NAHEP-CAAST-VNMKV-DFSRDA

Smart Portable Machinery (SPM)

Annual Report 2020-21

CENTRE OF EXCELLANCE FOR DIGITAL FAMING SOLUTIONS FOR ENHANCING PRODUCTIVITY BY ROBOTS, DRONES AND AGV$_S$

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INTRODUCTION

National Agricultural Higher Education Project (NAHEP)

NAHEP is designed to strengthen the national agricultural education system in India with overall objective to provide more relevant and high quality education to agricultural university students. This programme has been promoting efficiency and competiveness through changes in working mechanism of agricultural universities, raising the teaching and research standards through improved research and teaching infrastructure and enhanced faculty competency.

Centre for Advanced Agricultural Science and Technology (CAAST)

These centers are multidisciplinary and interdisciplinary in nature for teaching, research and extension on critical and emerging issues of agriculture. The key provision under CAAST include research and teaching equipment, Faculty and Scientist Development Fellowship, Post-graduation student Scholarships and cost associated with twining arrangements with similar centers both nationally and internationally. The emphasis is on participation of industries in these centers for skill development for enhanced employer ability and entrepreneurship.

Vasantrao Naik Marathwada Krishi Vidyapeeth (VNMKV)

VNMKV Parbhani is one of the four Agricultural Universities in the State of Maharashtra. It was established on May 18, 1972 to fulfil the regional aspirations of agrarian growth. It is entrusted with the responsibilities to provide education to students in agriculture and allied fields, undertake research and facilitate technology transfer in Marathwada region of Maharashtra. The University is well known for its innovative research in sorghum, pigeon pea, soybean, sunflower, safflower, cotton which are the strength of the University. Highly accepted and commercial GM BT cotton variety i.e. NHH-44 and virus resistant variety (Parbhani Kranti) of ladies finger are developed by this University.

Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs (DFSRDA)

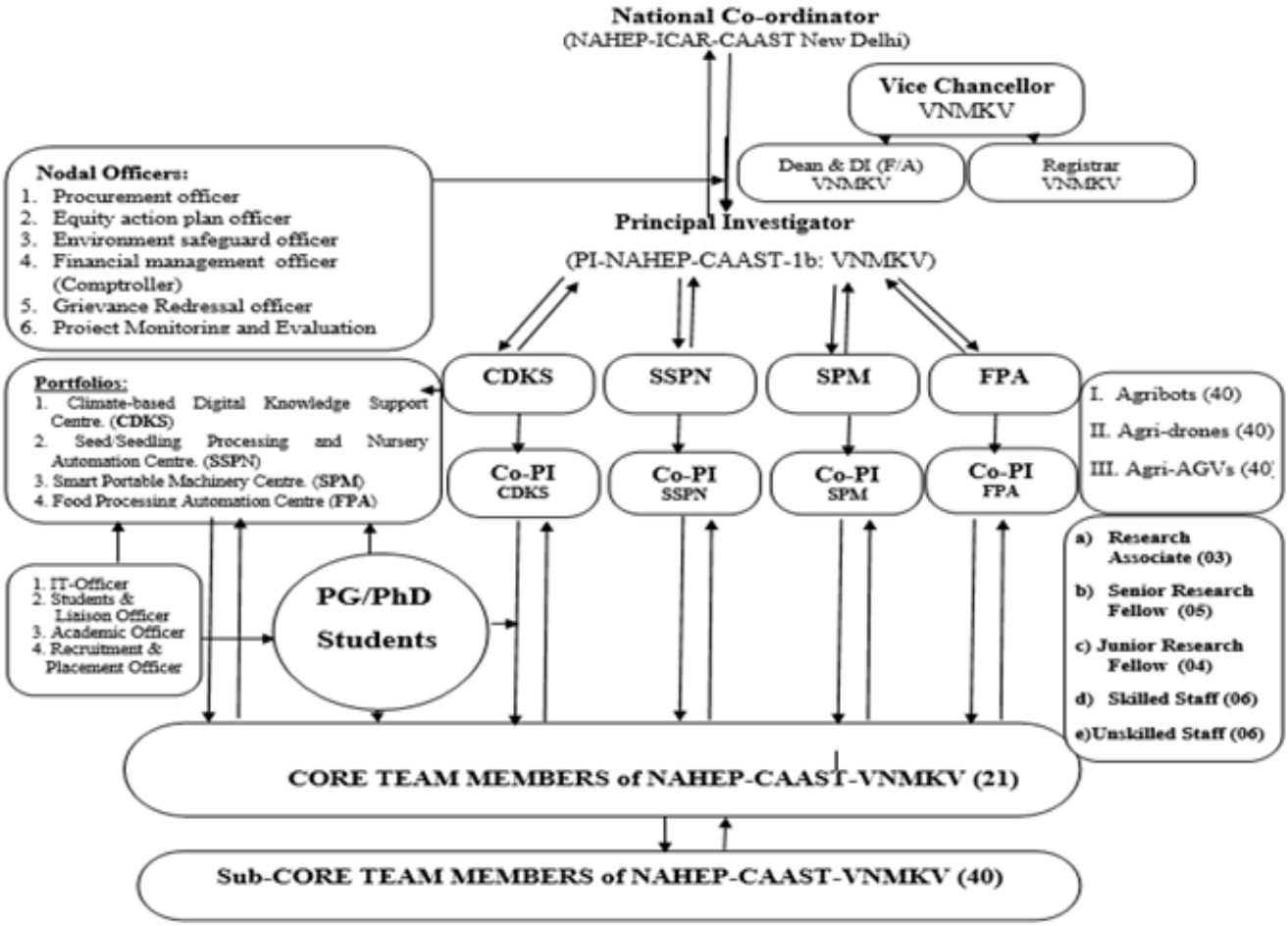
The Center for Advanced Agricultural Science and Technology for Digital Faming Solutions for Enhancing Productivity by Robots, Drones and AGVs (CAAST) is sanctioned to and implemented at Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani by education division of Indian Council of Agricultural Research and National Agricultural Higher Education Programme (F. No. NAHEP/CAAST/2019-20 dated 12 July 2019). The main purpose of this project is to promote digital farming such as Agri-Bots, Agri-Drones and Agri-AGVs amongst PG/ Ph.D. Students, Faculty, Farmers as well as the Entrepreneurs.

The specific objectives of this CAAST-DFSRDA project are mentioned below:

1. Establishment an advanced basic engineering hardware and software setup such as Mechatronics, CAD/CAM/CAE, 3-D printers and Instrumentation laboratories for Agri-Bots, Agri-Drones and Agri-AGVs.

2. Strengthen the present PG and Ph.D. courses in all disciplines by offering three elective course works such as Robotics, Drones or AGVs and also the certificate courses.
3. Development of case studies/ project of Agri-Bots, Agri-Drones, Agri-AGVs applications in agriculture.
4. Enhancement the skills of faculty and PG students of VNMKV by academic and thematic research.
5. Establishment of university and industry interface for students and faculty at national and international level.

The organizational structure of NAHEP-CAAST-DFSRDA at VNMKV Parbhani



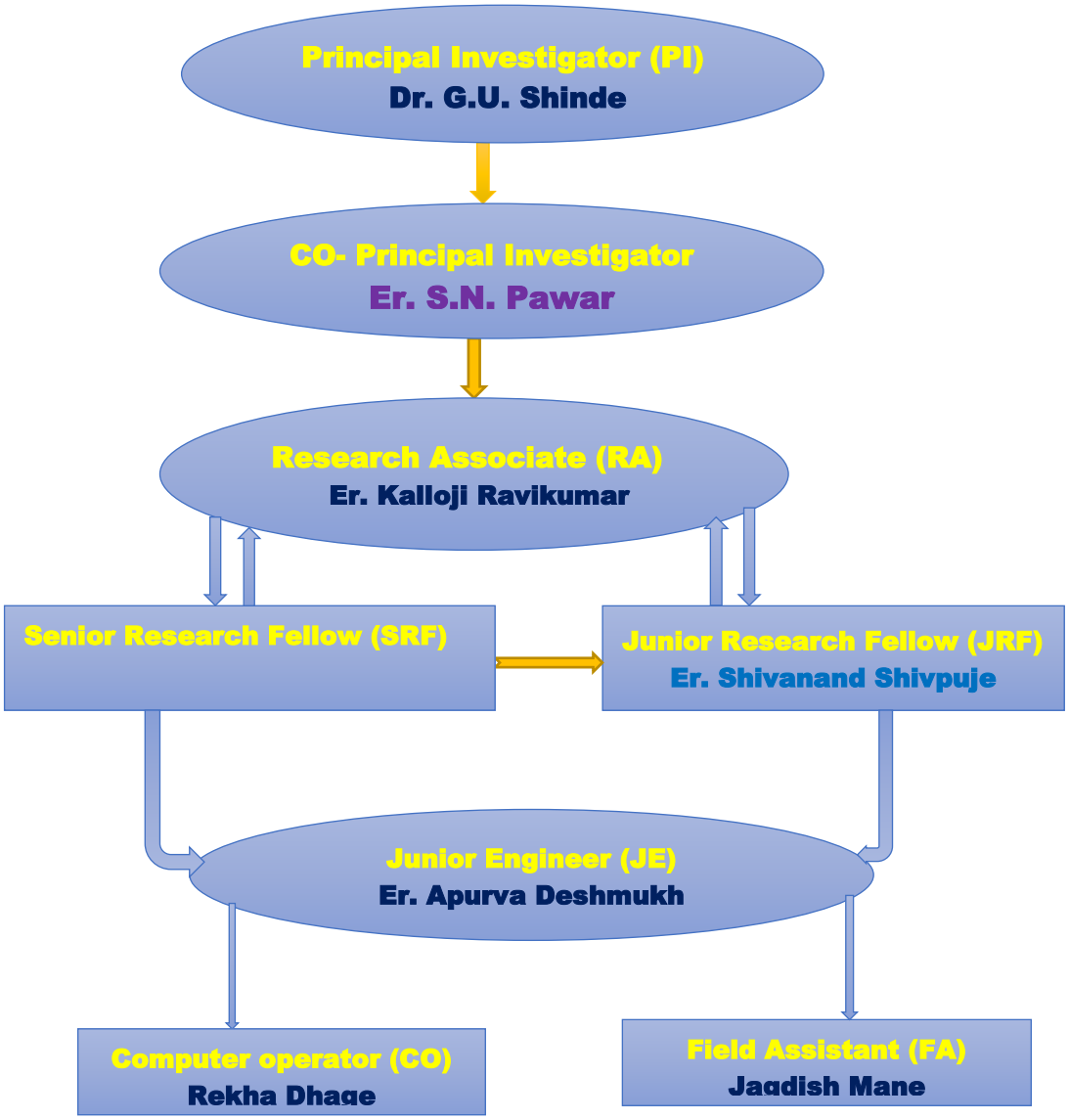
The NAHEP-CAAST-DFSRDA VNMKV, Parbhani center is integrating three interdisciplinary divisions of Agri-Bots, Agri-Drones and Agri-AGVs for their applications in four portfolios.

1. **Climate Based Digital Knowledge Support Centre (CDKS)**
2. **Seed/ Seedling Processing and Nursery Automation Centre (SSPN)**
3. **Smart Portable Machinery Centre (SPM)**
4. **Food Processing Automation Centre (FPA)**

2. Smart Portable Machinery center (SPM)

Smart farming is the integration of existing farming practices with advanced technologies. Similarly, smart portable machines are the devices/ tools embedded with advanced computing / information technologies such as artificial intelligence (AI), machine learning or deep learning, all of which it uses to reason, problem solve, make decisions and even ultimately take actions. Most of the current and impending agricultural technologies fall into three categories that are expected to become the pillars of the smart farm i.e. autonomous robots, drones, sensors and the Internet of Things (IoT). Agricultural operations are exceptionally labour intensive with repetitive and standardized tasks which are an opportunities for automation and robotics. This new wave of smart equipment will make it possible to produce higher quality food with less manpower.

The organizational structure of Smart Portable Machines (SPM)



Objectives of SPM (Smart Portable Machines)

1. Development of advanced laboratories for Designing & developing Agri-Bots, Agri-Drones, Agri-AGVs and smart portable farm machinery.
2. Development the capacity amongst the faculties/scientist/PG-Ph.D. students/ rural entrepreneurs for the development and adoption of the mechatronics devices and precision agricultural machinery.
3. Development of different mobile applications, software programs, Decision support systems etc. on digital farming for effective dissemination of advanced farming technologies among different stake holders.
4. To conduct high end capacity research and technologies for integration of advanced engineering & technologies into existing farming practices for increasing production efficiency.
5. Organization National/ International seminars, conferences/exhibitions/ stakeholder interface meetings for upscaling students and faculty research approach.

Elective courses under Agri-AGVs

1. Digital farming solutions for smart farming practices.
2. Introduction to AGV's
3. Advances in agricultural mechanization
4. Rapid prototype design & analysis of autonomous vehicles.

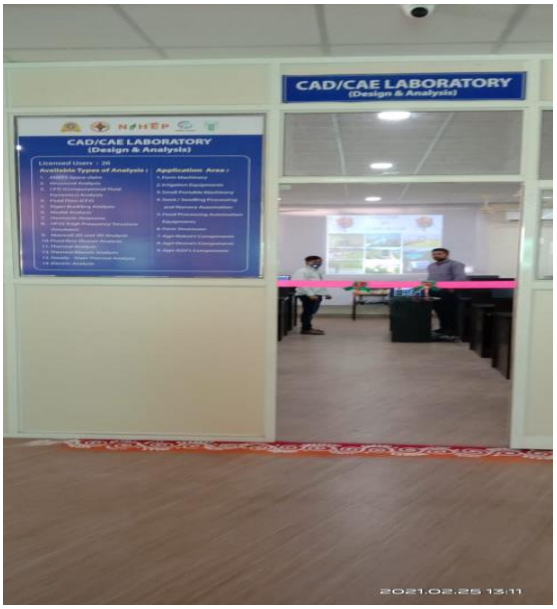
Activities Performed Under SPM

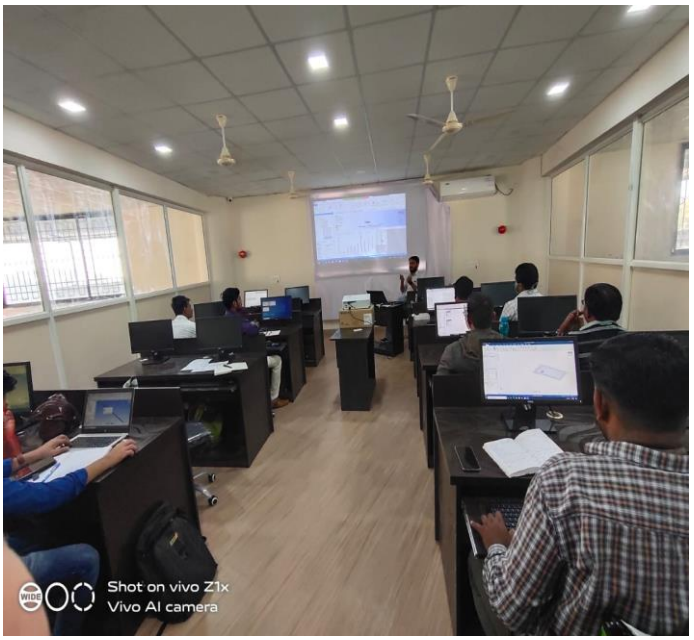
1. Autonomous and Robotic labours
2. Driverless tractors
3. Seeding and planting autonomous machinery/vehicles
4. Weeding and crop maintenance through AI
5. Reducing labour, increasing yield and efficiency of work

1. Development of advanced laboratories:

1.1. CAD/CAM/CAE Laboratory:

We have well developed advanced CAD/CAM/CAE laboratory which is used for a holistic model can developed and analysis it in Ansys software and to make it ready for 3D printing. It saves the time. Because CAD/CAM technology will capture and display your model tools in a 3D image system on a computer screen which is then sent to the lab, it enables you to work faster and get the perfect design of the digital technology machine. It is also used for designing the agriculture small portable machinery, small tools and equipment for precision farming. CAD/CAM Lab have been installed as shown in figure below.





1.2. 3D Scanner:

3D lab has been installed at NAHE- DFSRDA, VNMKV centre and demonstration in front with our chief guest Hon. Vice Chancellor Dr. Ashok Dhawan VNMKV, Parbhani. 3D scanner is an innovative technology that helps businesses cut costs and develops new methods of production. It is also called as additive manufacturing. Simplicity of use of 3D scanner is to scan the object and save it in our computer and almost unlimited customization possibilities has resulted in 3D printers becoming more and more popular as design tools. A 3D scanner allows users to print an object as 3-Dimensional CAD (Computer Aided Design) images. 3D scanner has been installed as shown in figure below.

1.3. 3D Printer:

3D printer lab has been installed at NAHE- DFSRDA, VNMKV centre and demonstration in front with our chief guest Hon. Vice Chancellor Dr. Ashok Dhawan VNMKV, Parbhani. 3D printer is an innovative technology that helps businesses cut costs and develops new methods of production. It is also called as additive manufacturing. Simplicity of use and almost unlimited customization possibilities has resulted in 3D printers becoming more and more popular as design tools. A 3D printer allows users to print an object as 3-Dimensional CAD (Computer Aided Design) images. 3D printer has been installed as shown in figure below.

Installation of 3D Printer and 3D Scanner for Innovative Digital Technology Development in Agricultural Automation of Model Stratasys F170.

Procurement of Scissor lifts for NAHEP CAAST -DFSRDA

Scissor lifts have been development successfully. Fabrication work of Mobile platform (Scissor lift) for Agri-bots, Agri-AGV's to be mounted on vehicle. Details: Lifting Capacity: 700Kg (Payload) 2000 mm Length * 1000mm width Minimum Height: 1800mm Maximum Height: 6000mm Lift Height: 4200mm No. of Scissors: 4 pairs Battery: 1.2 Kwatt alfa drive make Wireless control system: 1

Farm Machinery workshop lab set up

This workshop will develop for performing different, mechanical tasks like welding; drilling, cutting, manufacturing of different equipment's used in Agri-bots, Agridrones, and Agri AGV. It is useful for performing experimental research work and different agricultural field operational tasks.

Farm machinery Worksop is an important for the manufacturing of small tools, equipment whatever the design has developed in CAD/CAM software. In this workshop gas welding machine, rod cutting machine, different types of workshop accessories have been purchased and installed.

2. Development the capacity amongst the faculties/PG-Ph.D. students:

2.1 Development of Automatic Spraying Vehicle under custom fabrication:

Automatic Spraying Vehicle is a multipurpose small machine developed by NAHEP CAAST, VNMKV, and Parbhani. This machine can done spraying with 180 degree moving. It is operated by charged battery and solar photovoltaic power. It having sound buzzer so that crop can protect from wild animals and birds. It has vice and recording camera to store the data. It is automatic spraying the crop.

2.3. Demonstration of different technologies developed by NAHEP, VNMKV, Parbhani

Demonstration on solar sprayer

Demonstration on drone on field

2.4 Demonstration on Cotton picking machine

3. Organization National/ International seminars, conferences/brain storming workshop:

a. Conducted Brain Storming Workshops:

Brainstorming workshops was organized for PG/Ph. D. Students, the purpose of organizing the workshop to brainstorming in seminars to encourage Brainstorming session at agronomy department and Department of Extension Education where 5 faculty and 30 students has participated.

Brainstorming Workshop at Department of Agronomy, VNMKV, Parbhani.

Brainstorming Workshop at Department of Horticulture, VNMKV, Parbhani.

Brainstorming Workshop at Department of Horticulture, VNMKV, Parbhani.

Brainstorming workshop for Department of Extension and Department of Agricultural Economics

GIS Training for Faculty

Demonstration of Robotnic Robot at NAHEP-CAAST-DFSRDA centre.

ISAE Annual Convention and International Symposium on Artificial Intelligence Based Technologies in Agriculture

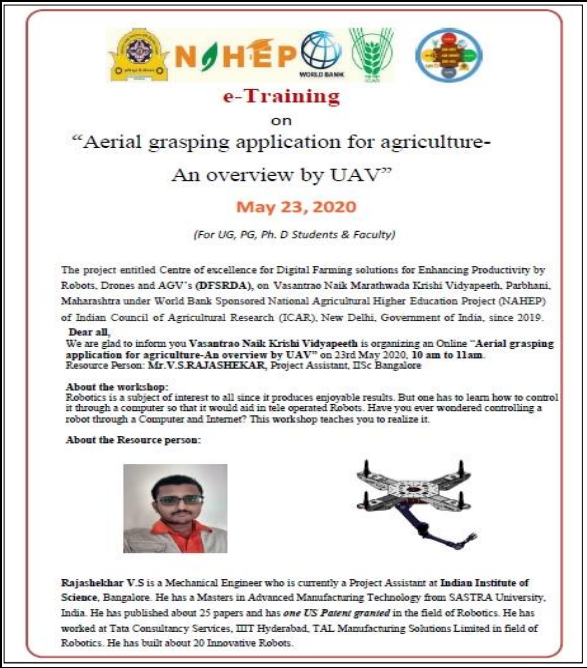
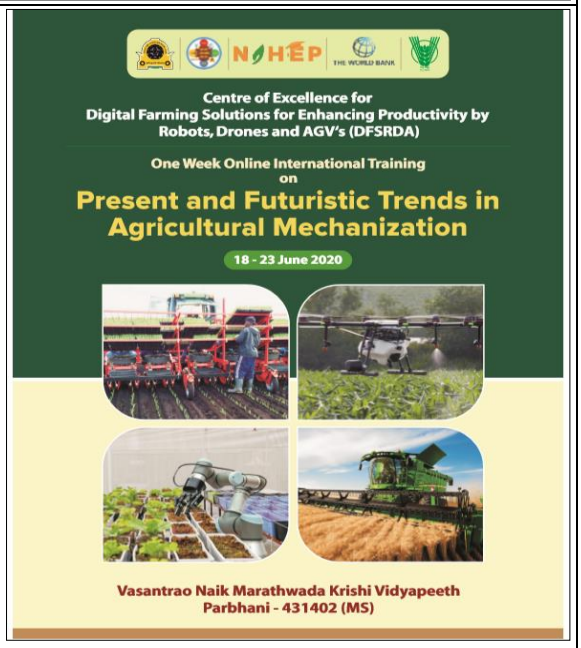
3D Printing Demonstration at Big Zero Technology, Pune

3D Printing Demonstration at Big Zero Technology, Pune

Demonstration of Robotnic Robot at NAHEP-CAAST-DFSRDA centre.

4. Organization National/ International seminars, conferences, E- Training and workshop:

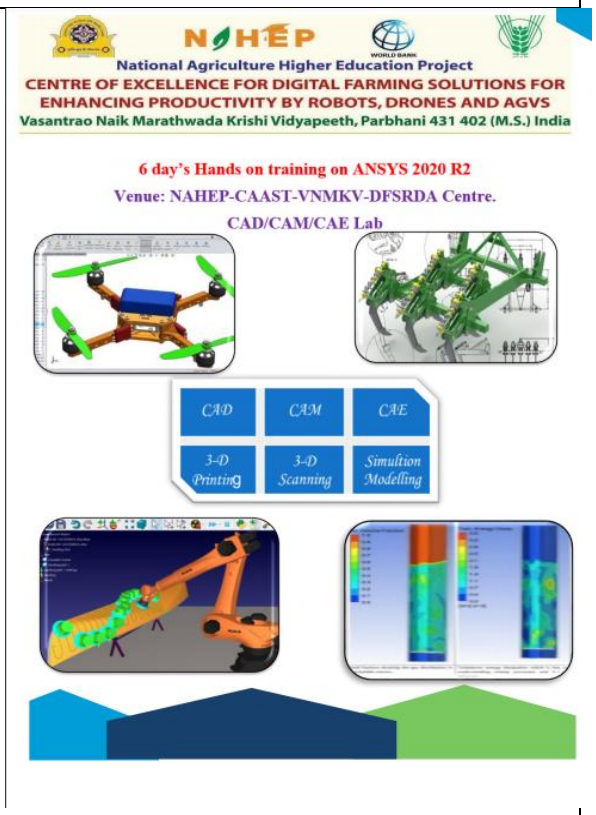
5.1. Online/E-Trainings organized during Pandemic:

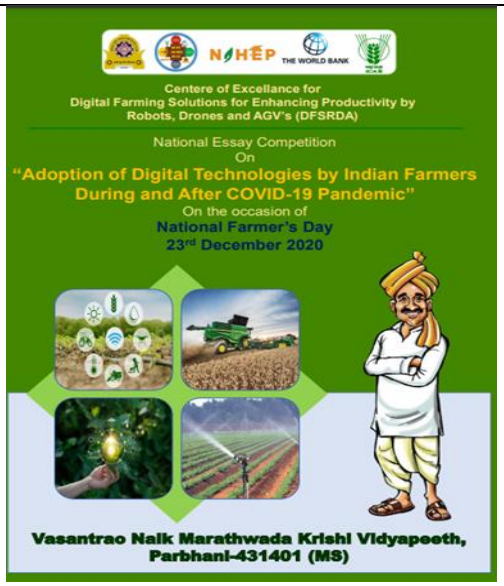
Sr. No.	National & International Events	No. of participants	Duration	Activity
1	One day e-Training is organised by Er. D. V. Patil (Core Team member) on, **"Aerial grasping Application for Agriculture Researchers: An Overview by UAV".**	72	23/05/2020	
2	One week online training organized by Er. D. V. Patil Core Team member on **"Present & Futuristic trends in Agriculture mechanization"**.	424	18/06/2020 To 23/06/2020	

3	One day online-training program organized by Dr. Vishal Ingale on **"Power of Digital manufacturing for new product development- 3D printing"**.	323	25/06/2020	
4	As a part of MoU joint activity done with IIT Khragpur. Organized a two week online short term course on **"Application of Digital Technologies in Agriculture"**		13/07/2020 To 24/07/2020	

5	Joint activity of IIT Bombay with NAHEP CAAST VNMKV in which Three weeks online short term course to NAHEP CAAST students and faculties on **"Application of digital technologies for smart agriculture"**		10/08/2020 To 28/08/2020	 NAHEP National Agricultural Higher Education Project CENTRE OF EXCELLENCE FOR DIGITAL FARMING SOLUTIONS FOR ENHANCING PRODUCTIVITY BY ROBOTS, DRONES AND AGVS Indian Institute of Technology Bombay, Powai, Mumbai 400 076, Maharashtra, India Three Weeks Online Short-Term Course to NAHEP-CAAST-VNMKV Students on **Application of Digital Technologies for Smart Agriculture** Under Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs (DFSRDA) Project, NAHEP-CAAST, ICAR, New Delhi 10-28 August 2020 About NAHEP-CAAST Project Centre for Advanced Agricultural Sciences and Technology (CAAST) under World Bank Sponsored National Agricultural Higher Education Project (NAHEP) of Indian Council of Agricultural Research (ICAR), New Delhi is paramount to develop and adopt the knowledge-intensive agriculture education to enhance the agricultural productivity. Agricultural Post-Graduates and Doctoral students are the target objectives to develop the quality human resource in digital technology with appropriately equipped by knowledge and their expertise in frontier areas of agricultural science and technology. The desired traits and skills could be instrumental for market-driven research and rapid adoption of advanced agricultural practices. Moreover, emphasis is being placed upon inclusiveness and equity aspects of the access to agricultural higher education. The project envisages the enhancement of quality and relevance of the agricultural higher education to the agricultural university students. The NAHEP CAAST is integrated by three interdisciplinary research divisions such as Agribots, Agri-Drones and Agri-AGV's based on four portfolios: 1. Climate-based Digital Knowledge Support Centre. (CDKS) 2. Seed/Seedling Processing and Nursery Automation Centre. (SSPN) 3. Smart Portable Machinery Centre. (SPM) 4. Food Processing Automation Centre. (FPA) Project Knowledge Partner NAHEP-CAAST-IIT Bombay, Indian Institute of Technology Bombay, Powai, Mumbai 400 076, Maharashtra, India 1. (Knowledge Centre). Aim of the centre is to conduct the research in the area of Agri-Robots, Agri-Drones and Agri-AGVs and to train the PG / Ph.D and Faculty members of NAHEP-CAAST-VNMKV. Principal Investigator : Prof. Amit Apte, IIT Bombay Co-Principal Investigator: Prof. Satish Agnihotri, IIT Bombay. Co-Principal Investigator: Prof. Kaul Arya, IIT Bombay 2. NAHEP-CAAST-VNMKV, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani-431402, Maharashtra, India (Centre of Excellence). Aim of the centre is to establish the advanced academic and research facilities, to establish University and Industry Interface in the area of Agri-Robots, Agri-Drones and Agri-AGVs keeping IIT Bhavanagar as one of the knowledge Partner. Principal Investigator :Dr. G.U. Shinde, Team Leader and Assistant Professor, FMPE, VNMKV, Parbhani Co-Principal Investigator : Dr. R.P Kadam, Professor, Extension Dept., VNMKV Parbhani Co-Principal Investigator & Coordinator :Er. Sanjay N. Pawar, Asst. Professor, CAET, VNMKV, Parbhani About the Short-Term Course In this time of crisis, well rounded and effective educational practice is what is needed for the capacity building of young minds. The three-weeks online short-term training on "Application of Digital Technologies for Smart Agriculture" is organized under the project "Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs" under National Agricultural Higher Education Project (NAHEP) sponsored by CAAST, ICAR New Delhi, headed by Associate Prof. Amit Apte, IIT Bombay and PI-NAHEP-CAAST-IIT Bombay. This short-term course aims to enlighten the participants in the areas of Sensors, Drones, Robots, Artificial Intelligence and Machine Learning, Machine Vision Technology-based, and Advanced Digital Technology application in Agriculture and allied science's for enhancing the productivity with minimal effort and cost. PG/Ph.D. Students, Faculties, Scientists of Vasantrao Marathwada Krishi Vidyapeeth, Parbhani are eligible to register and are requested to take the advantage of the three weeks online short-term course from 10th August 2020 to 28th August 2020. Interested candidates can contact Er. S. N Pawar, Assistant Professor, Agril. Engineer and Co-PI (SPM) of NAHEP-CAAST-VNMKV, Parbhani to register their names at e-mail: nahep.caast.vnmkv@gmail.com. Daily lectures as per the schedule are live telecasted through online platform with tutorials and online discussions by the renowned professors in the domain area from Centre for Technology Alternatives for Rural Areas (CTARA) Centre, IIT Bombay. This training would definitely develop skills that will drive their employability, Productivity and wellbeing in the decades to come and ensure the overall progress of India.

5.2 Hands on training after Pandemic

Sr. No.	National & International Events	Duration	Activity
1	Two weeks "Hands on Training on ANSYS 2020 R2" in collaboration with ARK Info Solution, Mumbai	10/08/2020 to 13/08/2020	 NAHEP National Agriculture Higher Education Project CENTRE OF EXCELLENCE FOR DIGITAL FARMING SOLUTIONS FOR ENHANCING PRODUCTIVITY BY ROBOTS, DRONES AND AGVS Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani 431 402 (M.S.) India 6 day's Hands on training on ANSYS 2020 R2 Venue: NAHEP-CAAST-VNMKV-DFSRDA Centre. CAD/CAM/CAE Lab CAD CAM CAE 3-D Printing 3-D Scanning Simultion Modelling

5.3 National & International Seminar:			
Sr. No.	**National & International Events**	**Duration**	**Activity**
1	International Seminar (Online) on **"Digital Technologies for smart agricultural: Futuristic plan"**	10/08/2020 To 13/08/2020	
5.3 National Level Essay Competition			
1	National Level Essay Competition On "Adoption of Digital Technologies by Indian Farmers During and After COVID-19 Pandemic" On the occasion of National Farmer's Day 23rd December 2020.	23rd December 2020	

Essay computation

Inauguration Function of international training :

Media coverage

उत्पन्न वाढविण्यासाठी यांत्रिकीकरण महत्त्वाचे

आंतरराष्ट्रीय प्रशिक्षण : व्यंकट मायंदे यांचे प्रतिपादन

लोकमत न्यूज नेटवर्क

परभणी : कृषी क्षेत्रातील शेतकऱ्यांचे उत्पन्न दुप्पट करण्यासाठी कृषी यांत्रिकीकरण महत्त्वाचे असून, शेतकऱ्यांनी तंत्रज्ञानाचा वापर करुन शेती करावी, असे आवाहन अकोला येथील डॉ.पंजाबराव देशमुख कृषी विद्यापीठाचे माजी कुलगुरु डॉ.व्यंकट मायंदे यांनी केले आहे.

भारतीय कृषी अनुसंधान परिषद अनुदानित राष्ट्रीय कृषी उच्च शिक्षण प्रकल्पाच्या वतीने १८ ते २३ जून या काळात 'वर्तमान व भविष्यातील कृषी यांत्रिकीकरण' या विषयावर ऑनलाईन आंतरराष्ट्रीय प्रशिक्षण सुरु आहे. या प्रशिक्षणाच्या उद्घाटन प्रसंगी कुलगुरु डॉ.अशोक ढवण तर प्रमुख पाहुणे म्हणून डॉ.मायंदे उपस्थित होते. अभियांत्रिकी संघटनेचे अध्यक्ष डॉ.इंद्रामणी मिश्रा, नाहेपचे डॉ.प्रभात कुमार, शिक्षण संचालक डॉ.धर्मराज गोखले, डॉ.मनजीत सिंग, डॉ.उदय खोडके, डॉ.गोपाळ शिंदे यांची प्रमुख उपस्थिती होती. यावेळी अध्यक्षीय समारोप करताना कुलगुरु डॉ.अशोक ढवण म्हणाले, कृषी शास्त्रज्ञांनी डिजीटल यांत्रिकीकरणावर भर देऊन या यांत्रिकीकरणाचा प्रसार शेतकऱ्यांपर्यंत करावा. यांत्रिकीकरणाशिवाय पर्याय नसल्याचेही त्यांनी नमुद केले. यावेळी भारतीय कृषी यांत्रिकीकरण संघटनेचे अध्यक्ष डॉ.इंद्रामणी मिश्रा, डॉ.प्रभातकुमार, डॉ.मनजीत सिंग, डॉ.धर्मरोज गोखले, प्रा.संजय पवार आदींनी मार्गदर्शन केले. त्याचप्रमाणे देश विदेशातील शास्त्रज्ञ या प्रशिक्षणात सहभागी झाले होते. डॉ.विना भालेराव यांनी सूत्रसंचालन केले. प्रा.दत्तात्रय पाटील यांनी आभार मानले. यशस्वीतेसाठी डॉ.गोपाळ शिंदे, प्रा.संजय पवार, प्रा.दयानंद टेकाळे, प्रा.दत्तात्रय पाटील, डॉ.रश्मी बंगाळे, डॉ.अविनाश काकडे, शिवानंद शिवपुजे, शैलेश शिंदे, गोपाळ रणेर आदींनी प्रयत्न केले.

यंत्रसामुग्री शेतकऱ्यांपर्यंत पोचवा

कुलगुरू डॉ. अशोक ढवण : आंतरराष्ट्रीय प्रशिक्षणाचा आज समारोप

परभणी, ता. २२ (बातमीदार) : डिजिटल यांत्रिकीकरणावर तरुण शास्त्रज्ञांनी भारत वर्तमान व भविष्यातील कृषी यांत्रिकीकरण या विषयावरील आंतरराष्ट्रीय ऑनलाइन प्रशिक्षणाचे उद्घाटन ता. १८ रोजी झाले. यावेळी ते बोलत होते. अकोला कृषी विद्यापीठाचे माजी कुलगुरू डॉ. व्यंकट मायंदे, भारतीय कृषी अभियांत्रिकी संघटनेचे अध्यक्ष डॉ. इंद्रामनी मिश्रा, नाहेप प्रकल्पाचे राष्ट्रीय समन्वयक डॉ. प्रभात कुमार, वनामकृविचे शिक्षण संचालक तथा अधिष्ठाता (कृषी) डॉ. धर्मराज गोखले, डॉ. मनजित सिंग, डॉ. उदय खोडके, नाहेप प्रकल्प प्रमुख डॉ. गोपाळ शिंदे आदी उपस्थित होते. ऑनलाइन प्रशिक्षणात देश व विदेशातील शास्त्रज्ञांचे मार्गदर्शन केले आहे. प्रशिक्षणासाठी ५५० प्रशिणार्थी निवड करण्यात आली आहे. यामध्ये भारतातील विविध कृषी विद्यापीठातील पदव्युत्तर व आचार्य पदवी अभ्यासक्रमाचे विद्यार्थी, प्राध्यापक वृंद व विविध कृषी संस्थेत कार्यरत असलेले शास्त्रज्ञ यांचा सहभाग आहे. भारतातील २२ राज्यामधील ४२३ व परदेशातील दहा देशातील १७ प्रशिणार्थींनी सहभाग नोंदविला आहे.

मंगळवारी (ता.२२) या प्रशिक्षणाचा समारोप होणार आहे. कार्यक्रमासाठी प्रा. संजय पवार, प्रा. दयानंद टेकाळे, प्रा. दत्तात्रय पाटील, डॉ. रश्मी बंगाळे, डॉ. अविनाश काकडे, शिवानंद शिवपुजे, शैलेश शिंदे, गोपाळ रणेर यांनी पुढाकार घेतला.

भविष्यातील कृषी यांत्रिकीकरण विषयावर आंतरराष्ट्रीय प्रशिक्षण

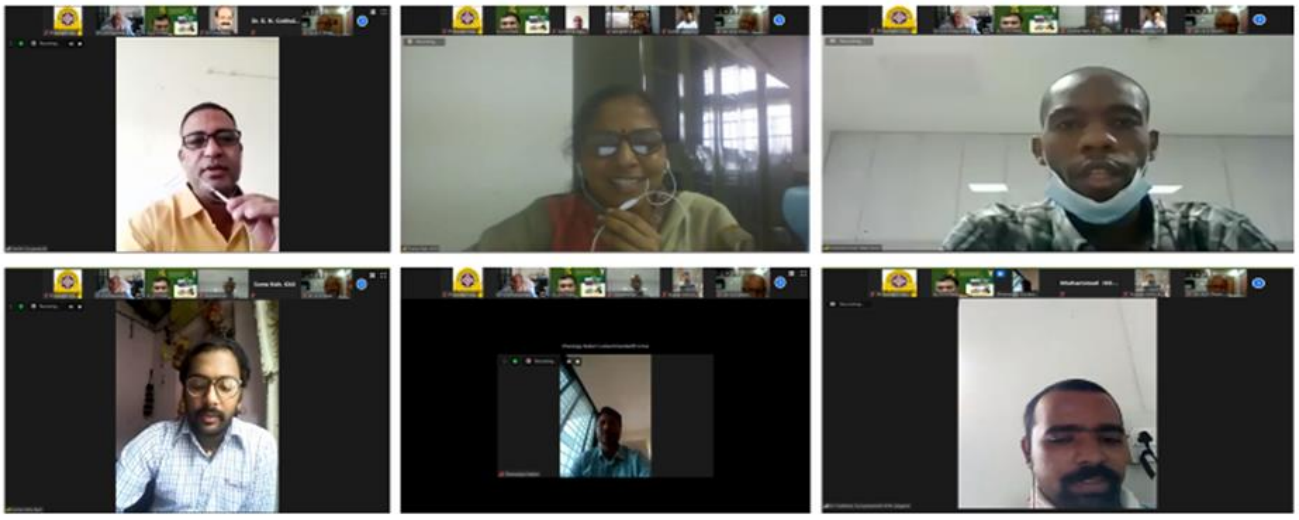
परभणी / प्रतिनिधी

येथील वसंतराव नाईक मराठवाडा कृषि विद्यापीठांतर्गत असलेल्या भारतीय कृषी अनुसंधान परिषद, नवी दिल्ली व अनुदानित राष्ट्रीय कृषि उच्च शिक्षण प्रकल्प (नाहेप) यांच्या संयुक्त विद्यमाने 'वर्तमान व भविष्यातील कृषि यांत्रिकीकरण' या विषयावर १८ ते २३ जून या कालावधीत एक आठवड्याचे आंतरराष्ट्रीय ऑनलाईन प्रशिक्षणाचे आयोजन करण्यात आले होते.

प्रशिक्षणाचे उद्घाटन १८ जून रोजी पार पडले. कार्यक्रमाच्या अध्यक्षस्थानी कुलगुरु डॉ. अशोक ढवण होते. प्रमुख पाहुणे म्हणून अकोला येथील डॉ.पंजाबराव देशमुख कृषि विद्यापीठाचे माजी कुलगुरु डॉ. व्यंकट मायंदे होते. सदरील कार्यक्रमात भारतीय कृषि अभियांत्रिकी संघटनेचे अध्यक्ष डॉ. इंद्रामनी मिश्रा, नाहेप प्रकल्पाचे राष्ट्रीय समन्वयक डॉ.प्रभात कुमार, शिक्षण संचालक डॉ. धर्मराज गोखले, डॉ. मनजित सिंग, कृषि अभियांत्रिकी व तंत्रज्ञान महाविद्यालयाचे प्राचार्य डॉ. उदय खोडके, नाहेप प्रकल्प प्रमुख डॉ. गोपाळ शिंदे आदींचा प्रमुख सहभाग होता.

कुलगुरु डॉ.अशोक ढवण म्हणाले की, डिजिटल यांत्रिकीकरणावर तरुण शास्त्रज्ञांनी पारंगत होऊन त्यांचा जास्तीत जास्त शेतकऱ्यांपर्यंत प्रसार करावा असा सल्ला दिला. तर शेतकऱ्यांचे उत्पन्न दुप्पट करण्याकरीता कृषि यांत्रिकीकरणाचे महत्व या विषयावर डॉ.व्यंकट मायंदे यांनी मार्गदर्शन केले. डॉ. इंद्रामनी मिश्रा यांनी कृषि यांत्रिकी गरज यावर मार्गदर्शन केले तर नाहेप प्रकल्पाचे राष्ट्रीय समन्वयक डॉ. प्रभात कुमार यांनी वाढत्या लोकसंख्येचा अन्न सुरक्षिततेसाठी कृषि यांत्रिकीकरणाची गरज असल्याचे सांगितले. डॉ. मनजित सिंग यांनी कोरोना महामारीच्या काळात कृषि यांत्रिकी करणाच्या वापरावर भर देण्याचे विशद केले. शिक्षण संचालक डॉ. धर्मराज गोखले, प्राचार्य, डॉ. उदय खोडके, प्रकल्पाचे प्रमुख डॉ.गोपाळ शिंदे, उपप्रकल्प संचालक प्रा. संजय पवार आदींनी आपले मनोगत व्यक्त केले. या प्रशिक्षणात देशातील २२ राज्यामधुन ४२३ तर इतर १० देशातील १७ प्रशिणार्थ्यांनी सहभाग नोंदविला आहे. कार्यक्रमाचे सूत्रसंचालन डॉ. विना भालेराव यांनी केले तर आभार प्रा. दत्तात्रय पाटील यांनी मानले. कार्यक्रम यशस्वीतेसाठी प्रकल्प अन्वेषक डॉ.गोपाळ शिंदे प्रा.संजय पवार, आयोजक प्रा. दयानंद टेकाळे, प्रा.दत्तात्रय पाटील, डॉ. रश्मी बंगाळे, डॉ. अविनाश काकडे, इंजि. शिवानंद शिवपुजे, इंजि. शैलेश शिंदे, इंजि. गोपाळ रणेर आदींनी पुढाकार घेतला.

Feedback from Participants of International Training



Valedictory Function international training: