



Dignitaries Inaugurating National Conference on “ICT Based e-Resources for Smart Agriculture – A Journey towards Atmanirbhar Bharat Post COVID -19 Pandemic Situation” held during 16th & 17th March 2021 at UAS, Raichur.



ICAR, NAHEP-IG Project

DIGITISATION OF LIBRARY FOR INFORMATION SERVICES TO STRENGTHEN AND DEVELOP COMPETITIVE HUMAN RESOURCES AT AGRICULTURAL UNIVERSITY

Annual Progress Report 2020-'21



UNIVERSITY OF AGRICULTURAL SCIENCES

Raichur - 584 104, Karnataka, India

Toll Free No. 1800 4250 470

<https://nahep-iguasr.in> www.uasraichur.edu.in



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Foreword



The University of Agricultural Sciences, Raichur is grateful to ICAR for sanctioning ambitious NAHEP-IG Project, which has been successfully implemented in Kalyana Karnataka region. The project activities facilitated in improving University ranking from 58 to 21 and in elevating educational standards in the University. The project envisages dissemination of quality information services through digitisation of University library at Raichur and libraries of constituent colleges, namely, Bheemarayanagudi and Kalaburagi teaching campuses inter alia improving learning competency of faculty and students, through capacity building programmes.

Under this visionary project, seminars and workshops were planned with objectives of knowledge management in the libraries, developing agri-preneurship and career opportunities in agriculture, upgrading statistical analytics for effective agricultural research and bringing academic integrity in agricultural research and publications. Also, enhancing of the e-resources, e-learning and IoT platforms for the benefit of both faculty & student community. Since its inception, collaborative and directional efforts have been made by NAHEP-IG Project team to achieve envisaged objectives of the project through effective curricula delivery systems, improvement of faculty competence, student development, attracting talented students, IT support and upgradation of infrastructure facilities enabling the University to catch up at national and international levels.

I acknowledge the support and consideration of ICAR, National Director & PIU of NAHEP, National Coordinator (IG), and the World Bank. I appreciate the commendable efforts made by the Principal Investigator Dr. D. M. Chandargi and his team striving hard to achieve the intended purpose of the ICAR-World Bank funded NAHEP-IG Project and also in developing this report. The Annual Report is brought out meticulously highlighting the activities carried out during financial year 2020-21. I am confident that the improvement made under the NAHEP-IG Project will surely play an important role to create lasting impact on growth and development of UAS, Raichur in coming days.

Date: 10th March 2021

K. N. Kattimani
(K. N. Kattimani)
Vice-Chancellor

Preface



ICAR, NAHEP-IG project on “Digitisation of Library for Information Services to Strengthen and Develop Competitive Human Resources at Agricultural University” is being successfully implemented since 2019. Under the project, various human capacity building activities designed in enhancing faculty performance, attracting better students, improving students’ learning outcomes and raising their prospects for taking up startups and ready for employability, particularly in the private sector. The highlights of the achievements made under the project are delineated in this Annual Progress Report 2020-21.

The targeted and issue based programmes have been successfully completed; major ones were seven webinars, eight training programmes, six workshops, four exposure visits and one national conference. More than 5000 students and faculty participated in various programmes and gained the usufructs of the project. Among these trainings and workshops, high impetus has been laid on enhancing soft skills, improving operational efficiency, encouraging quality research writings and use of ICT based tools in teaching and learning and also emphasis on building entrepreneurship capabilities of students in the University.

Besides capacity building activities, under the project, Infrastructure facilities have been created such as RFID based Digital Library System, Kindle library for smart reading and English Language Lab at Libraries of College of Agriculture, Kalaburagi and Bheemaranagudi. The project team is facilitating NAAC accreditation process at the University. The University has entered into the process of NAAC accreditation as suggested by the World Bank review team. University library is also strengthened with e-resources like agriculture e-books, Turnitin Plagiarism Software, Grammarly, SPSS Statistical Software, Myloft Remote Access System and indiastat subscription for easy access of various e-resources to the students and faculty of the University to develop competitive human resources. Another highlight of the project is maximum financial utilization (79.12%) and highest Procurement Progress (97.91%) during FY 2020-21 despite Covid-19 pandemic situation.

I acknowledge constant encouragement, guidance and support extended by Dr. R. B. Sharma, National Coordinator, ICAR, NAHEP-IG New Delhi and Dr. K. N. Kattimani, Hon’ble Vice-Chancellor, UAS, Raichur who have been of immense inspiration and encouragement in effective implementation of project. I also appreciate support and suggestions by University Officials, NAHEP-IG project team members, all faculty members & students of the University.

Date: 10th March 2021


(D. M. Chandargi)
Director of Extension &
Principal Investigator

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I. Background of the project

The world of Libraries and Information Centres have been witnessing a sea of changes due to its development and deployment of information and communication technologies which have not only changed the way information is generated, organized, stored and distributed but also through indispensable tools for teaching, learning and research. The new technologies are forever redefining the model of delivering instruction and service to keep pace with the technological advancements in Information and Communication Technology to meet the expectations of the users. The University Library is making sincere efforts to establish a modern knowledge management-based library to cater to the needs of students pursuing higher education in agriculture and allied fields in Kalyana Karnataka region of the state. There is a paradigm shift happening in the concept of library, transforming from brick to click, analogue to digital and from collection to connection.

In order to equip the libraries and to build competitive human resources at Agricultural University in line with the above criteria, the present project is being implemented with the following objectives.

Objectives

- To improve quality of agricultural education by allowing students to use digital facilities to access information
- To empower students to convey a richer message through the use of multimedia and hypermedia technologies
- To empower other universities to unlock the information resources and to advance digital library technology
- To strengthen the libraries of constituent colleges of the University with e-resources to facilitate the process of accreditation

Project details

Project Title: Digitisation of Library for Information Services to Strengthen and Develop Competitive Human Resources at Agricultural University

Period : 3 Years (2019-2022)

Year of implementation: 15.07.2019 vide F. No.NAHEP/IG-2016/2019-20.

Project outlay: Rs. 499.95 lakh

NAHEP-IG Project Implementation Unit : Main Campus UAS, Raichur

IG Centres : College of Agriculture, Kalaburagi and College of Agriculture, Beemaryanagudi



II. Creation of Digital Infrastructure for Libraries

1. Establishment of RFID based Digital Library System

The Libraries of both College of Agriculture, Kalaburagi and Bheemaranaganudi have been updated with RFID system to enable self-circulation and self-return of issued books besides improved security system.



Outcomes of the RFID Technology

- RFID facilitated students users for fastest, easiest, most efficient way to track, locate and manage library materials.
- Improved efficiency in Book circulation management: Circulation of books increased by 30 per cent after adoption RFID Technology.
- Facilitated Stock Management: Operations such as managing material on the shelves, identifying missing and miss shelved items and taking stocks regularly is feasible after implementation of RFID.
- Improved Patron Services: Major benefit of RFID technology is spending minimal time on circulation operations and it allowed library staff to assist patrons. Routine patron services are not disturbed even when library staffs are not present or doing other work.
- Security: Biggest outcome of the installation of RFID at our libraries is increased library item identification and security.
- It reduced time for Circulation Operations: RFID based LMS considerably reduced the amount of time required to issue, receive, transport, sort and shelf library materials.
- RFID based system reduced repetitive scanning of individual items at the circulation desk during check in and check out.
- Automatic check-in and check-out facility

- Library inventory tracking in minutes instead of hours.
- Multiple books can be read simultaneously.
- Unique ID of the RFID tag prevents counterfeiting

Feedback

- Patrons expressed happiness as it helped in reducing waiting time in check-out lines by using Self Check in – Check out systems.
- Patrons expressed that they could find what they are looking for quickly and easily.
- Reminders for due dates allows patrons to submit borrowed materials in time.
- Book drop and return/ renew for returning library material, allowed for flexible timings.
- RFID enabled patron cards allowed for easy patron identification and reduced errors
- Self-service enhanced patron privacy.
- Improved patron services even when libraries are facing staff shortage.

2 Creation of Kindle Library for Smart Reading

The Libraries of both College of Agriculture, Kalaburagi and Bheemaranagudi have been updated and equipped with thirty Kindle devices each at both Libraries. It facilitated an easy access for students to read online and pre-loaded e-books and other digital resources. During the reporting period, this facility is being used by 40 per cent of students of both the colleges.



3. English Language Laboratory

The English Language Laboratory is established at Libraries of both College of Agriculture, Kalaburagi and Bheemaranagudi to improve communication and presentation skills through language software especially for first year students of both the colleges.

4. Grammarly

In order to improve the writing process with utmost accuracy in attaining 'quality of content' and to avoid spending time in 'correcting grammatical issues', the Grammarly App is installed at both the Libraries. The faculty & students are using the software in improving their write ups in research papers and other assignments



5. Turnitin plagiarism checking tool

In order to ensure the integrity of education and meaningfully improving learning outcomes among the students and faculty, Turnitin plagiarism checking tool is installed in both the Libraries of two campuses of the University. It promotes honesty, consistency, and fairness across all subject areas and also enhance the quality in research writings for publication in high NAAS rated journal.

6. SPSS Statistical Software

SPSS Statistical Software is installed and is being used by Research Scholars and Faculty for analysis of the data.



7. SigmaPlot software

SigmaPlot is a proprietary software package for scientific graphing and data analysis. SigmaPlot is one of the best-known data analysis packages. From a simple spreadsheet, it allows the creation of high-quality scientific graphs and the performance of complex data analyses. A plot is a graphical technique for representing a data set, usually as

a graph showing the relationship between two or more variables. The plot can be drawn by hand or by a computer. This software is being used by PG Students and faculty.

Capacity Building Activities



III. Capacity Building activities

Webinars/Seminars

1. Webinar on “Biodiversity Conservation for Sustainable Future”

In order to create awareness on ‘biodiversity and its conservation for sustainable future’ among students and faculty of the University, a webinar was organised on 5th June 2020 at Raichur campus. While inaugurating the programme Dr. D. M. Chandargi, Dean (Agri.) and PI of the project opined that there is a need for creating awareness on the importance of biodiversity in sustaining quality human-animal life. A renowned

environmentalist Prof. Nagesh Hegde, Professor of Indian Institute of Journalism and Media, Bangalore was the resource person and he highlighted the importance of biodiversity and its functioning ecosystems that supply oxygen, clean air and water, pollination of plants, pest control, wastewater treatment and many ecosystem services. He also said that the main concept of biodiversity is connection among living and non-living elements that keep the environment sustainable and healthy for longer period of time. Further, he explained how the climate change and overexploitation of resources are responsible for changing the biodiversity.

Outcome of webinar

Created awareness on biodiversity & its conservation and reminded of roles & responsibilities of stakeholders for sustainable future among students and faculty.



2. Webinar on Recent Advances in Agricultural Marketing



A webinar on “Recent Ordinances Promulgated by Government of Karnataka & Government of India pertaining to Agricultural Marketing” was organised on 15th June 2020 for the benefit of faculty and students. Dr. B. N. Humbarawadi, Former Chief General Manager, Karnataka State Agricultural Marketing Board, Bengaluru, the guest speaker, drew attention on the recent amendments made to the Agricultural Marketing Act namely., the “Farmers’ Produce Trade and Commerce (Promotion and Facilitation) Ordinance 2020”, the “Farmers (Empowerment and Protection) Agreement on Price Assurance” and “Farm Services Ordinance, 2020 and the Essential Commodities (Amendment) Ordinance 2020” and the benefits of these amendments to the farmers. About 54 participants comprising of faculty and students of agricultural economics, agricultural marketing and agribusiness participated in the webinar.

Outcome of webinar : Students came to know about Recent Ordinances Promulgated by GoK & GoI Pertaining to Agricultural Marketing

3. Webinar on “Think, Create and Act as Agri-preneurs”

As a part of capacity building programme a webinar on “Think, Create and Act as Agri-preneurs” was organised to develop Agri-preneurial skills among UG & PG students on 9th July, 2020 at College of Agriculture, Raichur. Dr. Sharan Angadi, Panel Expert, GRSV Consulting Services, Bengaluru, as a Guest speaker inspired students about inculcating basic traits like personal, interpersonal and process skills for becoming agri-preneurs. He also sensitized about pro-risk taking attitude that



makes them more likely to be benefited and for encashing the opportunities available in new agricultural ventures as compared to conventional farming. Dr. Nandeesh V. Hiremath, Professor (HR & Entrepreneurship) IBA Techno-management Consultant & Start up mentor, Bengaluru stressed on exploring opportunities to real life problems. Dr. Prakash Sharma, Founder Passion Framework Pune discussed on “Innovations and Technology Inclusions for Agro-Ecosystem”. Dr. Y. B. Srinivasa, Managing Director, Tene Agri. Solutions Pvt. Ltd. Bangalore discussed about YAKSHA a readymade tool to spread information/knowledge on real time basis to farmers for generating data at particular place. Dr. D.M. Chandargi, Dean (Agri) & PI narrated the usefulness of webinar to a 70 odd students who attended the seminar.

Outcome of webinar

Students acquired skills and inculcated useful approaches to cope with the changing situations addressing real life problems in an innovative manner.

4. Webinar on “Knowledge Management in the Libraries”

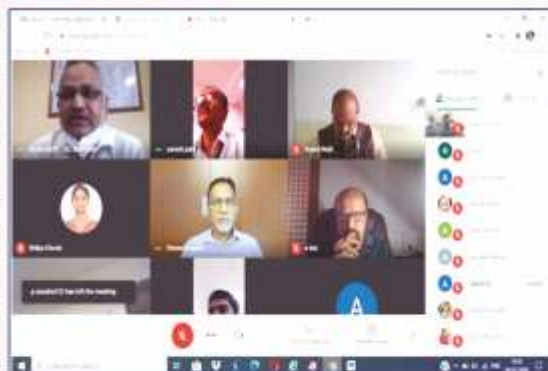


Webinar on emerging trends in knowledge management of libraries was organised on 20th July, 2020 at College of Agriculture, Bheemarayanagudi. Dr. R. B. Sharma, National Coordinator, ICAR-NAHEP project in his inaugural address, narrated the libraries as the repositories of vibrant knowledge and be developed an integral part of education as a strat-egy. The success of libraries and information centres (LICs) depends upon ability of the concerned to utilize information and knowledge to serve the end users. Dr. A. S. Halepyati, Co-PI & University Librarian briefed about usefulness of the webinar. The Webinar was convened by Dr. D. M. Chandargi, Dean (Agri) & PI and Dr. R. Loksha, Dean (Agri), AC, Bheemarayanagudi.

Outcome of webinar : Created awareness on e-resources of library and their access among students and faculty

5. Webinar on Focusing on Career Opportunities in Agriculture

Dr. Sharan Angadi, Panel Expert, GRSV Consulting Services, Bengaluru as a Guest speaker, while addressing 180 odd participants in the above webinar opined that success of an educational institute is rated not only based on the development of technologies but also demand created for its graduates. He expressed concern about lesser attention received to Agricultural Education as compared to that of Medical and Engineering professions

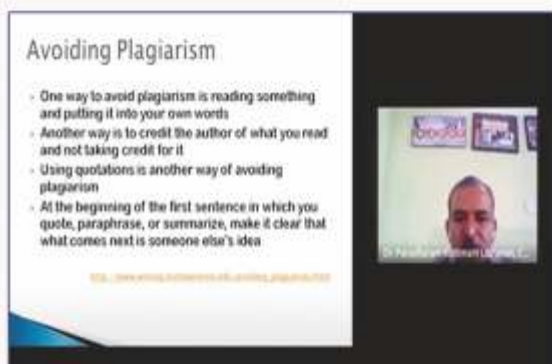


due to lack of publicity on lucrative avenues in Agricultural profession. The Webinar was co-ordinated by Dr. Suresh S. Patil, Dean (Agri), CoA, Kalaburagi.

Outcome of webinar

Created awareness on scope & opportunities in Agriculture and allied fields.

6. Webinar on Academic Integrity in Agricultural Research and Publication



Dr. P. S. Kattimani, Librarian, Central University Kalaburagi engaged webinar on “Academic Integrity in Agricultural Research Writings” to provide insights to the PG students on understanding research ethics, academic integrity, concept of plagiarism and editorial requirements for enhancing quality research writings on 29th July, 2020 hosted by College of Agriculture, Kalaburagi. Dr. K N Kattimani, Hon’ble Vice-Chancellor while

inaugurating the programme emphasized on developing the protocol to contain plagiarism in all sorts of publications. He further, advised to maintain highest standards and follow UGC guidelines while publishing research papers. The Chief Guest, Dr. R.B. Sharma, National Coordinator, ICAR-NAHEP, New Delhi addressed on the need for the highest academic integrity in the present era of “copy and paste” culture while appreciating the relevancy of the webinar. Dr. D.M. Chandargi, Dean (Agri) & PI summarised various activities undertaken in NAHEP (IG) and its contribution in shaping academic quality of the University. Dr. Pramod Katti, Nodal Officer, ICAR-NAHEP (IG) highlighted the objectives of seminar. The webinar received overwhelming response among PG and PhD students, teachers, scientists and researchers of UAS Raichur invoking more than 2000 registrations. Dr. Suresh S. Patil, Dean (Agri), CoA, Kalaburagi addressed all dignitaries and participants at the outset of the webinar.

Outcome of webinar

Participants gained knowledge on e-resources, knowledge management and consequences of plagiarism and enhancing quality research writings.

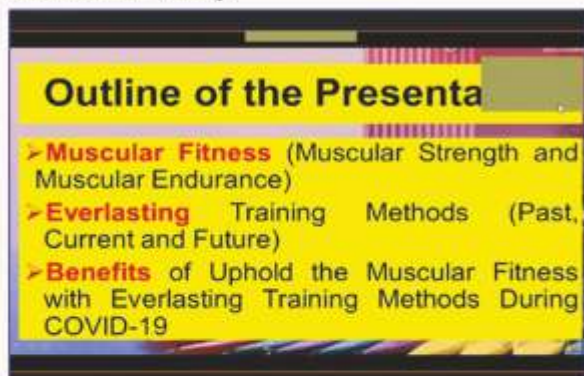
7. Webinar on up-keeping of Physical and Mental health during COVID-19 pandemic situation

Webinar on "Physical fitness, Yoga practices and Balanced diet for Physical and Mental Strength during Covid-19 pandemic situation" was organized on 21st January, 2021 in which 245 participants including students and faculty attended the programme. Chief Guest, Dr. R. B. Sharma, National Coordinator, ICAR, NAHEP-IG, remarked empowerment of farming community is the aim of NAHEP and in-turn they be-



-come an independent agricultural Entrepreneur. He also entrusted the students to fully make use of the digital platform of NAHEP in enhancing their knowledge and skills in the field of agricultural sciences. Resource Persons Dr. Nibu R. Krishna, HoD, Department of Yogic Sciences, LNIPE, Gwalior, M.P., Dr. Lim Boon Hooi Associate Professor, Centre for Sports and Exercise Sciences, University of Malaya, Mala-

-ysia, Prof. Sundar Raj Urs, Former Registrar (Evaluation), Bangalore North University, Former Dean, Faculty of Education, Bangalore University, Bangalore, and Dr. Renuka Meti, Associate Professor and Chairperson, Dept. of Food Processing and Nutrition, Karnataka State Women University, Vijayapura graced the programme and shared their knowledge and experiences to the students and faculty.



Outcome of Webinar

Students understood and realized that sound body and mind are important factors to lead happy and peaceful life during COVID-19 pandemic situation.

Training programmes/Short Certificate Courses

Short Certificate Course “on e-resource, e-learning and IoT” for faculty / students (Virtual mode)

The above short certificate course with a duration of 100 hours was divided into component-I and component-II and organized in collaboration with NAARM and MANAGE, Hyderabad.

Course Objectives

- To impart knowledge on applied aspects of e-resource, e-learning and IoT.
- To provide hands-on training in using e-resource, e-learning and IoT.
- To build confidence among faculty in handling e-resources.

Course Module

The Course module includes two components.

- Basics on E-resources, E-learning and IoT conducted by NAARM.
- Applied aspects on E-resources, E-learning and IoT conducted by MANAGE.

1. Short Certificate Course on e-Resources, e-Learning and IoT

Dr. R.C. Agrawal, DDG (Education) and National Director, ICAR- NAHEP, New Delhi inaugurated Short Course (online) on “E-Resources, E-Learning and IoT” during 24-28 August, 2020 organized by the University in collaboration with NAARM, Hyderabad. Dr. K. N. Kattimani, Hon’ble Vice-Chancellor in his presidential address advised to adopt the state of art knowledge on the IoT to all the 30 participants.



Dr. Srinivasa Rao Director, National Academy of Agricultural Research Management, Rajendranagar, Hyderabad, Dr. R. B. Sharma National Coordinator, NAHEP, New Delhi & Dr. M. G. Patil, Director of Education, Dr. D. M. Chandargi, Dean (Agri) & PI were the Guests of Honours who elaborated on the perspectives of e-world in near future. Component II of short course for faculty (30Nos) on New Dimensions in ICTs and Knowledge Management in Agriculture in collaboration with MANAGE, Hyderabad was organised from 31st August to 4th September, 2020. Smt. G. Jayalakshmi, Director General, MANAGE, Hyderabad inaugurated the programme along with Dr. M. G. Patil, DoE, as the Chief Guest and Dr. D. M. Chandargi, Dean (Agri) & PI who presided the programme.

Feedback: Faculty rated 4.7 out of 5 scale rating in assessing the speakers with respect to the clarity it was felt that they were clear in their presentation and trainees expressed that they were given relevant information. Trainees rated 4.6 scale for using the information learned and skills acquired and faculty rated 4.29 out of 5 scale ratings in learning I-P-P (Idea to prototype to produce) and also expressed topics covered were good and informative concerning Indian agricultural education.

2. Short Certificate Course on “e-resource, e-learning and IoT” (Component-I) for students (Virtual mode) by NAARM, Hyderabad

A five- day short certificate course on e-resource, e-learning and IoT was organised during 5th to 9th October, 2020 in collaboration with NAARM, Hyderabad. While addressing the students Dr. M. G. Patil, Director of Education advised to update on ICT based knowledge in tackling emerging challenges in the present pandemic situation and learn soft skills for accessing the



knowledge. Dr D. M. Chandargi, PI-NAHEP-IG while presiding over the programme highlighted the importance of such training programme which helps to develop quality human resources of the University to adapt to any kind of situations arising in future which may compel our students to stay away from campus. Thirty five students attended the programme.

Feedback: Students rated 4.6 out of 5 scale ratings for the topics covered to suit present scenario and additional knowledge was gained due to the programme. Students expressed that topics covered were more useful for building the personality and improved the knowledge on use of e-resources during pandemic situation

3. Short Certificate Course on “New Dimensions in ICTs and Knowledge Management in Agriculture”



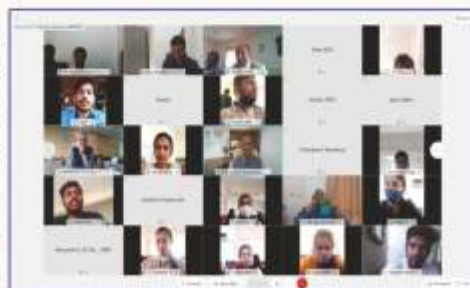
In the second phase, five- day short certificate course on e-Resources, e-Learning and IoT (New Dimensions in ICTs and Knowledge Management in Agriculture) was organised from 19th to 23th October, 2020 by MANAGE, Hyderabad. The training programme, imparted the applied aspects of ICTs to the trainees and provided an opportunity to acquire themselves with the latest ICTs based learning

skills in a comprehensive manner over a span of 5 days with enough scope for after-class exercises and thoughts.

Feedback: Students rated 4.76 scale for topics covered such as IoT Concepts and Architecture, IoT ecosystem and standards, open and online education resources and Expert Systems in Agriculture and Allied Sector.

4. Short Certificate Course on “e-resource, e-learning and IoT” for students (Virtual mode) by MANAGE, Hyderabad

A five- day short certificate course on e-resource, e-learning and IoT for 30 Students of UAS, Raichur was organized in collaboration with MANAGE, Hyderabad during 1st to 5th February, 2021. While inaugurating the course Dr. P. Chandra Shekara, Director General, MANAGE, Hyderabad advised students to gain knowledge on e-resource, e-learning IoT which might guide them



to keep firm step in their future endeavour. Dr. M. G. Patil, Director of Education graced the programme as Chief Guest and addressed students to acquire knowledge on e-resource and internet of things for improving ICT based learning skills. Dr. D. M. Chandargi PI of the project narrated the importance of e-resource in the present pandemic situation.

Feedback: Students realized the importance of e-resources after they underwent the session on developing e-resources for University – Experiences of TNAU AgriTech Portal and rated highest i.e. 4.62 out of 5 scale rating among other sessions covered during the training programme

5. Short Certificate Course on “e-resource, e-learning and IoT” for students by NAARM, Hyderabad



Second phase five- day short certificate course (component-II) on e-resource, e-learning and IoT for 30 students was organized during 15th to 19th February, 2021 in collaboration with NAARM, Hyderabad. Dr. M. G. Patil Director of education was the Chief Guest and addressed students that Internet of things play vital role in augmenting students’ knowledge. Dr. S. Senthil Vinayagam, Programme Coordinator, explained the IoT

and other soft skills to the trainee students. Dr. D. M. Chandargi PI of the project addressed the importance of e-resource for building competitive human resource at present pandemic situation. Feedback: Students rated 4.9 out of 5 scale rating on topic of E-Learning in terms of its usefulness, range of coverage of topic and teaching aids used during session and also students acquired the knowledge on the topic of overview of agricultural education and rated 4.81

6. Short Certificate Course on “e-Resources, e-Learning and IoT” (Component-I) for faculty by MANAGE, Hyderabad.

First phase short certificate course (component-I) was organized from 1st to 5th March, 2021 in collaboration with MANAGE, Hyderabad covering basics of e-resource, e-learning and internet of things (IoT) for 30 faculty of the University. Dr. M. G. Patil Director of Education was the Chief Guest and addressed the trainees. Dr. D. M. Chandargi



PI of the project addressed the importance of e-resource for building competitive human resource at present pandemic situation. The trainee faculty actively participated in course by interacting and also shared their feedback about the course.

Feedback: The trainee faculty shared their feedback that course content is informative and touched various topics which were currently useful for updating knowledge on e-resources and e-learning. Faculty rated 4.62 out of 5 scale rating for the topics of digital advisory service and Bhuvan – A platform for GIS and RS enabled e-resource.

7. Short Certificate Course on “e-resource, e-learning and IoT” (Component-II) for faculty by NAARM, Hyderabad



The second phase of short certificate course (component-II) was organized in collaboration with NAARM, Hyderabad covering applied aspects of e-resource, e-learning and internet of things (IoT) for 30 faculties of UAS, Raichur from 23rd to 27th March, 2021. The training programme was started with welcome address by Dr. G. R. K. Murthy and also briefed about training.

Dr. M. G. Patil, DoE, Raichur was the Chief Guest of programme and addressed the students about importance and scope of e-resources and internet of things.

Faculty expressed their feedback that topics selected for the training were good and all sessions were informative to know the new things of internet and also learned how to develop personal website. faculty rated 4.71 out of 5 scale rating for the topic on E-Learning session that was effective and acquired knowledge and skills to improve the e-learning to deal with students in online classes during pandemic time.

8. Personality Development Programme

Two-day training programme on ‘Personality Development’ was organized for UG students from 23rd to 24th February, 2021 at College of Agriculture, B’Gudi to develop personality of the students. The various soft skills like Goal Setting, Time Management, Listening and Communication skills, Presentation Skills, Team Work and Problem Solving/ Decision Making etc., were imparted to students. The programme was



inaugurated by Dr. Prakash Kuchanur, Prof. & Head, Dept of Genetics & Plant Breeding who narrated the importance of the training for building their personality comprehending time management, oral communication & also to build competence. The programme was conducted by Resource Person Smt. Radha (Smart Series, Bangalore) and Co-ordinated by Dr. Sangeetha B. Gayakawad, Asst. Librarian over 100 UG students underwent the training programme.

9. Training programme on Intellectual Property Rights

Three-day training programme on “Intellectual Property Rights” was jointly organized by University of Agricultural Sciences, Raichur, National Agricultural Higher Education Project (NAHEP) and Karnataka State Council for Science and Technology (KSCST), Bengaluru during 24-26 February, 2021 at UAS, Raichur. The training programme which was attended by more than 400 students followed by two days hands-on training programme for faculty of UAS Raichur. The training programme was inaugurated through online by Mr. Hemant Kumar, Executive Secretary, KSCST, Bengaluru which was presided over by Dr. M. G. Patil, Director of Education.



10 Online training on Leadership Development for women scientists

Two women faculty were deputed for two days training on “Leadership development for women scientists” organized by NAARM, Hyderabad during 8 to 10th March, 2021.

11. Entrepreneurship Development Programme at College of Agriculture, Kalaburagi



In order to create awareness on employment opportunities to students through self-reliance, five-day entrepreneurial development programme was organized at College of Agriculture, Kalaburagi in association with TECSOK, Bangalore from 22nd to 26th March, 2021. Dr. Suresh S. Patil, Dean (Agri), spoke to students about self-reliance in society and the use of organic

resources to promote the development of high-income food grains in agriculture. Dr. Anand Naik, President, Teachers Association of the University graced the occasion. Guest Dr. M. M. Dhanoji, ADR, Kalaburagi addressed the students. Dr. Sanjeev Sharma and Dr. Hasan Mulla of TECSOK imparted the entrepreneurial skills

Workshops

1. Upgrading Statistical analytics for Effective Agricultural Research

Five Day National Workshop (Online) on “Modern Methodologies in Statistical Data Analysis for Effective Agricultural Research” was held from 13th to 17th July, 2020 under ICAR- National Agricultural Higher Education Project at College of Agriculture, Raichur. The objective of the workshop was to provide an interactive platform for all practitioners of statistics to enhance their understanding on statistical techniques used for analyzing data from different



real-life experiments. Dr. R. B. Sharma, National Coordinator, inaugurating the workshop reiterated the importance of statistical tools and recent approaches available for interpretation of research data. Dr. K. N. Kattimani, Hon’ble Vice-Chancellor as the Chief Guest called upon the participants to be aware of recent advances in statistical tools & techniques. Further, Dr. D. M. Chandargi, Dean (Agri.) & PI highlighted

the importance of smart data analysis in his presidential remarks. Dr. Manoj Kumar G, Assistant Professor (Agril. Statistics) coordinated the workshop which was registered by more than 3000 scholars including more than 1000 women scholars across the states of the country.

Outcome of workshop

Sensitised 1250 teachers and research scholar’s virtually on data analysis using statistical tools and techniques with special focus on SPSS & R Packages and also improving the research skills of the agricultural researchers.

2. Workshop to hand hold FPOs and KVK Scientists

The workshop for CEOs, BODs, members of FPOs and KVK Scientists was conducted at ICAR-KVK, Raichur on 29th and 30th January, 2021 in collaboration with NAHEP, NABARD, SKBYM and MYRADA Raichur. While inuagurating the workshop Dr. K.N. Kattimani, Hon'ble Vice-Chancellor, emphasized on enhancing profitability of the farmers through active participation of farmers' producers



Dr. K. N. Kattimani, Hon'ble Vice-Chancellor addressing the participants

organizations. Dr. D.M Chandargi, Director of Extension, in his presidential speech applauded the commitment of KVKs for their role in backstopping with the new technologies. Dr. Narayanaraju, FPO consultant, stressed on need of Farmer Producer Organizations, their goals, good governance practices, transparency in financial transection, accountability and leadership development. Dr. G.M. Hiremath, Assistant Professor provided

marketing strategies on price forecasting followed by Mr. Hassan Mullah, FPO consultant, on corporate business management, legal system of FPOs and statutory and leadership development. Dr. Udaykumar Nidoni, Professor & Head, Processing and Food Engineering shared his ideas about the role of value addition. Dr. Mallikarjuna, Joint Director of Agriculture, Shri. Babu Rao Begganoor, Lead Bank Manager, SBI, Raichur, Smt. N. Kalawati, District Development Manager, NABARD Raichur, Shri Nagaraja Angadi, Programme Executive, SKBYM, Koodloru and MYRADA Organization shared their opinion. The office bearers of FPOs along with scientists of KVK and students participated and got trained.

3. Agri-Alumni Internetworking for Agri-preneurship to build Atmanirbhara Youth

Alumni Association, College of Agriculture, Raichur in association with Directorate of Extension and NAHEP Project organized "Global Raichur Agri-Alumni Internetworking- 2021 on connecting Alumni for Agri-preneurship to build Atmanirbhara Youth" Meet on 6th & 7th March, 2021 at Raichur. Nearly, 115 alumni-delegates working as researchers, industrialists, administrators, progressive farmers, government and private sector employees took part in the meet. Sri. B.S. Annigeri, Additional Principal Chief Conservator of Forest, Government of Madhya Pradesh, emphasized the importance of net working among alumni which benefits the students, farming community as well as University critically. Alumini who were Guests of honour, Dr. Sharanappa S. D, Commissioner of





Police (East Division), Bengaluru city and Sri. P. Veeramallappa, Additional Deputy Commissioner, Davanagere highlighted the importance of building a strong co-operation between the Alumni and present students in enhancing the knowledge base. Sri. Kotrappa B. Korner, Hon'ble member, BoM, advised the students to be ready for the challenges and to utilise opportunities ahead in the agriculture

field. Sri. Mahanteshgowda Patil, Hon'ble member BoM Raichur narrated opportunities for agricultural students in private sectors including seed production industries. Sri. Shridhar Kesarhatti, Hon'ble member BoM emphasized the need for constructive thoughts in the minds of outgoing agriculture students. Sri. Sunilkumar Verma, Hon'ble member BoM & Alumnus of CoA, highlighted on importance of Alumni Association in helping the present students of the University. Dr. K.N. Kattimani, Hon'ble Vice-Chancellor in his presidential remarks advised the Alumni of the Agricultural College, Raichur to sustain strong professional bonding for over-all development of University at national as well as international level. Dr. M. G. Patil, Director of Education, Dr. D.M.Chandargi, Director of Extension and PI NAHEP-IG and Dr. M.Bheemanna, Dean (Agri.), AC,, Raichur graced the occasion. Dr. Gururaj Sunkad, Associate Director of Research and President, Alumni Association welcomed the guests and delegates and the programme was concluded with vote of thanks by the Dr. Pampanna Y., General Secretary of the Alumni Association.

Outcome of workshop

Built a strong linkage between the Alumni and present students of the University for Overall Development of University and future of students.

4. Sensitization workshop on Agripreneurship and startups

Alumni Association, College of Agriculture, Raichur in association with Directorate of Extension, under NAHEP Project, organized Sensitization workshop on "Agripreneurship and Startups for Experiential Learning" students as part of Experiential Learning Programme on 8th March 2021 at UASR. The Chief Guest Dr. R.B. Sharma, National Coordinator, NAHEP, ICAR, New Delhi highlighted the importance of Agripreneurship and Startups for agricultural graduates. Further, he stressed the students to prepare themselves to develop professional skills to start their own business activities under current agriculture scenario. Dr. D.M.Chandargi, Director of Extension and PI NAHEP-IG, narrated the importance of the project and advised the students to develop skills to start their own enterprise for their better future in agriculture sector. Dr. M.G. Patil, Director of Education





in his presidential remarks explained how students can shape up their future by putting hard work, dedication and commitment. The programme was graced by Dr. Satyanarayanrao, Dean (PGS) and Dr. M. Bheemanna, Dean (Agri.), College of Agriculture, Raichur. Dr. Gururaj Sunkad, ADR, Raichur and President, Alumni Association, welcomed the guests and delegates and the programme was concluded with vote of thanks by

the Dr. Pampanna Y. General Secretary, Nearly 210 final year B.Sc. (Agri.) students participated in the workshop.

National conference

National Conference for harnessing e-Resources for Smart Agriculture

Two days National Conference (physical/virtual) on “ICT Based e-Resources for Smart Agriculture–A Journey towards Atmanirbhar Bharat Post COVID-19 Pandemic Situation” was organized at UAS Raichur on 16th & 17th March 2021. There were 184 members (Delegates, Students & Faculty) participated physically & 50 members participated virtually. Dr. R. C. Agrawal, DDG (Education) and National Director (NAHEP), New



Presidential remarks from Dr. K. N. Kattimani, Hon'ble Vice-Chancellor

Delhi delivered inaugural address (virtually) & expressed that agriculture has a significant role in making Atmanirbhar Bharat. The current focus is on promoting 'Vocal for Local with Global outreach' with the objectives of facilitating better and profitable prices for farmers. This can be achieved through working capital facilities for farmers; enhanced procurement activities; strengthened infrastructure, logistics, and capacity building; governance and

administrative reforms such as amendments to the essential commodities act, agriculture marketing reforms, quality standardization and price assurance and additional support to allied activities. The Conference was presided by Dr. K. N. Kattimani, Hon'ble Vice-Chancellor and he highlighted the project activities that facilitated in elevating educational standards in agriculture. It will definitely serve as a platform wherein scholars across the country will share their experiences and views towards relevance of agricultural education powered by hitech information and data system. Chief Guest Dr. K. Narayana Gowda, Former Vice-Chancellor, UAS, Bangalore appreciated the Conference for focusing to achieve quality and to prepare faculty



Chief Guest address by Dr. K. Narayana Gowda, Former Vice-Chancellor



Dr. D. M. Chandargi, Director of Extension and PI briefing the objective of the conference

and students of SAUs in fulfilling Atmanirbhar idea of Hon'ble PM through such conferences. Dr. R.B. Sharma, National Coordinator, NAHEP addressed the conference and opined that ICT has made significant strides and has immensely contributed to transform farming into a more exciting and profitable enterprise. In this Covid-19 situation, it is imperative to integrate the ICTs with agriculture

education, research and extension Dr. S.K. Meti, Former Vice-Chancellor, UAS, Raichur. Hon'ble Members, Board of Management, Shri. Kotrappa B. Korner, Shri. Trivikram Joshi, Shri. Shridhar Kesarhatti, Shri. Mahantesh Gouda B. Patil, Shri. Sunilkumar Verma and Dignitaries graced the occasion. Dr. D. M. Chandargi, Director of Extension and PI of the project welcomed the august gathering and briefed about the objectives of the conference. the two days deliberations paved way for coming out with practical recommendations

Glimpse of National Conference

There were totally 151 abstracts of which 39 were oral and 122 were poster presentations. There were 12 lead speakers presentations under five themes. Two day deliberations under the themes came out with following recommendations.

1. A practical strategy is the need of the hour for convergence and vertical integration of public, private and corporate sector on PPP mode for creating a robust ICT infrastructure in rural areas for building smart villages with IT facilities to bridge the digital divide.
2. Establishment of ICT based village advisory services with RSK as main hub by inter-connectivity among KVKs, AECCs, input service agencies and gram panchayats.
3. There is need for Paradigm shift to digital farming with IoTs, ML technologies leading to smart agriculture to make Atmanirbhar Farmer.
4. Reorienting IFS model with precision farming, use of drones for plant protection, smart greenhouses etc.
5. Empowering progressive farmers through training and education in handling expert systems for quick and effective decision in production, protection and marketing activities.
6. Providing market intelligence services through ICT mode by inter-connecting global to local markets with IoTs.
7. A robust ICT policy framework at state and central government level for ICT based service and a solution in smart agriculture is the need of the hour.
8. Agro climatic zone based ICT applications related weather forecasting, crop price prediction etc to provide timely information to farmers.
9. Revision of curriculum for agriculture and allied sectors especially under graduate education with ICT enabled courses and designing e-course content to supplement the conventional teaching methodology.
10. Establishment of ICT training centre for capacity building of faculty, extension workers of development departments for handling ICT tools for effective teaching and extension services.

11. Bringing Indian Agriculture ecosystem under AMIS with IoT, AI and ML technologies for e-agriculture.
12. Networking of homogenous group of farmers for cross exchange of ideas, views on good agriculture practices through social media.
13. Establishment of community radio station at hobli level, encouraging separate agriculture TV channel in local language with regional content.
14. Encouraging youths for establishment of e-agri clinics and agri startup units for soil health management, crop protection and marketing advisory services.

Students' Exposure visits

College of Agriculture, Bheemarayanagudi

Department of Agronomy, CoA, B'Gudi organized students' educational study tour for final year B.Sc. (Hons.) Agri students on 21st & 22nd February, 2021 visited the organic field of Sri Dareppa Kittur, Terdal village in Bagalkot district, Nirani Sugars Limited, Mudhol, College of Agriculture, Vijayapura, Rico Winery, Kannal etc., and gained the knowledge on organic farming practices followed by progressive farmers



College of Agriculture, Kalaburagi



As a part of ELP, exposure visit was organized by Department of Horticulture, College of Agriculture, Kalaburagi for the final year B.Sc.(Hons.) Agri students from 24th to 26th February, 2021 under NAHEP-IG project. Forty three boys and 22 girls visited Syngenta India Limited, Ranebennur, Hybrid Seed Production Plots at Ranebennur and Byadgi, Dry Chilli Cold Storage Unit, Byadgi, Shrey Lab

Solution, Hubli, Rico WineryKannal, Vijayapura and Progressive Farmers' Field at Mulawad

College of Agricultural Engineering, Raichur

As part of ELP programme, CoA, Raichur organized exposure visit with the support of NAHEP-IG project for final year B.Sc. (Agri.) students on 27th January 2021 to acquire knowledge on raising seedling of tomato, chilli and cauliflower in progressive farmers' fields and also Visited to Krishi Seeds industry Farm, Koppal and Proprietor, our Hon'ble Member of Board of Management of the University Sri Mahanteshagouda



B. Patil explained about GOT test in watermelon, different tomato hybrids evaluation.

Abstract of Human Capacity Building Activities – 2020-21

Sl. No.	Name of the activity	CoA & CAE, Raichur		IG centre –I CoA, Kalaburagi		IG Centre – II CoA, B’Gudi		Others ARS/KVK
		Students	Faculty	Students	Faculty	Students	Faculty	Scientist
A. Trainings / Short Certificate Courses								
1	10 days Online Short Certificate Course for faculty on “E-Resources, E-Learning and IoT” Component-I & II conducted in virtual mode by NAARM (24-28 August, 2020) & MANAGE (31-August - 4 September, 2020), Hyderabad	-	17 & 2	-	06	-	05	
2	10 days Online Short Certificate Course for students on “E-Resources, E-Learning and IoT” Component-I & II conducted in virtual mode by NAARM (05 - 09 October 2020) & MANAGE (19 - 23 October, 2020), Hyderabad	10	-	15	-	10	-	
3	10 days Online Short Certificate Course for students on “E-Resources, E-Learning and IoT” Component-I & II conducted in virtual mode by MANAGE (01–05 February, 2021) & NAARM (15–19 February, 2021) Hyderabad			15		15		
4	10 days Online Short Certificate Course for Faculty on “E-Resources, E-Learning and IoT” Component-I & II conducted in virtual mode by MANAGE (01–05 March, 2021) & NAARM (23–27 March, 2021) Hyderabad	-	11 & 3	-	02	-	06	08
5	Personality Development Training Programme at College of Agriculture, B’Gudi by smart series bengaluru, during 23-24 February, 2021	-	-	-	-	104	-	-
6.	Training on Intellectual Property Rights by Karnataka State Council for Science and Technology (KSCST), Bengaluru during 24-26 th February 2021 at UAS, Raichur	123	72	-	-	-	-	-
7.	Leadership Development for Women Scientists (Online) during 08–10 March, 2021 by NAARM, Hyderabad	-	02	-	-	-	-	-
8.	Short Certificate Training Course on “Entrepreneurship Development Programme for Experiential Learning Students” by TECSOK, Bangalore during 22-26 March, 2021	-	-	-	-	67	-	-
B. Short Visits / Exposure Visits								
1	Exposure Visit to Seed Industry & Nursery, Koppal by Students of CoA, Raichur on 27 th January, 2021	48	-	-	-	-	-	-

2	Exposure Visit to Seed Production and Processing Units of Syngenta India Pvt. Ltd., Ranibennur for Students of CoA, Kalaburgi from 24- 26 February, 2021	-	-	-	-	64	-	-
3	Exposure Visit to Terdal, Mudhol, CoA, Vijayapura, Rico Winery, Kannal by Students of CoA, B'Gudi	-	-	44	-	-	-	-
C. Workshops								
1.	Modern Methodologies in Statistical Data Analysis for Effective Agricultural Research by Dept. Agricultural Economics CoA, Raichur from 13-17 July, 2020	1150 (participants across India including 250 faculty)						
2.	Workshop on Farmer Producer Organization by ICAR-KVK, UAS, Raichur during 29-30 January, 2021	57						
3.	Workshop on (GRAIN-2021) Global Raichur Agri-Alumni Internetworking on Connecting Alumni for Agri-preneurship to build Atmanirbhara Youth on 07 th March, 2021	180 (Alumini participants of UAS, Raichur)						
4.	Sensitization Workshop on Agripreneurship and startups for Experiential Learning Students of UAS, Raichur on 08 th March, 2021	170	20	-	-	-	-	-
D. National conference								
Organized National Conference (physical/virtual) on “ICT Based e-Resources for Smart Agriculture – A Journey towards Atmanirbhar Bharat Post COVID-19 Pandemic Situation” during 16-17 March, 2021		184 physically & 50 virtually						
E. Webinars /Seminars								
1.	Biodiversity Conservation for Sustainable Future on 15 th June, 2020	130						
2.	Recent Ordinances Promulgated by Government of Karnataka & Government of India Pertaining to Agricultural Marketing on 15 th June, 2020	114						
3.	Career Opportunities in Agriculture and Allied Sectors on 6 th July, 2020	180						
4.	THINK, CREATE AND ACT as “Agri-preneurs” on 9 th July, 2020	60						
5.	Knowledge Management in Agricultural University Libraries: Emerging Trends	75						
6.	Academic Integrity in Agricultural Research Writings on 29 th July, 2020	1589						
7.	Physical Fitness, Yoga Practices and Balanced Diet Prescription for Physical and Mental Strength during Covid-19 Pandemic on 21 th January, 2021	245						

V. Website Launching & ESP/ General Activities

1. World Environment Day

Dr. K. N. Kattimani, Hon'ble Vice-Chancellor, UAS, Raichur was chief guest in world environment day programme along with Hon'ble BoM Sri. Kotrappa B. Koror and Thrivikram Joshi. All the guests graced the occasion by planting seedlings in front of library building. Further, programme was also graced by the presence of University officers namely Dr. M. G. Patil, Registrar, Dr. D. M. Chandargi, Dean (Agri.) & PI, NAHEP-IG, Dr. M. Veerangouda, Dean (Ag.Engg), Dr. A. S. Halepyati University Librarian and Dr. J. Ashoka, Comptroller and teaching and non-teaching faculty of the college who actively participated & planted saplings in the event.

2. Green Graduation Programme

Green Graduation programme, the brain child of Dr. K. N. Kattimani, Hon'ble Vice-Chancellor, has been continued under the leadership of Dr. D. M. Chandargi, Dean (Agri.) AC, Raichur using platform of NAHEP (IG) project. On 15th July, 2020, the programme was inaugurated by Dr. K. N. Kattimani, Hon'ble Vice-Chancellor, through planting the saplings who was accompanied by all the Officers of the University, teaching and non-teaching faculty of the Agriculture college. Dr. Ashok Hugar, Professor (Horticulture) welcomed the guests and Dr. Kapil Patil facilitated the programme.



3. Launching of NAHEP and University Library website

Dr. R.C. Agrawal, DDG (Agril. Edu.) and National Director (NAHEP), New Delhi launched the 'University Library Website' for showcasing about project activities and digital library for students and faculty for easy access to e-resource, respectively on 9th January, 2021.



VI. Success stories and outcomes of the project

1. Organic Bharat - Innovative agribusiness venture

Organic Bharat - Innovative agribusiness venture initiated by Mr. Sury C. H. B.Sc. (Agri.) Graduate of 2016-20 batch Motivated by trainings, guest lecture and exposure visits under NAHEP Project, he started his own innovative agribusiness of Organic Bharat and is unique organic and swadeshi store in Gangavathi, Koppal area of Karnataka. Organic Bharat Store provides organic groceries, organic vegetables, organic fruits, organic cosmetics, ayurvedic products, quality pooja products, cow-based products, and so on up to 960 varieties of products at one step currently. He studied the market, analyzed it, understood the potential of organic market during EL programme and then took the risk of producing 500kg of chemical free jaggery (value added with ghee and cardamom). He made it, marketed it and running successfully since a year. In his confident words he says that “I am diversifying business by including fruits and vegetables. I am grateful to ICAR-NAHEP project for instilling confidence in taking up this venture”.



2. Grabit – An Innovative rabbit and poultry farming enterprise



As post-graduate student Mr. Mohan from UAS, Raichur who dreamt of becoming entrepreneur and got realised that came true after attending entrepreneurship training programmes under NAHEP project. His enterprising mind looked for less explored agribusiness opportunities. Then he thought of rabbit farming but challenges were many with his innovative approach established a unit at Karnataka-Telangana boarder. His innovative ideas reduced mortality to <20% and designed a water channel system with nipples that increased water consumption and contributed to higher growth. Combination of rabbit and poultry has ensured weekly income upto Rs. 20,000. he has planned to help small scale rabbit rearers in Raichur district for whom he is already supplying rabbit bunnies age. He has planned to register his farm as Grabit rearing unit.

3. High NAAS rated publications by faculty

After introduction of sigma plot software and Turnitin plagiarism software, our scientist got motivated & took interest in publications. Dr. Harischandra Naik published paper on “Method Development and Validation for Determination of Indoxacarb Using LC-ESI-MS/MS and Its Dissipation Kinetics in Pigeonpea” in International Journal of Food Analytical Methods (NAAS rating – 8.67).



**Publications of Research articles by Faculty of UAS, Raichur
(6 & above NAAS ratings) during the year 2019-20**

SL.N o.	Particulars	NAAS Rating
1	Pramesh, D., Prasannakumar, M. K., Buella, P. P., Yadava, M. K., Chidanandappa, E., Pushpa, H. D., Saddamhusen, A, Kiranakumara, M, Sharanabasava, H and Manjunath C 2019. First report of ' <i>Candidatus</i> Phytoplasma aurantifolia' associated with phyllody disease of snake weed in India. <i>Plant Disease</i> , 104 (1), 277.	9.58
2	Yadav, M. K., Aravindan. S., Ngangkham. U., Raghu, S., Prabhukarthikeyan, S. R., Keerthana, U., Marndi, B. C., Totan Adak, Susmita Munda, Rupesh Deshmukh, Pramesh D., Sanghamitra Samantaray, Rath, P. C. 2019. Blast resistance in Indian rice landraces: Genetic dissection by gene specific markers. <i>PLoS ONE</i> 14(1): e0211061	8.78
3	Kharat, Swapnil, Medina-Meza, Ilce G., Kowalski, Ryan J., Hosamani, Arunkumar, Ramachandra, C.T., Hiregoudar, Sharanagouda, Ganjyal, Girish, M. 2019. Extrusion processing characteristics of whole grain flours of select major millets. <i>Food and Bioproducts Processing</i> . 114(1): 60-71.	8.74
4	Naik, H. R., Pallavi, M. S., Chawan, R., Bheemanna M, Anand Naik, Paramasivam, M. Method Development and Validation for Determination of Indoxacarb Using LC-ESI-MS/MS and Its Dissipation Kinetics in Pigeonpea. <i>Food Anal. Methods</i> , 2019, 13, 647–657.	8.25
5	Supreetha, K., Saroja Narsing Rao, Srividya, D., Anil H, Shyam Mohan Kiran, S. 2019. Advances in cloning, structural and bioremediation aspects of nitrile hydratases. <i>Molecular Biology Reports</i> . Vol:46: 4661–4673.	8.11
6	Mannur, D. M., Anita Babbar, Mahendar Thudi, Murali Mohan Sabbavarapu, Manish Roorkiwal, Sharanabasappa, B. Yeri, Vijay Prakash Bansal, S. K., Jayalakshmi, Shailendra Singh Yadav, Abhishek Rathore, Siva K. Chamarthi, Bingi P. Mallikarjuna, Pooran M. Gaur, Rajeev K., Varshney 2019. Super Annigeri 1 and improved JG 74: Two Fusarium wilt-resistant introgression lines developed using marker-assisted backcrossing approach in chickpea (<i>Cicer arietinum</i> L.) <i>Mol. Breed.</i> 39(1): 2	8.08
8	Nayak, C. M., Ramachandra, C. T., Nidoni, U., Sharanagouda Hiregoudar, Jagjivan Ram and Nagraj Naik. 2019. Physico-chemical composition, minerals, vitamins, amino acids, fatty acid profile and sensory evaluation of donkey milk from Indian small grey breed. <i>Int J Food Sci Tech</i> Vol. 57(8): 2967-2974.	7.85
9	Doddabasawa, Chittapur, B. M. and Mahadeva Murthy, M. 2020. Comparison of carbon footprint of traditional agroforestry systems under rainfed and irrigated ecosystem. <i>Agroforestry systems</i> , <i>Agroforestry Systems</i> Vol. 94: 465–475	7.79
10	Varsha Kumari, Gowda, M. V. C. and Yeri, S. B. 2020. Utilization of advanced backcross population derived from synthetic amphidiploid for dissecting resistance to late leaf spot in peanut (<i>Arachis hypogaea</i> L.), <i>Tropical Plant Biology</i> . Vol.12(1): 50-61	7.69
11	Yadav, M. K., Aravindan, S., Raghu, S., Prabhukarthikeyan, S. R., Keerthana, U, Ngangkham, U., Pramesh, D., Banerjee, A., Adak, T., Kar, M. K., Parameswaran, C., Deshmukh, R., Tiwari, J. K., Mohanty, M. R., Rath, P. C., Assessment of genetic diversity and population structure of Magnaportheorzyae causing rice blast disease using SSR markers. <i>Physiological and Molecular Plant Pathology</i> , 106: 157–165	7.68
12	Saroja Narsing Rao, Anil, H., Shyam Mohan, Srividya, D and Supreetha K 2019. Chaperone-assisted expression and purification of putrescine monooxygenase from <i>Shewanella putrefaciens</i> -95, <i>Protein Expression and Purification</i> 157: 9-16.	7.56
13	Karegoudar, A.V., Vishwanath, J., Anand, S. R., Rajkumar, R. H., Ambast S. Kand Kaledhonkar, M. J. 2019. Feasibility of controlled drainage in saline vertisols of TBP Command area of Karnataka, India. <i>Irrigation and Drainage</i> . 68: 969-978.	7.03
14	Yadav, M. K., Aravindan, S., Ngangkham, U., Prabhukarthikeyan, S. R., Keerthana, U., Raghu S., Pramesh, D., Banerjee, A., Roy, S., Sanghamitra, P. T., Adak, Priyadarshinee, P., Jena, M., Kar M. K. and Rath. P. C 2019. Candidate screening of blast resistance donors for rice breeding. <i>Journal of Genetics</i> , 98:73.	6.83
15	Anandakumar, A. R., Senthil Kumar, Ravindra Kale, B., Maheshwara Babu, U., Sathishkumar, Srinivasa Reddy, G. V. and Prasad S. Kulkarni. 2019. A hybrid-wavelet artificial neural network model for monthly water table depth prediction, <i>Curr. Sci</i> 117(9): 1475-1481.	6.76

Sl.No.	Particulars	NAAS Rating
16	Karegoudar, A. V., Vishwanath, J., Anand, S. R., Rajkumar, R. H., Ambast S. K. and Kaledhonkar, M. J. 2019. Feasibility of controlled drainage in saline vertisols of TBP command area of Karnataka, India. <i>Irrig. Drain.</i> 68 (5), 969-978.	6.71
17	Yadav, M. K., Aravindan, S., Ngangkham, U., Prabhu karthikeyan, S. R., Keerthana, U., Raghu, S., Pramesh, D., Banerjee, A, Roy, S., Sanghamitra, P., Adak, T., Priyadarshinee, P., Jena, M., Kar, M. K. and Rath, P. C. 2019. Candidate screening of blast resistance donors for rice breeding. <i>J. Genet.</i> 98:73.	6.70
18	Rajkumar, R. H., Dandekar, A. T., Anand, S. R., Vishwanath, J., Karegoudar, A.V. and Kuchnur, P. H. 2019. Effect of resource conservation technologies (RCT's) on yield and water productivity of wheat (<i>Triticum aestivum</i> L.) under Vertisols of Tungabhadra Project Command area of Karnataka. <i>J. Agric Meteorol.</i> 21(1):93-96.	6.64
19	Vanishree, S., Geeta Mahale, Jyoti Vastradand Babalad, H.B. 2019. Extraction of sunhemp fibre and its properties. <i>Indian J. Fibre Text Res.</i> , 44(2): 188-192.	6.37
20	Bheemaraya, Rachappa, V., Raju Teggelli, Suhas Yelshettyand, Amaresh Y. S., Biological activity of pod borer, <i>Helicoverpa armigera</i> (Hubner) influenced by chickpea genotypes, <i>Legum. Res.</i> 42 (3) 2019: 421-425.	6.34
21	Abhishek, S. R., Doddagoudar, Basavegowda, Shakuntala, N. M., Meena, M. K.2020. Mitigation of Moisture Stress through Foliar Spray of Thiourea, Salicylic Acid and Homobrassinolide in Chickpea (<i>Cicer Arietinum</i> L.), <i>Legum. Res.</i> , LR-4206.	6.34
22	Doddabasawa, Chittapur, B. M. and Mahadeva Murthy, M. 2020. On-farm evaluation of pigeonpea (<i>Cajanus cajan</i> L. Millsp.) –neem (<i>Azadirachta indica</i> A. Juss.) agroforestry systems in the Deccan Plateau. <i>Legum. Res.</i> 43(1): 87-92.	6.34
23	Muniswamy, S., Praveen Kumar, Prakash Kuchanur, Yogesh, L. N., Annaray, T., Sidramappa and Sunil Kulkarni 2019. Stability for grain yield using AMMI Bi Plot and disease reaction studies in Pigeonpea [<i>Cajanus cajan</i> (L.) Millsp.] <i>Legum. Res.</i> 10.105/LR-4259.	6.34
24	Vanishree, H., Anand, N., Chittapur, B. M., Umesh, M. R. and Bhat, S. N. 2019. Standardization of fertigation technology for transplanted pigeonpea [<i>Cajanus cajan</i> (L.) Millsp.]. <i>Legum. Res</i> Vol. 42(2): 243-246.	6.23
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V. Financial Progress Report

Project Receipts and Payments for the Period 2020-21 (in Rupees)

S. No.	Head of Account	Sanctioned Budget 2020-21	Opening Balance as on 01.04.2020	Grant Received during the year 2020-21	Total Available Funds	Expenditure During year (Cash Basis) 2020-21	Closing Balance as on 31.03.2021
1	2	3	4	5	(4+5)=6	7	(6-7-8-9)=10
A	Goods & Equipment						-
1	Equipment, Plant & Machinery	0	0	0	0	0	0
2	Office Equipment	50000	0	50000	50000	49989	11
3	Laboratory Equipment	0	0	0	0	0	0
4	Furniture & Fixtures	50000	2839	50000	52839	46138	6701
5	Computers & peripherals (Hardware & Software)	9200000	0	9200000	9200000	8979422	220578
6	Books & Journals	0	-	-	0	-	0
	Sub Total (A)	9,300,000.00	2,839.00	9,300,000.00	9,302,839.00	9,075,549.00	227,290.00
B	Civil Works						
7	Minor repairs & renovation works	0	27,520.00	-	27520	-	27,520.00
	Sub Total (B)	0	27,520.00	0	27520	0	27520
	Capital Expenditure Sub-total (A+B)	9300000	30,359.00	9,300,000.00	9,330,359.00	9,075,549.00	254,810.00
C	Human Capacity Building						
8	National Training	1200000	290,425.00	1,200,000.00	1490425	826,186.00	664239
9	International Training	0	588,480.00	-	588480	-	588480
10	Short Visits/ Seminars	3650000	309,182.00	3,650,000.00	3959182	1,825,867.00	2133315
11	Meetings & Workshops	200000	111,622.00	200,000.00	311622	132,012.00	179610
	Sub Total (C)	5050000	1299709	5050000	6349709	2784065	3565644
D	Consultancy						
12	National Level Consultancies	0	-	-	0	-	0
	Sub Total (D)	0	0	0	0	0	0
E	Recurrent Cost						
13	Travel expenses	200000	16,607.00	200,000.00	216607	40,818.00	175789
14	Contractual Services (RA/SRF/ System Analyst /Programmer)	3960000	926,513.00	3,960,000.00	4886513	3,452,159.00	1434354
15	Operational Costs	5600000	83,662.00	5,600,000.00	5683662	5,574,718.00	108944
16	Institutional Charges	791000	-	791,000.00	791000	678,827.00	112173
	Sub Total (E)	10551000	1026782	10551000	11577782	9746522	1831260
	Revenue Expenditure Sub-total (C+D+E)	15601000	2,326,491.00	15,601,000.00	17,927,491.00	12,530,587.00	5,396,904.00
	Grand Total (A+B+C+D+E)	24901000	2356850	24901000	27,257,850.00	21606136	5651714