	1	66	40	106
III year 2018-19	111	108	18	17	4	5	2	0	3	0	3	6	0	2	2	2	2	4	0	0	1	4	5	7	3	0	0	0	9	1	3	1	4	0	59	49	108
IV year 2017-18	109	102	19	18	7	2	2	0	2	0	6	4	0	2	1	2	2	1	0	1	3	2	6	4	0	0	0	0	7	3	2	3	2	1	59	43	102
Total	446	411	63	73	17	15	7	1	8	4	20	16	3	5	9	6	9	8	3	3	11	10	21	19	7	1	0	0	27	11	11	8	9	6	225	186	411

Year of Admission	Intake	Admited	GM		SC		ST		Cat-I		IIA		IIB		IIIA		IIIB		Special Cat PC		Special Cat Others*		ICAR		ICAR W / I		FN		NRI		HK		L E		Total		
			B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	Total
College of Agriculture, Hassan, B.Sc., (Hons.) Agriculture																																			
I year 2020-21	116	107	13	20	2	7	1	1	2	1	2	6	2	-	2	1	2	2	2	-	2	4	2	-	9	4	-	-	9	-	5	1	4	1	59	48	107
II year 2019-20	113	102	15	13	4	5	2	-	2	1	7	4	1	1	2	3	2	3	2	3	4	1	3	6	5	1	-	-	2	-	3	3	1	3	55	47	102
III year 2018-19	110	101	19	18	3	6	1	1	-	1	4	5	-	2	2	2	1	4	1	-	1	3	5	6	-	-	-	-	4	4	3	2	2	1	46	55	101
IV year 2017-18	110	84	10	23	4	5	1	1	1	1	3	7	1	1	1	1	2	-	2	-	3	3	3	-	-	-	-	-	2	-	4	1	3	1	40	44	84
Total	449	394	57	74	13	23	5	3	5	4	16	22	4	4	7	7	7	9	7	3	10	11	13	12	14	5	-	-	17	4	15	7	10	06	200	194	394
College of Agriculture, Hassan, B.Tech. (Biotechnology)																																			
I year 2020-21	83	64	13	18	3	3	-	1	-	2	4	1	-	1	-	2	-	-	-	-	-	2	1	1	3	5	-	-	-	-	3	1	-	-	27	37	64
II year 2019-20	80	61	12	9	2	4	2	0	2	-	4	3	1	-	4	2	2	1	-	-	1	0	5	1	3	1	-	-	-	-	3	1	-	-	40	21	61
III year 2018-19	79	58	12	12	2	3	1	1	1	1	5	2	-	1	-	2	1	1	-	-	2	2	3	2	1	-	-	-	-	-	1	2	-	-	29	29	58
IV year 2017-18	79	55	16	12	3	4	2	-	1	1	2	1	2	-	1	1	2	-	-	-	2	1	1	-	-	-	-	-	-	-	1	2	-	-	33	22	55
Total	321	238	53	50	10	14	5	2	4	4	15	7	3	2	5	7	5	2	0	0	5	5	10	4	7	6	0	2	2	2	8	6	0	0	129	109	238

Year of Admission	Intake	Admited	GM		SC		ST		Cat-I		IIA		IIB		IIIA		IIIB		Special Cat PC		Special Cat Others*		ICAR		ICAR W / I		FN		NRI		HK		L E		Total		
			B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	Total
College of Agriculture, Hassan, B.Tech. (Food Technology)																																			
I year 2020-21	83	65	10	18	2	4	2	-	1	1	4	1	-	2	1	1	1	-	-	-	1	3	5	-	3	1	-	-	-	-	3	1	-	-	33	32	65
II year 2019-20	82	63	6	18	1	2	3	-	1	1	4	6	1	-	3	2	2	-	-	-	2	2	5	1	-	1	1	1	-	-	2	-	-	-	29	34	63
III year 2018-19	79	60	10	16	5	2	1	1	1	-	4	2	-	2	2	2	-	2	-	-	1	2	4	1	-	-	-	-	-	-	2	-	-	-	30	30	60
IV year 2017-18	79	61	10	17	2	5	2	-	1	1	1	5	1	1	2	-	1	1	-	-	2	3	4	-	-	-	-	-	-	-	2	-	-	-	28	33	61
Total	323	249	36	69	10	13	8	1	4	3	13	14	2	5	8	5	4	3	0	0	6	10	18	2	3	2	1	1	0	0	9	1	0	0	120	129	249
College of Sericulture, Chintamani, B.Sc. (Hons.) Agriculture																																			
I year 2020-21	102	94	4	0	4	3	2	1	1	2	9	3	3	0	9	8	2	5	1	0	3	6	1	0	7	6	0	0	2	1	3	2	3	3	54	40	94
II year 2019-20	102	96	0	0	2	7	3	0	2	2	4	6	2	1	13	6	7	4	3	1	2	3	4	5	1	1	0	0	7	2	2	2	3	1	55	41	96
III year 2018-19	102	97	1	2	1	7	2	2	0	2	7	5	2	0	13	6	6	3	0	0	4	1	5	6	1	1	0	0	2	7	4	1	4	2	52	45	97
IV year 2017-18	101	76	2	2	4	4	2	3	1	1	5	10	1	0	9	8	2	5	0	1	2	3	0	1	0	0	0	0	1	3	3	0	3	0	35	41	76
Total	407	363	7	4	11	21	9	6	4	7	25	24	8	1	44	28	17	17	4	2	11	13	10	12	9	8	0	0	12	13	12	5	13	6	196	167	363

Year of Admission	Intake	Admitted	GM		SC		ST		Cat-I		IIA		IIB		IIIA		IIIB		Special Cat PC		Special Cat Others*		ICAR		ICAR W / I		FN		NRI		HK		L E		Total		
			B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	Total
College of Sericulture, Chintamani, B.Sc. (Hons.) Sericulture																																					
I year 2020-21	42	32	0	0	1	2	0	0	1	1	3	1	1	0	4	4	2	2	0	0	2	0	0	0	5	0	0	0	0	0	1	2	0	0	20	12	32
II year 2019-20	42	32	0	0	0	2	1	0	2	0	4	3	1	0	4	4	4	1	0	0	1	0	1	1	1	2	0	0	0	0	0	0	0	0	19	13	32
III year 2018-19	42	30	0	0	1	2	0	0	1	1	1	3	1	0	2	5	4	4	0	0	1	0	1	1	0	0	0	0	0	0	0	2	0	0	12	18	30
IV year 2017-18	41	32	0	0	3	1	2	1	1	1	2	2	0	0	6	6	0	2	0	0	1	0	1	1	0	0	0	0	0	0	2	0	0	0	18	14	32
Total	167	126	0	0	5	7	3	1	5	3	10	9	3	0	16	19	10	9	0	0	5	0	3	3	6	2	0	0	0	0	3	4	0	0	69	57	126
College of Agriculture, Chamarajanagara, B.Sc. (Hons.) Agriculture																																					
I year 2020-21	39	32	-	-	-	4	1	-	-	1	1	2	1	-	5	5	3	3	1	1	-	-	-	-	-	-	-	-	-	-	2	-	1	1	15	17	32
I year 2019-20	33	32	1	-	2	1	-	-	-	2	2	2	1	1	6	4	4	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	20	12	32
I year 2018-19	31	30	-	-	1	2	-	-	-	2	4	-	1	-	5	4	4	5	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	16	14	30
Total	103	94	1	-	3	7	1	-	-	5	7	4	3	1	16	13	11	10	1	1	-	-	-	-	-	-	-	-	-	-	5	1	3	1	51	43	94
Total	4033	3478	245	308	148	171	59	31	60	55	229	208	46	39	233	212	157	152	37	25	86	108	165	137	48	24	5	2	116	78	128	63	70	36	1829	1649	3478

1.4 : Students enrolled in PG Degree Programmes during 2020-21

Class	Intake	GM		SC		ST		OBC										HK		Special Category				ICAR/ JNU		FN		NRI		Depu tation		In service		Re-admin		Total Boys	Total Girls	Grand Total
								Cat-I		IIA		IIB		IIIA		IIIB				PC		other																	
		B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G			
I Ph.D	125	2	7	6	5	2	0	1	1	6	8	0	4	3	12	5	7	4	2	2	0	3	2	6	17	0	0	0	1	0	0	0	0	4	0	44	66	110
II Ph.D	125	1	6	6	4	0	2	3	4	2	8	3	0	6	10	4	10	1	2	4	0	4	1	13	10	3	0	0	1	0	3	0	0	0	1	50	62	112
III Ph.D	125	6	9	6	7	1	1	2	3	12	2	2	4	3	11	3	6	4	2	1	1	1	3	13	8	0	1	0	0	3	1	0	0	0	0	57	59	116
Total (A)	375	9	22	18	16	3	3	6	8	20	18	5	8	12	33	12	23	9	6	7	1	8	6	32	35	3	1	0	2	3	4	0	0	4	1	151	187	338
Jr. M.Sc. (Agri.)	260	4	9	14	10	2	1	2	7	19	18	5	0	11	30	15	17	6	5	3	1	4	11	23	39	0	0	6	6	0	0	0	0	1	0	115	154	269
Sr. M.Sc. (Agri.)	257	2	3	8	12	3	1	2	8	17	19	1	4	10	25	11	17	10	5	2	2	7	6	30	35	2	0	3	1	0	0	0	0	0	0	108	138	246
Jr. M.Tech	23	0	0	3	0	3	0	2	0	0	2	0	0	3	1	0	0	1	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	13	6	19
Sr. M.Tech	16	1	1	1	1	0	0	1	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	7	12
Jr. MBA	37	3	2	5	1	0	0	2	0	5	0	0	0	4	3	0	0	0	0	0	0	1	1	3	3	0	0	0	0	0	0	0	0	0	0	23	10	33
Sr. MBA	37	0	1	2	0	0	0	1	0	1	0	1	1	3	1	2	0	1	0	0	0	1	0	1	2	0	1	0	0	0	0	0	0	0	0	13	6	19
Total (B)	636	10	16	33	24	8	2	10	15	42	40	7	5	33	62	28	34	18	11	5	3	13	18	58	83	2	1	9	7	0	0	0	0	1	0	277	321	598
G.Total (A+B)	1011	19	38	51	40	11	5	16	23	62	58	12	13	45	95	40	57	27	17	12	4	21	24	90	118	5	2	9	9	3	4	0	0	5	1	428	508	936
College of Agriculture, Mandya																																						
Jr. M.Sc. (Agri.)	32	4	5	0	2	1	0	1	0	2	0	0	0	1	0	0	1	2	0	0	1	0	1	0	4	0	0	2	0	0	0	0	0	0	0	13	14	27
Sr.M.Sc. (Agri.)	30	2	8	0	2	0	0	0	1	1	2	0	1	1	0	0	1	0	1	1	0	1	1	4	0	0	0	0	0	0	0	0	0	1	0	11	17	28
Total (c)	62	6	13	0	4	1	0	1	1	3	2	0	1	2	0	0	2	2	1	1	1	1	2	4	4	0	0	2	0	0	0	0	0	1	0	24	31	55
G. Total (A,B+C)	1073	25	51	51	44	12	5	17	24	65	60	12	14	47	95	40	59	29	18	13	55	22	26	94	122	5	2	11	9	3	4	0	0	6	1	452	539	991

1.5. Details of students enrolled for two year Diploma in Agriculture programme at College of Agriculture, Mandya & two year Diploma in Sericulture at CoS, Chintamani (Year & Gender wise)

College	Course	I year		II year		Total		Grand Total
		Boys	Girls	Boys	Girls	Boys	Girls	
CoA, Mandya	Two year Diploma in Agriculture	29	18	30	16	59	34	93
	Total	**29**	**18**	**30**	**16**	**59**	**34**	**93**
CoA, Chintamani	Two year Diploma in Sericuture	10	1	–	–	10	1	11
	Total	**10**	**1**	**–**	**–**	**10**	**1**	**11**

1.6. Details of students enrolled for two year Diploma in Agriculture programmes at College of Agriculture, Mandya & two year Diploma in Sericulture at CoS, Chintamani (Category & Gender wise)

College	Course		General		OBC (Changed)		SC		ST		Grand Total
			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
CoA, Mandya	Two year Diploma in Agriculture	2019-20	-	-	19	18	7	-	2	-	46
		2020-21	-	-	22	14	5	3	2	1	47
	Total		**-**	**-**	**41**	**32**	**12**	**3**	**4**	**1**	**93**
CoA, Mandya	Two year Diploma in Sericulture	2020-21	-	-	6	-	4	1	-	-	11
	Total		**-**	**-**	**6**	**-**	**4**	**1**	**-**	**-**	**11**

1.7. Details of students who have completed two year Diploma in agriculture (Category & gender wise)

College	Course		General		OBC (Changed)		SC		ST		Total		Grand Total
			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
CoA, Mandya	Two year Diploma in Agriculture	2020-21	-	-	30	11	7	4	1	-	38	15	53
	Total	-	-	30	11	7	4	1	-	38	15	53	

1.8: Details of UG students who have completed Bachelor Degree programmes in different colleges (Category & Gender wise) and to be conferred Degrees in 55th Convocation

College	Course	General		OBC (Changed to Cat. I, II, 2A, 2B, 3A, 3B)		SC		ST		ICAR		Foreign		Total		Grand Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
CoA, Bengaluru	B.Sc. (Hons.) Agriculture	17	19	67	57	13	10	4	1	1	7	0	0	102	94	196
	B.Sc. (Hons.) Ag. Markt. & Business Mangt.	2	1	19	22	1	3	2	1	6	0	0	0	30	27	57
	B.Tech. (Agril. Engineering)	2	1	23	13	4	2	2	0	2	1	0	0	33	17	50
CoA, Mandya	B. Sc. (Hons.) Agriculture	5	2	32	17	10	2	2	1	0	2	0	0	49	24	73
CoA, Hassan	B.Sc (Hons.) Agriculture	3	2	29	34	6	6	1	2	0	2	0	0	39	46	85
	B.Tech. (Biotechnology)	0	0	17	26	3	3	1	0	0	1	0	0	21	30	51
	B.Tech. (Food Technology)	0	5	14	23	4	3	0	2	4	1	0	0	22	34	56
CoS, Chintamani	B.Sc. (Hons.) Agriculture	1	1	32	21	6	1	3	1	1	1	0	0	43	25	68
	B.Sc. (Hons.) Sericulture	0	0	9	8	1	1	1	1	0	1	0	0	11	11	22
	Total	**30**	**31**	**242**	**221**	**48**	**31**	**16**	**9**	**14**	**16**	**0**	**0**	**350**	**308**	**658**

1.9 : Details of PG students who have completed Master's and Doctoral Degree Programmes in different colleges (Category & Gender wise) and to be conferred degrees in 55th Convocation

College	Course	General		OBC (Changed to CAT - I, II, 2A, 2B, 3A, 3B)		SC		ST		ICAR		Foreign		Total		Grand Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
CoA, Bengaluru,	M.Sc. (Agriculture)	6	10	64	75	12	13	5	4	23	13	3	0	113	115	228
	M.Tech.(Agril.Engineering)	1	0	5	3	1	1	0	0	2	0	0	0	9	4	13
	MBA (ABM)	0	2	6	5	0	2	1	1	0	0	0	0	7	10	17
	Ph.D.	6	2	27	19	6	6	0	1	5	2	0	0	44	30	74
CoA, Mandya	M. Sc. (Agriculture)	2	0	9	6	2	1	0	0	1	0	0	0	14	7	21
	Total	**15**	**14**	**111**	**108**	**21**	**23**	**6**	**6**	**31**	**15**	**3**	**0**	**187**	**166**	**353**

Annexure 2

2.1 : New Projects Sanctioned

Sl. No.	Project No. ABAC NO.	Title of the Project	Budget outlay (Rs. In lakhs)
RKVY Projects			
1.	**RKVY**	Development of solar based hybrid automation system for environment monitoring in silkworm rearing house to enhance cocoon quality and cocoon production	50.00
2.	**RKVY**	Establishment of plant tissue culture and virus indexing lab at College of Agriculture, Hassan	87.00
3.	**RKVY**	Fall Army worm (FAW), *Spodopterafrugiperda* (J.E Smith) (Lepidoptera: Noctuidae): Establishment, distribution and extent of damage in major maize growing area of Southern Karnataka and development of Integrated pest management through farmers participation.	19.80
4.	**RKVY**	Nutritional and health empowerment through nutria-rich potential crops in selected districts of Southern Karnataka	42.50
5.	**RKVY**	Development of demonstration and business model for soilless agricultural production system at UAS , Bangalore.	290.00
		Total	489.3
Govt. of India Projects			
1.	GOI-425	Mainstreaming rice landraces diversity in varietal development through genomic predictions: A model for large-scale utilization of gene bank collections of rice	127.079
2.	GOI-426	CRISPR/Cas-mediated multiplex genome editing of disease and herbicide tolerance traits in rice for improved performance under aerobic and irrigated conditions	270.94
3.	GOI-427	Phenotyping water uptake and water use efficiencies of different dual-purpose tomatoes.	7.22
4.	GOI-428	Development of valuable products from stubble waste / agricultural straw by bio refinery approachand field trials.	2.00
5.	GOI-429	Functional characterization of Lysin Motif (LysM) containig effector proteins of Magnoportheoryzae, triggers immunity against the rice blast.	12.28
6.	GOI-430	Prospecting novel antimicrobial peptides and synthesis of analogues of insect antimicrobial peptides: Relevance for enhanced antimicrobial activity and stability	10.42
7.	GOI-431	Systematic studies on shoot flies of Atherigoninae (Muscidae: Dpitera) from India.	42.00
8.	GOI-381 (Phase-II)	The Rural Urban Interface of Bangalore: A Space of Transitions in Agriculture, (Phase-II) Economis and Society.	512.83
9.	GOI-432	Development of guidelines to conduct DUS test in brown top millet	18.00
		Total	1002.79

Sl. No.	Project No.	Title of the Project	Budget outlay (Rs. In lakhs)
ICAR -Adhoc Projects			
1.	Adhoc-256	Harnessing haplotype diversity of genes controlling yield, stress tolerance and resource use efficiency traits in rice for accelerating genetic gains	18.00
		Total	1002.79
Govt. of Karnataka funded Projects			
1.	GOK-198	Improved programme integration in rainfed areas (Sujala-III Exit strategy)	303.79
2.	GOK-199	Documentation of Existing Indigenous Technical Knowledge (ITK) and success stories in beekeeping for enhancing livelihood security of Beekeepers	9.22
3.	GOK-200	Eco friendly approaches for management of Coconut spiralingRugose Whitefly, Aleurodicusrugiopercalatus Martin Homoptera: Aleyrodidae in Coconut Eco-system of Hassan District, Karnataka	1.25
4.	GOK-201	Biofortification of maize (Zea mays L.) with micronutrients under different methods of NPK management	1.50
5.	GOK-202	Studies on yield maximization of Black gram (Vignamungo L.) through foliar nutrition in paddy fallow of Cauvery command area	1.50
6.	GOK-203	Construction of laboratory for quality testing of micro irrigation components by precision farming development centre (PFDC) at GKVK ,Bengaluru	361.50
7.	GOK-204	Standardization of seed Technological Aspects in Chia Cro	3.00
		Total	681.77
UAS Sponsored: **Farmers centric demand driven projects**			
1.		Development of a molecular polymerase chain reaction (PCR) assay and lateral flow immunostrip for the early and rapid detection of *Cucumber Mosaic Virus* (CMV)	1.50
2.		A study on Direct Marketing of fruits and vegetables in Bengaluru City: It's impact on Farmers and Consumers Economy	2.75
3.		Feasibility Study on Establishing production linked Agro-based industries in different climatic zones of Karnataka : Policy Implications	3.25
4.		Studies on Mites Infesting Mulberry and Their Management	1.75
5.		Evaluation / Improvement of Tractor Drawn Multicrop Seed-cum-Fertilizer Drill / Planter for Sowing Millets & Other Bold Seeded Crops under Soil Conditions of Southern Karnataka	3.00

Sl. No.	Project No.	Title of the Project	Budget outlay (Rs. In lakhs)
6.		Studies on the role of potential pollinators in Chilli under green house condition	1.50
7.		Standardization of Agro-techniques for promising Anthurium varieties	1.25
		Total	15.00

UAS Sponsored Climate Smart Agriculture

1.		Revalidation of Pigeonpea Technologies of UAS Bangalore for changing climatic conditions	4.00
2.		Revalidation of recommended package of practices for Arid legumes to mitigate climate change in southern Karnataka	4.00
3.		Revalidation of recommended package of practices for sunflower to mitigate climate change in southern Karnataka	4.00
4.		Revalidation of existing package of practices for castor (*Ricinus communis* L.)	2.00
5.		Revalidation of Recommended Package of Practices for Soybean under Changed Climate Condition	3.00
6.		Revalidation of Recommended Package of Practices of Small Millets for changing Climatic conditions	4.00
7.		Revalidation of contingent practices for sustainable dry farming under changed climatic scenario	4.00
		Total	25.00

UAS Sponsored Technology and Varietal Development

1.		Revalidation of recommended package of practices for transplanted paddy in Southern Karnataka in the perspective of climate change	4.00
2.		Revalidation of recommended Package of Practices for sugarcane under changed climatic situation	3.00
3.		Metabolome profiling of potential endophytes having anti – plant pathogenic properties and testing the endophytes in crop model system	3.00
4.		Sustainable production of chilli against chilli leaf curl virus disease (ChiLCVD) and its vector through integrated management	2.50
5.		Evaluation of magic population for major disease and development of Recombinant Inbred Lines (RTLs) in Maize	3.00
6.		Study on adaptability, canopy architecture, seasonal effect on oil yield and quality of ylan-yland (Canangodarata)	3.00

Sl. No.	Project No.	Title of the Project	Budget outlay (Rs. In lakhs)
7.		Photosynthesis of Silver nanoparticles and evaluation of effects on yield, biotic and abiotic stress response in groundnut (Arachishypogaea L.) Crop	3.00
8.		Performance testing for sowing windows, seed quality enhancement and storability of soybean cultivars : JS 335, KBS 23 and Karune	2.50
9.		Assessment of genetic homogenecity within and between the local TMV2 types grown in Karnataka and their comparison with recently released MV2 type varieties	3.00
10.		Value added products from super foods – chia seed and quinoa	3.00
11.		Valorization of mango peel and seed kernel for food product and poultry feed	2.50
12.		Development of mango stone decorticator and utilization of mango stone kernel	3.00
13.		Biocomposting of mango pomace	5.00
14.		Studies on plant –host relationship in Sandalwood (Santalum album)	4.00
15.		Revalidation of production packages for higher green biomass yield and quality of important annual forage crops	2.00
16.		Unlocking the nutritional potential of Tamarind (Tamarindusindica L.,) – An orphan legume tree crop for a resource – poor farmers, through whole Genome Sequencing	1.10
		Total	47.60

Sl. No.	Project No.	Title of the Project	Budget outlay (Rs. In lakhs)
Collaborative Projects			
1.	T-Coll-241	Sustainable practices of crops in relation to growth, anti-virus and anti-vector activities in response to seaweed extracts	21.56
2.	T-Coll-242	Establishment of UASB-HAL Advanced Centre for Bioenergy Research	200.00
3.	T-Coll-243	Genetics and genomics of faster dry down in maize (*Zea mays* L.)	11.33
		Total	233.00

Sl. No.	Project No.	Title of the Project	Budget outlay (Rs. In lakhs)
Emeritus Scientists Projects			
1.	ES-7	Reorienting Agricultural Extension Education for accomplishing present day job market and bridge the mismatch between manpower demand and availability	24.00
2.	ES-8	Urbanization effects on dietary diversification and nutritional status of adoles cents in rural-urban interface	24.00
3.	ES-9	Nano-particulate seed invigoration for enhanced seed quality and longevity in soybean and pigeon pea and groundnut	24.00
4.	ES-10	Exploration of natural diversity for selection and evaluation of panama wilt resistant types, their evaluation for economic traits and mass multiplication protocols through Tissue Culture in two major banana varieties - Elakki bale / Ney Poovan (Musa AB), a highly popular clone and NanjanaguduRasabale (Musa AAB), an endangered ecotype which is on the verge of extinction.	24.00
		Total	96.00

Anexure 3

3.1 Details of sponsored Training programmes organized by Staff Training Unit

Sl. No.	Sponsored organization	Title of the Training	Duration Days	No. of Trainings organized	No. of trainees trained
1	SAMETI (S)	How to conduct online training	One	01	100
2	SAMETI (S)	How to conduct online training- 2	One	01	32
3	SAMETI (S) in Important Field crops	Integrated Disease Management	One	01	68
4	SAMETI (S) in Important Field crops	Integrated Pest Management	One	01	39
5	SAMETI (S)	"e TRADING"	One	01	50
6	SAMETI (S) rainy season	Livestock Management during	One	01	96
7	SAMETI (S)	e- Learning	One	01	44
8	SAMETI (S) in silkworm rearing	Disease Management	One	01	43
9	SAMETI (S) of Nutri cereals	Value addition and Marketing	One	01	31
10	SAMETI (S)	Importance of Medicinal Plants	One	01	34
11	SAMETI (S)	Tilapia Fish Culture	One	01	32
12	SAMETI (S)	Webinar on World Food Day	One	01	40
13	SAMETI (S) its significance	Farmers Bills- 2020- Role &	One	01	101
14	SAMETI (S)	Soil Health management	One	01	33
15	SAMETI (S)	secluded Cultivation	One	01	40
				Total (I)	783
Off campus Training					
16	KVK, Magadi, Ramanagara	Malnutrition & Value addition for Women Officials	One	one	30
17	KVK, V C Farm, Mandya	Malnutrition & Value addition for Women officials	One	one	40
18	KVK, V C Farm, Mandya	FPO- Formation & Importance	One	one	40
19	KVK, Chamarajanagara	Malnutrition & Value addition for Women officials	One	one	36
				Total (II)	146

Sl. No.	Sponsored organization	Title of the Training	Duration Days	No. of Trainings organized	No. of trainees trained
On campus Trainings					
20	STU	Skill Development Training for Field/ Lab Assistants of UAS-B	Five	One	21
21	STU	Service matters & Financial Management for Assistants of UAS-B	Five	One	18
22	SAMETI (S)	Scientific Livestock Management for Veterinary Officers of Dept. AH&VS	Two	One	26
				Total (III)	65
			G. Total	(I+II+III)	994

3.2 : Details of Nodal training centers and candidates enrolled for Diploma in Agricultural Extension Service for Input Dealers (DAESI) Coordinated by SAMETI

Sl. No.	Place	Name of the Nodal Training Center	No. of Input Dealers enrolled
1	Bengaluru	Staff Training Unit UAS GKVK	40
2	Bengaluru Rural	KVK Hadonahalli	40
3	Chamarajanagara	KVK Haradanahalli (B-1)	40
		KVK Haradanahalli (B-2)	40
4	Chikkaballapura	College of Sericulture Chitamani(Tq)	40
		KVK Chintamani	40
5	Chikkamagaluru	KVK Mudigere	40
		DATC Lingadahalli, Tarikere (Tq) (B-1)	40
		DATC Lingadahalli, Tarikere (Tq) (B-2)	40
6	Davanagere	DATC Kadajji Davanagere	40
		TKVK Davanagere	40
7	Kolar	College of Horticulture Tamaka	40
8	Mandya	KVK VC Farm (B-1)	40
		KVK VC Farm (B-2)	40
		College of Agriculture VC Farm	40
		ZARS VC Farm	40
9	Mysuru	EEU Naganahalli (B-1)	40
		EEU Naganahalli (B-2)	40
		College of Horticulture Illuvala Campus (B-1)	40
		College of Horticulture Illuvala Campus (B-2)	40
10	Ramanagara	KVK Chandurayanahalli Magadi (Tq) (B-1)	40
		KVK Chandurayanahalli Magadi (Tq) (B-1)	40
11	Shivamogga	DATC Hallikere Bhadravathi (Tq)	40
		KVK Navile	40
12	Tumkur	ICAR-KVK Konehalli Tiptur(Tq)	40
	Total		**1000**

3.3 : Courses / Training programmes (on-campus and off-campus) organised by Bakery Training Unit

Sl.No.	Title of the training	Number	Duration	No. of Participants
I	**On Campus**			
1	Bakery Technology (14 weeks)	2	14 weeks	56
2	Commercial Baking (4 Weeks)	3	4 weeks	36
	Total	**5**	**-**	**92**
II	**On-campus Short courses**			
1	Home Baking	1	3 days	11
2	Special cakes	2	3 days	25
3	Awareness on Importance of millets in daily diet	2	1 day	60
	Total	**5**	**-**	**96**
III.	**Orientation Programmes**			
1	Importance of Bakery and value addition industry for entrepreneurship development	1	1 day	25
	Total	1	-	25
IV.	**Collaborative/sponsored Training Programmes organized**			
1	Skill Entrepreneurship development programme on Bakery products	2	30 days	50
2	Empowerment of members of SHG's and mothers of Anganwadi children's for nutritional security	3	1 day	90
3.	Consumption of Balance Diet/ Health, Clean and Nutritional Food, Food Grain and Perishable Storage	1	1 day	50
	Total	**6**	**-**	**190**
V.	**Training programmes organized under the projects**			
1	Bakery Production and Management	7	2 days	210
2	Visit to Agri product processing unit	8	1 day	240
3	Economic Empowerment of Scheduled Caste through Bakery and Value Addition Industry	1	5 days	20
	Total	**16**	**-**	**470**

3.4 : Details of training programmes organized by Farmers Training Unit

Sl. No.	Sponsoring agency	Areas of Training	No. of Training organized	No. of Trainees trained
1	GES	Cultivation and plant protection technologies of pigeon pea	01	30
		Production and Post Harvest Technology of Agriculture and Horticulture Crops	04	119
		Integrated farming System and Post harvest Technologies	04	73
2	CADA	Recent Agriculture and Water Management Technologies for the members of Water Users Association	02	60
3	ATMA	Agriculture and Horticulture production value addition technologies processing and value addition	02	80
4	IFS	Poultry based Integrated Farming System	06	170
	Total		**21**	**532**

3.5 : Knowledge gain and Training Management Efficiency Index (TMEI) and Subject Matter Efficiency Index (SMEI) of the trainees who have undergone training at FTI

Sl. No.	Training programme	No. of Trainings	No. of participants	Knowledge gain (%)	SMEI (%)	TMEI (%)
1	GES	11	222	14.07	96.81	96.60
2	CADA	02	60	16.67	96.92	97.22
3	ATMA	02	80	17.95	98.01	97.01
4	IFS (SCSP)	06	170	18.62	95.67	96.34
			Average	16.82	96.85	96.79

3.6 : Details of Courses offered under Distance Education

Sl. No	Courses Offered	No. of candidates enrolled	No. of candidates taken examination	No. of candidates passed
Diploma Courses				
1	Organic Farming	20	20	To be completed
2	One year Diploma in Agriculture	263	160	To be completed
3	Post Graduate Diploma in Agriculture	09	09	To be completed
4	Jenusakane	12	10	10
	Total			10

3.7 : Marketing of different products / plants / literature sold by ATIC

Sl. No.	Particulars	Quantity (in no.)	Amount (in Rs.)
1	Publications	4421 no.	6,37,524
2	CD's, Bio-fertilizer, Nutrient mixture and Agricultural Implements	14296 no. 1513 kgs	19,59,269
3	Seeds	26782.65 kgs11982 no.	22,29,820
4	Planting Materials	48211 no.	61,30,802
	Total		**1,09,57,415**

3.8 : Farm Trials conducted by Extension Education Unit, Mysuru and Kolar

Sl.No	Name of the trial	Yield (Q/ha)		% increase in yield over T2
		T1	T2	
A	**Extension Education Unit, Naganahalli, Mysuru**			
1	Varietal trial of Paddy KMP 220 (IET 26901) vs Jyothi T_1-KMP 220, T_2-Jyothi	59.80	49.40	21.05
2	Varietal trial of Paddy MSN 99 vs Raksha, T_1-MSN 99, T_2-Raksha	61.80	54.40	13.60
3	Varietal trial of Ragi KMR 316 Vs KMR 360 T_1-KMR 316, T_2-KMR 630	27.50	25.00	10.00
4	Nitrogen management in Napier grass T_1-100 % Recommended Dose of Nitrogen, T_2-175% Recommended Dose of Nitrogen	193.0 t/ha	272.0 t/ha	40.93
5	Weed management in drum seeded rice, T_1 -Bensulfuron methyl 0.6 % G @ 60 G + Pretilachlor 6% G @ 600 g/a.i/ha (10 kg/ha) 5 days after sowing T_2-Hand weeding (25 and 45 days after sowing).	pub.60	46.20	07.40
6	Varietal trial of Foxtail millet (Navane) Var.T_1-G.P.U.F-3, T_2-SIA-3156	19.20	17.00	12.94
7	Varietal trial of Proso millet (Baragu) T_1-G.P.U.P-28, T_2-G.P.U.P-21	13.80	12.20	13.11
8	Varietal trial of Little millet (Saame) T_1-G.P.U.L-6, T_2: B.L-6	14.25	12.50	14.00
9	Varietal trial of Grain Amaranthus (Beeja dantu) T_1-K.B.J.A-15, T_2-K.B.J.A-4	16.35	14.20	15.14

Continued farm trials from 2019-20

1.	Use of bio-fertilizer through drip irrigation in Sugarcane T_1-75 % RDF + microbial consortium (Azatobacter + Azospirulum + bacillus + Pseudomonas) T_2-RDF (250 : 100 : 125 kg N:P:K/ha) + (Azatobacter 2.5 kg + Agrobacterium /Aspergilus 10 kg/ha)	212	196	**8.16**

Sl.No	Name of the trial	Yield (Q/ha)		% increase in yield over T2
		T1	T2	
2.	Use of microbial consortium in Sugarcane trash T_1 - 5000 ml microbial consortium liquid formulation (Pseudomonas + bacillus + cellulomonas) + 5000 g powder form (Azospirillum + phenorokete + pleurotus + trichoderma) +30 kg cow dung + 30 kg urea/ha.T_2 : 40kg urea : 20 kg cowdung:10kg pleurotus (urea: cowdung; pleurotus)	164	152	**7.89**
3.	Varietal performance in Sugarcane T_{1-} CoVC-18061T_{2-} Co-86032	150	130	**15.38**

Extension Education Unit, Kolar

4.	Ragi T_1-KMR 316 v/s T_2-KMR 630 (check)	35.23	31.42	12.12
5.	Navane (Foxtail millet) T_1-GPU F3 v/s T_2-SIA-3156 (check)	15.20	11.92	27.52
6.	Same (Little millet) T_1-GPUL 6 v/s T_2-BL6 (check)	15.96	11.60	37.58
7.	Baragu (Barnyard millet) T_1-GPUP 28 v/s T_2-GPUP 21(check)	17.00	13.92	22.13

3.9 : The Details of demonstrations conducted by EEU, Mysuru and Kolar

Sl. No	Crop	Technologies demonstrated	Yield /Qtls/ha		% increase in yield over check
			Demo.	Check.	
A)	**Extension Education Unit, Naganahalli, Mysuru**				
1	Paddy	Integrated Crop Management in Paddy • Introduction of high yielding varieties / hybrids (KRH-4) • Balanced nutrition (10 t FYM /ha + 100:50:50 kg NPK/ha+20Kg Zinc sulphate) • Timely weed management practices (Pre-emergence application of Bensuphuran methial + pretillachlore 6.6G@10kg/ha @3-5 DAT • Seed treatment (Treat the seeds with bavistin @4g/kg). • Periodic spray PP chemicals. Judicious water management practices.	85.00	70.75	20.14
2	Paddy	SRI method of Rice Cultivation var.KRH-4 • Single seedling / hill • Judicious use of water (Saturation level) • Application of micro nutrient (20 kg Zinc sulphate/ha) • Weed management through cono weeder	75.53	64.40	17.28
3	Paddy	DSR method of rice cultivation • Timely sowing • Weed management (Pre-emergent herbicide) • Application of Zinc Sulphate (20 kg/ha) • Seed treatment with bavistin (4g/kg of seed) • Periodical spray of plant protection chemical	54.00	45.25	19.33
4	Paddy	Organic farming in rice • Crop rotation: Green manuring of Diancha - rice • Application of FYM /Compost based on 'N' equilent as basal dose. • Soil application of Azospirillum & PSB @ 2.5kg/ha. • Use of Jevamrutha, @ 30 and 60 days after transplanting as top dressing • Neem based plant protection chemicals as and when incidence noticed	50.00	44.25	12.99

Sl. No	Crop	Technologies demonstrated	Yield /Qtls/ha		% increase in yield over check
			Demo.	Check.	
5	Ragi	Integrated Crop Management in Finger millet • Introduction of High yielding variety (KMR-630). • Balanced nutrition (100:50:50 kg NPK/ ha per transplanting for & 50:40:25 kg NPK /ha for rain fed situation • Seed treatment with bavistin @ 2g/kg seeds • Transplanting with recommended spacing (22.5 x 10 cm.) • Weed management practices (Pre emergence application) • Spray PP chemicals as and when pest & disease appeared	30.60	26.00	17.70
6	Maize	Integrated Crop Management in maize • Popularization of Maize hybrids (MAH-14-5) • Balanced nutrition (10 t FYM /Ha + 100:50:25 kg, NPK/ha+10 Kg Zinc sulphate) • Seed treatment (Treat the seeds with Bio fertilizer: Azospirillum & PSB @ 500g/ha). • Periodic spray PP chemicals	82.20	68.00	20.88
7	Maize	Demonstration of Integrated management on fall Armyworm In Maize • Seed treatment with Emamectin benzoate 5% SG @ 0.4 g /lt. • Early sowing • Spray 5g/lit. of nomuraea rileyi at 1st & 2nd instarPoison baiting with 10 kg of weat brown + 1kg of Jaggery +100 thiodicarb mixed together keep it overnight applied to the shoot in the evening hour	73.00	66.00	10.60
8	Foxtail millet	Demonstration of foxtail millet var. SIA-3156 • Introduction or Popularization of foxtail millet (Var. SIA-3156) • Adoption of Improved crop management practices	11.74	9.88	18.82
9	Redgram	Demonstration of Redgram BRG-5 var. • Introduction of BRG-5 Red gram variety • To grow as pure crop • Seed treatment with Bio fertilizer (Rhizobium @ 500g/ha) • Pest & Disease management practices	13.10	11.03	18.77

Sl. No	Crop	Technologies demonstrated	Yield /Qtls/ha		% increase in yield over check
			Demo.	Check.	
10	Avare	Demonstration of Field Bean (Avare) var. HA-4			
		• Popularizing photo insensitive, High yielding Hebbal Avare 4 var. HA-4.	33.50 (green pod yield)	29.16 (green pod yield)	14.88
		• Seed treatment with bio fertilizer Rhizobium (500 g/ha)			
		• (Green pod yield)			
11	Sericulture	Demonstration on Improved hybrid silkworm CSR 2 X CSR-4			
		• Silkworm Bivoltine double hybrid FC-1 X FC-2	Breed	CSR 2 X CSR 4	PM X CSR2
			Yield /150 DFL	140 kg (90 kg/100 DFL)	74kg / 100 DFL
12	Ginger	IPDM practices in Ginger			
		• COC @ 4g/lit	105.0	93.0	12.90
13	Mushroom	Demonstration of Oyster mushroom production Technology			
		• Oyster mushroom production technology • Oyster mushroom post-harvest handling, packaging and marketing technology	Qty of spawn in kg 10	Average yield in kg/kg of spawn 82	
		• Processing and value addition to oyster mushroom			
		• Utilization of spent mushroom substrate for better composting			
14	Nutritional garden	Establishment of Nutritional garden for Farm Families	Types of Vegetables	Avg. Area	Avg. Yield (kg./0.01 acre)
		• Establishment of nutritional garden at rural schools.	French bean	0.01	25 kg
		• First hand learning experience to the children	Vegetable cowpea	0.01	21 kg
			Okra	0.01	36 kg
			Spinach	0.01	20 kg
			Amaranthus	0.01	23 kg
			Onion	0.01	18 kg
			Chilly	0.01	15 kg
			Tomato	0.01	26 kg

Sl. No	Crop	Technologies demonstrated	Yield /Qtls/ha		% increase in yield over check
			Demo.	Check.	
15	Tomato	IPDM practices in tomato • Spraying of Immidachloprid @ 0.5ml/lt. Or Acephate @1g/lit. • Spray PP Chemical at different intervals • Recommended dose of fertilizers and spacing	Demonstration conducting during summer 2021-22 is under progress		
16	Chilli	Demonstration of ICM in Chilli variety • Balanced nutrition • Seed treatment with Immidachloprid @0.5ml/lit. Fallowed by Bio-fertilizer Azospirillum @ 200g/ 600-700 grams seeds. • Spraying of Plano fix (NAA) 50 ppm @ full bloom stage of the crop ,rouging of infected plants	Demonstration conducting during summer 2021-22 is under progress		
EEU, Kolar					
17	Ragi	• Introduction of new Ragi varieties -GPU 66, ML - 365 & KMR-340 Seed treatment with Azospirillum • ICM practices	25.37	20.5	23.75
18	Navane	• Introduction of new Navane varieties DHFT-109-3ICM practices	-13.12	11.30	16.10
19	Haraka	• Introduction of new Haraka variety - TNAU - 86ICM practices	14.87	12.80	16.17
20	Redgram	• Introduction of new Redgram varietiy -BRG-3ICM practices	14.62	12.75	14.66
21	Avare	• Introduction of new Avare variety - HA-4ICM practices	9.62	8.75	9.94
22	Fodder	• Introduction of new multicut Fodder variety - COFS-31	375	310	20.96

3.10 : Details of training programmes organised by Extension Education Units (Mysuru & Kolar)

Sl. No.	Title	Duration (days)	No.of Participants
A)	**EEU, Naganahalli, Mysuru**		
I.	***On Campus***		
1	Seed treatment in field crops	01	30
2	Integrated management in fall army worm in maize	01	31
3	Production technologies in maize	01	23
4	Safe storage of food grains	01	28
5	Importance of organic manure in sugarcane	01	53
6	Mechanized paddy transplanting	01	52
7	Fodder production technologies	01	50
8	Integrated crop management in ginger	01	77
9	Organic farming for sustainable agriculture	01	39
10	Organic farming practices	01	44
11	Production technologies of Vegetable crops	01	58
12	Mushroom cultivation and value addition in agriculture crops	01	50
13	Organic farming practices	01	40
14	Agronomic practices in Siri dhanya and pulse crops	01	36
	Total	**14**	**611**
I.	***On Campus***		
1	Strategies for enhancing productivity of pulses	01	40
2	Smart climate Agriculture	01	36
3	Production technologies of maize	01	42
4	Integrated crop management in paddy crop	01	48
5	Integrated nutrient pest and disease management in paddy crop	01	55
6	Integrated nutrient management and integrated pest and disease management in paddy crop	01	54
7	Integrated nutrient management and integrated pest and disease management in paddy crop	01	60
8	Organic farming and direct seeded rice (DSR) method of paddy cultivation	01	51
9	Production technologies of pulses	01	62
10	Production technologies of vegetable crops	01	75
11	Organic farming practices	01	82
12	Production technologies of vegetable crops	01	71
13	Production technologies of vegetable crops	01	65
14	Production technologies of pulses	01	72
15	Production technologies of vegetable crops	01	63
	Total	**15**	**876**
	Grand total	**29**	**1487**

EEU, Kolar

1.	Scientific cultivation of Ragi	01	162
2.	Scientific cultivation of small millets	01	112
3.	Scientific cultivation of Redgram /Avare	01	225
4.	Scientific cultivation of Fodder	01	65
	Total	**04**	**564**

3.11 : Details of on-Farm Testing (OFTs) conducted by KVKs

Sl. No.	Crop	On Farm Testing	Number of Farmers	Area in ha./ units
1	Chickpea	Assessing the performance of Chickpea varieties under residual soil moisture condition – 2nd Year	3	1.2
2	Potato	Assessment of nutrient management in Potato – 2nd Year	3	1.2
3	Turmeric	Assessment of suitable Turmeric varieties for higher yield and quality	2	0.3
4	Tree Mulberry	Assessing the efficiency of Trenching and Mulching in (Wider spaced) Tree Mulberry	5	1.2
5	silkworm	Assessment on management of uzifly in silkworm rearing	10	2000 DFLs
6	Bengal gram	Assessment of Bengal gram varieties against wilt	5	1.0
7	Paddy	Assessment of Suitable Paddy Variety for Zone-7	6	1.8
8	Potato	Assessment of Method of planting in Potato	4	1.8
9	Potato	Assessment of spray of Nano Nitrogen particles on yield of Potato	5	1.0
10	Paddy	Assessment of crops for paddy cropping system	3	0.6
11	Sericulture waste	Assessment of different compost cultures in composting of sericulture wastes	3	0.1
12	Ridge gourd	Assessment on management of mosaic virus in ridge gourd through integrated approach	3	0.6
13	Silkworm rearing	Assessment on management of uzifly in silkworm rearing	3	300 DFLs
14	Millets	Assessment of Foxtail Millet Varieties during Late Kharif for Higher Yield and Income	5	2
15	Compost	Assessment of Different Compost Cultures in Composting Sericulture Wastes	3	3 Nos.
16	Mulberry + Marigold / Groundnut Mulberry + Cowpea / Beans Mulberry Palak/Methi	Assessment of Sericulture based cropping system	3	0.9 +
17	Ridge guard	Assessment on Management of Yellow Mosaic Virus in ridge guard through Integrated Approach	3	0.6
18	Chilli	Assessment of Chilli hybrids KBCH-1and Arka harita	3	0.48
19	Redgram	Assessment of Redgram Varieties for Terminal Drought conditions	4	2
20	Jasmine	Assessment of Pruning time in Jasmine (Kakada)	3	0.9

Sl. No.	Crop	On Farm Testing	Number of Farmers	Area in ha./ units
21	Redgram	Assessment of suitable redgram varieties for vegetable purpose	3	1.2
22	Ridge gourd	Assessment on management of mosaic virus in ridge gourd through integrated approach	5	1.0
23	Potato	Assessment of nutrient management in potato	5	1.0
24	Mulberry	Assessment of eco-friendly practices for management of root knot nematodes in mulberry	3	1.2
25	Mulberry	Assessment of foliar nutritional management in mulberry through eco friendly approach	3	1.2
26	Sericulture	Assessment of different compost cultures in composting of sericulture wastes	3	3 Nos.
27	Ridge gourd	Assessment of Integrated management of Mosaic virus in ridge gourd	5	1.0
		Total	**107**	**24.28** **2000 DFLs** **300 DFLs** **3 Nos.**

3.12 : Details of Front Line Demonstrations (FLDs) conducted by KVKs

Sl. No.	Particulars / Crops	Participated Farmers	Area (ha) / units
1	Demonstration of blackgram variety LBG-791 (New)	10	4.00
2	Integrated pest and disease management in Maize – 2nd Year	10	4.00
3	Demonstration of Sunflower Hybrid KBSH-78 (2nd Year)	10	4.00
4	Demonstration of Ragi variety KMR-630 (New)	10	4.00
5	Integrated crop management in Garlic	10	4.00
6	Integrated crop management in Small Onion	05	2.00
7	Integrated Crop Management in Potato	06	0.8
8	Integrated Crop Management in Turmeric	06	0.6
9	Scaling up of improved silkworm hybrid FC-1 X FC-2	10	-
10	Demonstration on Samruddhi (JHA Technology) for enhanced cocoon/silk production	10	-
11	Demonstration of poshan for higher leaf in Mulberry	10	4.00
12	Demonstration of IPM practices for management of leaf roller in Mulberry	10	2.00
13	Demonstration of Multicut Fodder Sorghum CO-FS-29	20	4.00
14	Pre and Post – partum management of crossbred dairy cattle	10	-
15	Demonstration of Multi Cut Fodder Sorghum COFS- 31	10	2
16	Demonstration of New Ragi Variety KMR-630	10	4
17	Demonstration of Redgram Variety BRG-4	10	2
18	Demonstration of Tomato hybrid Arka Rakshak	5	2
19	Integrated Crop Management in Chilli Hybrid Arka Khyati	10	2
20	Introduction of French Bean Variety 'Arka Arjun'	10	2
21	Integrated crop management in Potato	10	4
22	Integrated Crop Management in Banana	11	4
23	Demonstration of intercrops in tree mulberry garden for additional income	10	4
24	Integrated thrips management in Mulberry	10	4
25	Improved silkworm rearing practices for cocoon yield maximization	20	2000 DFLs
26	Demonstration of nutri-farms for year round nutrition security among farm families	30	30
27	Demonstration of Composite Fish Culture	5	5
28	Management of tomato leaf miner, *Tuta absoluta*	10	2
29	Integrated crop management in Coconut	5	1
30	Management of nut splitting in Arecanut	10	2

Sl. No.	Particulars / Crops	Participated Farmers	Area (ha) / units	
31	Integrated crop Management in Pepper Vines	10	400	
32	Demonstration of Field Bean as Intercrop in Coconut Orchard	5	1	
33	Drudgery reduction in Ragi (ML 365) from Pre to Post harvest operation	4	2.4	
34	Introduction of Cowpea in Paddy fallows	10	4	
35	Nutrient management in paddy for yield enhancement under salt affected soils	10	4.0	
36	Integrated pest and disease managementin paddy	10	4.0	
37	Integrated crop management in maize	10	4.0	
38	Demonstration of short duration ragi variety KMR-630	10	4.0	
39	Integrated crop management for capsicum production	10	2.0	
40	Integrated nutrient management in papaya	5	1.0	
41	Demonstration of tomato Hyb. Arka Abhed	5	1.0	
42	Integrated crop management in cabbage	5	1.0	
43	Intercropping of French bean in coconut garden	10	2.0	
44	Integrated crop management in bhendi	10	2.0	
45	Integrated crop management in betel vine	5	1.0	
46	Integrated crop management in banana	5	1.0	
47	Demonstration of high yielding multicut sorghum CoFS-29	10	2.0	
48	Popularization of improved silkworm hybrid FC-1 x FC-2	5	-	
49	Demonstration of phyto ecdysteroid for synchronized	10	-	
50	Integrated nutrient management in mulberry	10	2.0	
51	Intercrops in wider spaced mulberry garden	10	2.0	
52	Microenterprise in foxtail millet for economic empowerment of foxtail growers (EDP)	1	Group	-
53	Intercropping of Cowpea in Redgram for Enhanced Income	10	2	
54	Demonstration of white seeded Sesame in rainfed ecosystem	10	2	
55	Demonstration of multicut Fodder COFS-31 and Silage Technology	30	3	
56	Integrated Pest and Disease Management in Coconut	10	2	
57	Integrated Pest and Disease Management in Tomato	10	2	
58	Introduction of French bean var 'Arka Sharath'	10	1	

Sl. No.	Particulars / Crops	Participated Farmers	Area (ha) / units	
59	Integrated Crop Management in China Aster	10	1	
60	Management of Nut Splitting in Arecanut	05	1	
61	Integrated Pest and Disease Management in Maize	05	2	
62	Integrated Crop Management, Safe Ripening and Direct Marketing of Mango	10	4	
63	Integrated pest and disease management in Pole bean	05	1	
64	Demonstration of White Ragi Var. KMR 340	05	1	
65	Introduction of Tilapia Fish for Additional Returns	06	0.1	
66	Demonstration of Finger millet variety KMR - 630	10	4	ha
67	Demonstration of paddy variety Gangavathi Sona	05	2	ha
68	Integrated Crop Management in Tomato (Arka Abeda)	10	1 ha	
69	Integrated Crop Management in Chilli (Arka Kathi)	10	2 ha	
70	Integrated Crop Management in Arecanut	10	1 ha	
71	Integrated Crop Management in Mango (Var. Alphanso)	10	3 ha	
72	French Bean as a intercrop in Coconut garden	10	2 ha	
73	French Bean as an intercrop in younger Arecanut garden	10	2 ha	
74	Integrated nutrient management in Coconut	05	1.2 ha	
75	ICM in French bean	05	2 ha	
76	Introduction of Tamarind variety GKVK-17	10	5 ha	
77	Fodder var. COFS 31 for higher yield	10	4 ha	
78	EDP Programme-Coconut : Value Addition, Branding and Market Linkage	-	-	
79	NFSM- Pigeon pea	50	20 ha	
80	NMOOP- CFLD castor	25	10 ha	
81	Addressing Drought and Blast Vulnerability through Finger millet var. ML 365 under double cropping system	10	4.0	
82	Integrated Crop Management in Redgram BRG-3	5	2.0	
83	Demonstration of Popcorn as alternative crop for finger millet under rainfed situation	5	2.0	
84	Demonstration of multicut fodder sorghum: COFS-31 for green fodder and silage	10	1.0	
85	Fertigation in tomato for enhancement of yield and quality	5	1.0	
86	Integrated Nutrient Management in Pole bean	5	1.0	
87	Soil test based nutrient management for tissue culture banana	5	1.25	

Sl. No.	Particulars / Crops	Participated Farmers	Area (ha) / units
88	Integrated Crop Management in Tomato	5	1.0
89	Integrated Crop Management in Rose	5	1.0
90	Eco-friendly management of fall army worm in Maize	5	1.0
91	Integrated Crop Management in Brinjal	5	1.0
92	Management of yellow mosaic virus in pole bean through Integrated approach	5	1.0
93	Ration Balancing through Integrated Approach in Dairy Animals	5	0
94	Integrated Nutrient Management in Mulberry	5	2.5
95	Popularization of Bivoltine Double Hybrid,FC1 X FC2	5	5 units
96	Management of Uzi fly, Exorista bombysis in silkworm rearing	10	10 units
97	Demonstration of Ragi Var. KMR 340	5	2
98	Demonstration of field bean variety HA-4	10	4
99	Demonstration of blast resistant finger millet variety KMR-630	15	6
100	Demonstration of multicut fodder sorghum: COFS-31	15	2.5
101	Demonstration of Rice bean variety KBR-1	5	2
102	Integrated crop management in Maize	5	2.5
103	Integrated nutrient and pest management in Cabbage	5	1
104	Integrated nutrient and pest management in Pomegranate	5	5
105	Integrated Crop Management in Chilli	5	2
106	Integrated Crop Management in French bean	10	4
107	Integrated Crop Management in Rose	5	2
108	Integrated Crop Management in Mango	10	4
109	Integrated crop management in Tomato	5	2
110	Integrated management of Downey mildew in Cucumber	5	2
111	Management of yellow vein mosaic in pole bean	5	2
112	Nutri-garden	30	0.7
	Total	**1023**	**288.55** **DFLs 2000** **Vines 400** **units 15**

3.13 : Details of training programmes organized by KVKs

Sl. No.	Place / Subject	On Campus		Off campus		Extension functionaries	
		No. of Trg. Prog.	No. of participants	No. of Trg. Prog.	No. of participants	No. of Trg. Prog.	No. of participants
1	Crop production	15	336	20	479	2	34
2	Horticulture	22	626	51	1825	5	116
3	Soil Science	34	1197	48	1749	3	66
4	Live stock	02	34	02	44	0	0
5	Sericulture	08	214	21	365	0	0
6	Home science	40	1029	50	2157	14	614
7	Agronomy	37	1135	34	1266	1	40
8	Plant protection	27	1913	51	2050	3	111
9	Agriculture Extension	12	388	13	306	1	44
10	Crop Protection	8	179	8	141	2	63
11	Animal Science	7	328	7	329	1	35
12	Others	06	113	03	69	0	0
	Total	218	7429	308	10780	32	1123

3.14 : Extension Projects

Sl. No	Title of the project	Sponsoring Agency	Total budget Sanctioned (Rs. in Lakhs)	Name of the principal investigator
1	Development of Scheduled Caste Farm Families in 17 Districts of Southern Karnataka through Integrated Farming System (IFS) Approach	KSDA (SCSP) GoK	346.00	Dr. V.L.Madhu prasad
2	Holistic Development of Scheduled Tribe Farm Families through Integrated Farming System (IFS) Approach	KSDA (TSP) GoK	250.00	Dr. V.L.Madhu prasad
3	Holistic Development of Scheduled Caste Farm Families Through Integrated Farming System (IFS) Approach	KSDA (SCSP) GoK	500.00	Dr. V.L.Madhu prasad
4	Empowerment of Scheduled Caste Farm Families Through Integrated Farming System for Sustainable Livelihood	KSDA (SCSP), GoK	200.00	Dr. Dr. V.L.Madhu prasad
5	Krushikara Kaige Lekhani Govt. of Karnataka	KSDA,	4.80	Dr. K. Shivaramu
6	Bakery Production and Management	ICAR, New Dehli and SDC, UAS(B)	9.73	Dr. S. V. Suresha
7	Visit to Agri product processing unit	ICAR, New Dehli and SDC, UAS (B)	2.04	Dr. S. V. Suresha
8	Economic Empowerment of Scheduled Caste through Bakery and Value Addition Industry	ICAR, New Dehli and SDC, UAS(B)	1.00	Dr. S. V. Suresha
9	Economic Empowerment of Scheduled Tribes in the field of Bakery and Value Addition Industry	ICAR, New Dehli and SDC, UAS(B)	4.00	Dr. S. V. Suresha
10	Economic Empowerment of Scheduled Caste through Bakery and Value Addition Industry	ICAR, New Dehli and SDC, UAS(B)	1.00	Dr. S. V. Suresha
11	Development and standardization of contemporary millet bakery products for commercialization.	UAS(B)	2.00	Dr. Mamatha, H.S
12	Evaluation and introduction of apical rooted potato saplings in Hassan district	ATMA, DoA, Hassan	1.50	Dr. Rajegowda
13	Suitable Integrated Farming System model development for the district	ATMA, DoA, Hassan	1.00	Dr. Rajegowda
14	Studies on yield maximization of Blackgram (Vigna mungo L.) through foliar nutrition in paddy fallow of Cauvery command area	ATMA	1.50	Roopashree, D. H and Naresh, N. T

Sl. No	Title of the project	Sponsoring Agency	Total budget Sanctioned (Rs. in Lakhs)	Name of the principal investigator
15	Seed hub Project	UASB	138.00	SS&H & All Scientist
16	ICM in Paddy (SCSP)	IIRR, Hyderabad	10.18	SS&H, Scientist (Agronomy & Soil Science)
17	Establishment of 'Information and Demonstration Centre on Biofuel'	Karnataka Biofuel Development Board, & Head Government of Karnataka	3.03	Dr. A. P. Mallikarjuna Gowda Senior Scientist
18	Employment and Livelihood Security for Rural Youth through Innovative Entrepreneurship Models (ARYA)	ICAR - ATARI	15.49	Dr. A. P. Mallikarjuna GowdaSenior Scientist & Head
19	Testing trial on Spinach	String Bio Private Limited, Centre for Cellular and Molecular Platforms	1.33	Dr. A. P. Mallikarjuna GowdaSenior Scientist & Head
20	Frontline Demonstrations	ATMA, KSDA, Karnataka	3.00	Dr. A. P. Mallikarjuna GowdaSenior Scientist & Head
21	National Initiative on Climate Resilient Agriculture (NICRA) (NICRA)	CRIDA, Hyderabad, and ICAR, New Delhi.	13.92	Mr. Vishwanath
22	IPM in Tomota	NCIPM, Delhi	2.00	Dr. R. Manjunath
23	IPM in Mango	NCIPM, Delhi	2.25	Dr. R. Manjunath

Annexure 4

4.1 : List of Officers, Teachers and Non-teaching Employees Superannuated

Sl. No.	Name	Designation	Date of Retirement
Officers			
1.	Dr. N.S. Shivalinge gowda	Director of Extension	30–04–2020
2.	Dr. A.G. Shankar	Dean(PGS)	31–05–2020
3.	Dr. Mahabaleshwar Hegde	Registrar(I/c)	30–09–2020
4.	Dr. V. Sreenivasa	Librarian(I/c)	28–02–2021
Teaching			
1.	Shri Somegowda	Assistant Professor	31–05–2020
2.	Dr. K.P. Chinnaswami	Professor, Coordinator and Nodal Officer	30–06–2020
3.	Dr. S.M. Pillegowda	Professor	30–06–2020
4.	Dr. G.S. Mahadevaiah	Professor and Head	31–07–2020
5.	Dr. C.P. Gracy	Professor and Head	31–07–2020
6.	Dr. G.M. Varadaraju	Professor	31–07–2020
7.	Shri K.B. Munisyamanna	Associate Professor	31–07–2020
8.	Dr. Jayaramegowda	Professor and Coordinator	31–08–2020
9.	Dr. Neena Joshi	Professor and UAS Head	31–12–2020
10.	Dr. S. Rangaiah	Professor	31–12–2020
11.	Dr. G.K. Mukunda	Professor and Head	28–02–2021
12.	Shri M. Abdul Jabber	Associate Professor	28–02–2021
13.	Dr. B.V. Krishnamurthy	Professor and Head	31–03–2021

Teaching Voluntary Retirement: Nil

Teaching Death Case : Nil

Non-Teaching : Superannuation

Superannuation

1.	Shri H.M. Narayanaswamy	Tractor Driver	30–04–2020
2.	Shri Mallesh	Senior Farm Labourer	30–04–2020
3.	Shri Rajegowda	Attender	30–04–2020
4.	Shri G. Siddaraju	Farm Labourer	30–04–2020
5.	Shri K.M. Venkata Reddy	Assistant Comptroller	31–05–2020
6.	Shri B. Sreeraghu	Field Assistant	31–05–2020
7.	Shri K.B. Jayanna	Tractor Driver	31–05–2020

Sl. No.	Name	Designation	Date of Retirement
8.	Shri Shivanna	Farm Labour	31–05–2020
9.	Shri M. Ramaiah	Senior Field Assistant	31–05–2020
10.	Shri Maruthi	Senior Farm Labour	31–05–2020
11.	Shri N.M. Ramachandrappa	Senior Field Assistant	30–06–2020
12.	Shri Venkatarama	Senior Tractor Driver	30–06–2020
13.	Smt. Muniyamma	Attender	30–06–2020
14.	Shri S.N. Basavaraju	Senior Farm Labourer	30–06–2020
15.	Shri M. Narayana	Bullockman	30–06–2020
16.	Smt. Gangamma	Farm Labourer	30–06–2020
17.	Smt. Dasamma	Senior Farm Labourer	30–06–2020
18.	Smt. K. Narayanamma	Senior Farm Labourer	30–06–2020
19.	Smt. N. Narayanamma	Senior Farm Labourer	30–06–2020
20.	Smt. Akkayamma	Senior Farm Labourer	30–06–2020
21.	Smt. Rajeshwari	Farm Labourer	30–06–2020
22.	Smt. Parvathamma	Farm Labourer	30–06–2020
23.	Shri J.S. Mohan	HV Driver	31–07–2020
24.	Shri C. Manjunath	Deputy Comptroller	31–08–2020
25.	Shri Thimmegowda	Sr. Field Assistant	31–08–2020
26.	Shri V. Manjunatha	Sr. Lab Assistant	31–08–2020
27.	Shri H. Narasimhaiah	Laboratory Assistant	31–08–2020
28.	Smt Ganadalu Gowramma	Sr. Farm Labourer	31–08–2020
29.	Smt Chaudamma	Sr. Farm Labourer	31–08–2020
30.	Shri C. Raju	Driver(LV)	31–08–2020
31.	Shri B.M. Shankaraiah	Sr. Field Assistant	31–10–2020
32.	Shri V.G. Venugopal	Sr Lab Assistant	31–10–2020
33.	Smt G. Manjula	Sr. Store Helper	31–10–2020
34.	Smt Ambujakshi	Personal Secretary	30–11–2020
35.	Shri T.G. Prakash	Sr. Book Binder	30–11–2020
36.	Shri J. Eshwarappa	Sr. Watchman	31–12–2020
37.	Smt T. Lakshmamma	Farm Labourer	31–12–2020
38.	Smt Savithramma	Farm Labourer	31–12–2020
39.	Shri G. Sannagowda	Sr. Field Assistant	31–01–2021
40.	Shri K.P. Manjunath	Sr. Field Assistant	31–01–2021
41.	Shri B. Vijayakumar	Sr. Lab Assistant	28–02–2021
42.	Smt H. Shakunthala	Sr. Typist	28–02–2021
43.	Smt R. Meenakshi (NPS)	Attender	28–02–2021

Sl. No.	Name	Designation	Date of Retirement
44.	Smt Halebeedu Ningamma	Sr. Farm Labourer	28–02–2021
45.	Shri Anjanappa	Assistant Comptroller	31–03–2021
46.	Shri Mohamad Reyaz	Asst Executive Engineer	31–03–2021
47.	Shri R. Manjunath	Sr. Lab Assistant	31–03–2021
48.	Shri C.G. Ramesh Kumar	Sr. Lab Assistant	31–03–2021
49.	Shri H.D. Jayaramegowda	Sr. Field Assistant	31–03–2021
50.	Smt Tamil Sevi	Attender	31–03–2021
51.	Shri Rajanna	Sr. Farm Labourer	31–03–2021
52.	Shri R. Narasimhan	Sr. Field Assistant	31–03–2021

Non-Teaching : Voluntary Retirement

1.	Shri S.N. Ramakrishna	Sr. Field Assistant	31–01–2021

Death Case

1.	Late Shri Jana	Sr. Farm Labourer	02–12–2020
2.	Late Shri G.T. Renukesh	Sr. Lab Assistant	13–01–2021

Annexure 4.2 : List of University Heads of different Disciplines during 2020-21

Sl.No.	Department	Name of the Head
1	Agronomy	Dr. G.N. Dhanpal
2	Crop Physiology	Dr Y.N. Nanja Reddy
3	Agricultural Engineering	Dr. V. Palanimuthu
4	Soil Science and Agricultural Chemistry	Dr. H.C. Prakash
5	Agricultural Extension	Dr. K. Narayana Gowda
6	Agricultural Marketing and Business Management	Dr. C.P. Gracy Dr. M.S. Ganapathy
7	Agricultural Microbiology	Dr. N. Eranna
8	Seed Science and Technology	Dr. P.J. Devaraju
9	Genetics and Plant Breeding	Dr. D.L. Savithramma
10	Plant Pathology	Dr. T. Narendrappa
11	Agricultural Entomology	Dr. N. Srinivasa
12	Horticulture	Dr. G.K. Mukund Dr. G.S. Nagaraj
13	Sericulture	Dr. R.N. Bhaskar
14	Food Science & Nutrition	Dr. K Geetha
15	Agricultural Economics	Dr. K.B. Umesh
16	Plant Biotechnology	Dr. R.L. Ravikumar
17	Forestry and Environmental Science	Dr. K.T. Prasanna
18	Apiculture	Dr. K.S. Jagadeesh
19	Agricultural Statistics, Applied Mathematics and Computer Science	Dr. K.N. Krishna Murthy
20	Animal Science	Dr. O.R. Nataraju

Annexure 4.3 : List of Heads of the Department of different Disciplines during 2020-21

Sl. No.	Department	Name of the Professor
1	Food Science and Nutrition	Dr. M.L. Revanna
2	Sericulture	Dr. S. Chandrasekhar
3	Agronomy	Dr. H.M. Jayadeva
4	Agril. Engineering	Dr. B.C. Ravikumar
5	Agril. Entomology	Dr. M. Thippaiah
6	Apiculture	Dr. K.S. Jagadeesh
7	Plant Biotechnology	Dr. R.L. Ravi kumar
8	Agril Microbiology	Dr. N. Eranna
9	Crop Physiology	Dr. M.S. Sheshashayee
10	Plant Pathology	Dr. A. Nagaraja
11	Forestry & Environmental Science	Dr. C. Nagarajaiah
12	Soil Science and Agril. Chemistry	Dr. H.C. Prakash
13	Seed Science and Technology	Dr. Parashivamurthy
14	Agril. Marketing and Business Management	Dr. M.S. Ganapathy
15	Agricultural Economics	Dr. M.N. Venkataramana
16	Horticulture	Dr. P. Venkatesh Murthy
17	Agril. Statistics, Appl. Mathematics & Computer Science	Dr. K.N. Krishnamurthy
18	Agricultural Extension	Dr. B. Krishna Murthy
19	Genetics and Plant Breeding	Dr. A. Mohan Rao
20	Animal Science	Dr. M. Vasundharadevi
21	Kannada Department	Dr. J. Balakrishna

Hon'ble Minister of Agriculture, GoK addressing the gathering at CoS, Chintamani during the inauguration of Auditorium

Director General, ICAR at polyhouse based protected cultivation established at GKVK

Paddy : KMP 220

Little Millet : GPUL 6

UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE
GKVK, BENGALURU-560 065
www.uasbangalore.edu.in