Institutional Development Plan (IDP)-ANGRAU

National Agricultural Higher Education Project (NAHEP)

Annual Report-2021-22

(April 2021 to March 2022)

Submitted to PIU – NAHEP, ICAR May, 2022

Indian Council of Agricultural Research

Acharya N.G. Ranga Agricultural University

ANGRAU

NAHEP

भाकृअनुप
ICAR

INSTITUTIONAL DEVELOPMENT PLAN

ANNUAL REPORT - 2021-22

ACHARYA N G RANGA AGRICULTURAL UNIVERSITY
Lam, Guntur, Andhra Pradesh

IDP Team Leader
Dr. A. Vishnuvardhan Reddy
Hon'ble Vice-Chancellor, ANGRAU, Guntur

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Dr. A. Pratap Kumar Reddy
Dean of Agriculture, NAHEP, IDP

Editors
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1. Introduction

NAHEP Project Objective

NAHEP (National Agricultural Higher Education Project) 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 will promote efficiency and competitiveness through changes in working mechanism of agricultural universities, raising the teaching and research standards through improved research and teaching infrastructure and enhanced faculty competency and commitments, and making agricultural education more attractive to talented students. There are four key components under NAHEP, namely; Institutional Development Plan (IDP), Centres for Advanced Agricultural Sciences and Technology (CAAST), ICAR to support excellence in agricultural universities (AUs), and ICAR Innovation Grants to AUs. It is envisaged that improved AU performance through quality enhancement, better employment and entrepreneurship opportunities created for agriculture graduates, non-accredited AUs attaining ICAR accreditation, and institutional reforms implemented in education division of ICAR and AUs under these components together shall contribute to the achievement of the overall program objective.

ANGRAU - Institutional Development Plan

Institutional Development Plan has been granted to Acharya N G Ranga Agricultural University **(**ANGRAU) by the National Agricultural Higher Education Project (NAHEP) of ICAR with a budget outlay of Rs. 2910.01 Lakhs (Rs. 2410.01 Lakhs – NAHEP share & Rs. 500 Lakhs – ANGRAU share) for the period 2018-21.

Acharya N G Ranga Agricultural University **(**ANGRAU), with the core academics is striving to go for reforms and accept challenges of going global imparting world class education. The project on **"Institutional Development Plan (IDP) of Acharya N G Ranga Agricultural University (ANGRAU)"** under National Agricultural Higher Education Project (NAHEP) aptly helps in striving to get recognized at International level.

Vision and Mission: to provide "rich human capital of highly qualified, motivated with skill and well trained agricultural graduates"

Objectives

- Leverage ICT services to facilitate teaching and learning outcomes and automation/improvement of college research and management systems;
- Designing course curricula duly involving client specific problems for improving skill development, sharpen innovative thinking, aimed to meet the challenges of agro-industries;
- Hone entrepreneurial skills of students through exposure visits to Incubation Centers and agro-industries
- Enhance competitive abilities of staff & students and inculcate the habit of life long learning and ethical behaviour in practicing agriculture; and
- Going global with student exchange/sandwich/twinning programs and faculty upgradation in collaboration with international research/educational institutes on social and gender equity basis.

Operational Area

1. Agricultural College, Bapatla,
2. SV Agricultural College, Tirupati
3. Agricultural College, Mahanandi
4. Agricultural College, Naira
5. Dr N T R College of Agrl. Engineering, Bapatla

IDP Team:

Designation	Name	Phone	E-mail
IDP Leader	Dr. A Vishnuvardhan Reddy Vice Chancellor	+91863-2347011	vicechancellor@angrau.ac.in
IDP Coordinator /Principal Investigator	Dr. A. Pratap Kumar Reddy Dean of Agriculture	+91863-2347002	pi.idp@angrau.ac.in
IDP Associate Coordinator/ Point Person Procurement	Dr. S. Jaffar Basha Technical Officer to Dean of Agriculture	+91 9849871975	sk.jaffarbasha@angrau.ac.in
Asssitant coordinator	Dr. K. Uma Devi Assistant Professor (IDP full time)	+919849058414	umachollangi@angrau.ac.in

IDP cell at five accredited colleges

S. No.	College	Local Nodal Officer (IDP)	Members of Nodal Cell
1.	Agricultural College, Bapatla	Dr. G. Ramachandra Rao Associate Dean	1. Dr. K Chandrasekhar, Professor (Agronomy) 2. Dr. V. Seetharambabu, Assistant Professor (Agril. Economics) 3. Dr. Ratnakumari, Assistant Professor (Entomology)
2.	S.V. Agricultural College, Tirupati	Dr. P. Vasanthi Associate Dean	1. Dr. V. Umamahesh, Associate Professor (Crop Physiology) 2. Dr. N. Vani, Assistant Professor (Agril. Economics) 3. Dr. V. Lakshmi Narayana Reddy, Associate Professor (GPBR)
3.	Agricultural College, Naira	Dr. D. Srinivas Associate Dean	1. Dr. A. Upendra Rao, Professor (Agronomy) 2. Dr. M. Suresh Kumar, Professor (Agril. Extension) 3. Dr. N. Sunanda, Associate Professor (Agril. Economics)
4.	Agricultural College, Mahanandi	Dr. G. Prabhakara Reddy Associate Dean	1. Dr. K. Swarajyalakshmi, Associate Professor (Entomology) 2. Dr. P.V. Ramesh Babu, Assistant Professor (Agronomy) 3. Dr. M. Satish Rahul, Assistant Professor (Agril. Extension)
5.	Dr. NTR College of Agricultural Engineering, Bapatla	Dr. D. D.Smith Associate Dean	1. Dr. B. Sreenivasula Reddy, Assistant Professor (PFE) 2. Dr. M. Madhava, Associate Professor & Head (PFE) 3. Er. N. Vinoda, Assistant Professor (PFE)

Senior Research Fellows at ANGRAU Headquarters for IDP

S.No	Senior Research Fellow (SRF)	Qualification
1.	Mr. A. L. Prasanna Kumar	M.Sc. (Agriculture)
2.	Ms. B. Venkata Lakshmi Prasanna	M.Sc. (Agriculture)
3.	Ms. V. Tejaswini	M.Sc. (Agriculture)
4.	Mr. Shaik Abdul Khuddus Mohiddin	M.Sc. (Agriculture)
5.	Ms. E. Rajeswari	M.Sc. (Agriculture)

Nodal officers for specific activities at ANGRAU Headquarters for IDP

Nodal Officer – Environmental Safeguards	Dr. Ch. Sujani Rao, Professor (CAS), Dept. of Soil Science and Agricultural Chemistry, Additional Comptroller of Examinations, Administrative Office, ANGRAU, Lam, Guntur
Nodal Officer – Social Safeguards (EAP)	Dr. B. Vijayabhinandana, Professor & Univ. Head, Dept. of Agril. Extension, Agril. College, Bapatla
Nodal Officer for Grievance Cell, Monitoring & Evaluation (PME) Cell of IDP	Dr. Y. Radha, Professor (CAS) & University Head, Dept. of Agricultural Economics, Director (Planning & Monitoring), Administrative Office, ANGRAU, Lam, Guntur
Nodal Officer – Point Person Procurement	Dr. S. Jaffar Basha, Technical Officer to Dean of Agriculture

Capital expenditure

- Under the subhead, Office equipment, an amount of Rs.3,49,634/- was utilized for the purchase of Computers and peripherals for office use from the available funds of Rs. 3,50,000/- during 2021-22 leaving a balance amount of Rs. 366/-.
- Under the subhead of Laboratory equipment, an amount of Rs.11,33,205/- was available and the IDP incurred an amount of Rs.4,90,290/- towards purchase of Electroporator leaving a balance amount of Rs.7,23,915/-
- Under the subhead of Computers and peripherals (Hardware and software), with the available funds of Rs. 34,47,463/-, an amount of Rs. 8,01,148/- was utilized towards the purchase of Camera, Camera Accessories and Portable Mic along with an additional amount of Rs.2930/- paid towards purchase of computers making a total amount of Rs. 8,04,078/- (Rs.5,54,622/- debited from Computer and Peripherals; Rs.2,49,456/- debited from minor repairs and renovation works). Further, an amount of Rs. 1,727,401/- was utilized for the purchase of Interactive Panel Display & Digital Signage Notice Board and Rs.1,165,440/- was utilized for the purchase of Inverters & Air Conditioners during 2021-22.
- Under the subhead of Books and Journals, an amount of Rs.9,99,769/- spent on purchase of agricultural books to libraries of accreditated colleges of ANGRAU from the avaialble funds of Rs.10,00,687/- during 2021-22 leaving a balance of Rs.918/- at the end of the FY.

In total, an amount of Rs. 54,55,612/- (Rupees Fifty Four Lakhs Fifty Five Thousand Six Hundred and Twelve only) was utilized from the available funds of Rs. 82,90,145/- towards purchase of capital items during FY 2021-22 leaving a balance amount of Rs. 28,34,533/-.

National Agricultural Higher Education Project

Project Receipts and Payments Account cum Expenditure Control sheet

For the Period April 2021 to March 2022 (in Rupees)

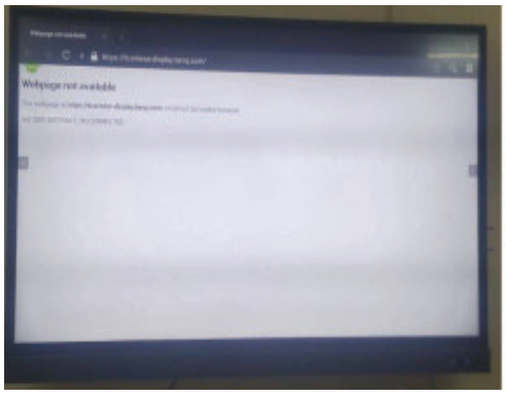
Name of the University: ACHARYA N G RANGA AGRICULTURAL UNIVERSITY (ANGRAU) Componen: 1A (IDP)

S. No.	Head of Account	Opening Balance as on 01.04.2021	Grant Received during the year 2021-22	Refund from the Advance amount	Total Available Funds	Expenditure During FY 21-22 (Cash Basis) as on 31.03.2022	Outstanding Advances during FY 21-22 as on 31.03.2022	Closing Balance as on 31.03.2022
1	2	4	5	5a	(4+5+5a)=6	7	8	(6-7-8)=9
A	**Goods & Equipment**							-
1	Equipment, Plant & Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Office Equipment	350000.00	0.00	0.00	350000.00	349634.00	0.00	366.00
3	Laboratory Equipment	777205.00	356000.00	0.00	1133205.00	409290.00	0.00	723915.00
4	Furniture & Fixtures	100.00	0.00	0.00	100.00	0.00	0.00	100.00
5	Computers & peripherals (Hardware & Software)	3447463.00	0.00	0.00	3447463.00	3447463.00	0.00	0.00
6	Books & Journals	1000687.00	0.00	0.00	1000687.00	999769.00	0.00	918.00
	Sub Total (A)	**5575455.00**	**356000.00**	**0.00**	**5931455.00**	**5206156.00**	**0.00**	**725299.00**
B	**Civil Works**							
7	Minor repairs & renovation works	2358690.00	0.00	0.00	2358690.00	249456.00	0.00	2109234.00
	Sub Total (B)	**2358690.00**	**0.00**	**0.00**	**2358690.00**	**249456.00**	**0.00**	**2109234.00**
	Capital Expenditure Sub-total (A+B)	**7934145.00**	**356000.00**	**0.00**	**8290145.00**	**5455612.00**	**0.00**	**2834533.00**
C	**Human Capacity Building**							
8	National Training	0.00	0.00	0.00	0.00	0.00	0.00	0.00

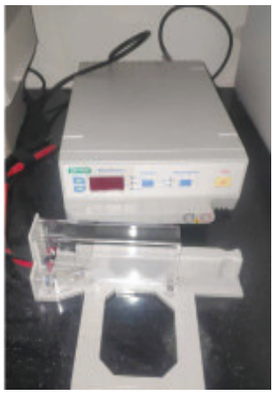
S. No.	Head of Account	Opening Balance as on 01.04.2021	Grant Received during the year 2021-22	Refund from the Advance amount	Total Available Funds	Expenditure During FY 21-22 (Cash Basis) as on 31.03.2022	Outstanding Advances during FY 21-22 as on 31.03.2022	Closing Balance as on 31.03.2022
1	2	4	5	5a	(4+5+5a)=6	7	8	(6-7-8)=9
9	International Training	29858754.00	0.00	141246.00	29858754.00	1968196.00	5136314.00	22754244.00
10	Short Visits/ Seminars	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Meetings & Workshops	417800.00	0.00	12200.00	417800.00	242825.00	160000.00	14975.00
	Sub Total (C)	**30276554.00**	**0.00**	**153446.00**	**30276554.00**	**2211021.00**	**5296314.00**	**22769219.00**
D	**Consultancy**				0.00			
12	National Level Consultancies	3642000.00	0.00	0.00	3642000.00	0.00	0.00	3642000.00
	Sub Total (D)	**3642000.00**	**0.00**	**0.00**	**3642000.00**	**0.00**	**0.00**	**3642000.00**
E	**Recurrent Cost**							
13	Travel expenses	676978.00	0.00	0.00	676978.00	249264.00	0.00	427714.00
14	Contractual Services (RA/SRF/ System Analyst /Programmer)	2005417.00	0.00	0.00	2005417.00	1936147.00	0.00	69270.00
15	Operational Costs	59190222.00	0.00	1515312.00	59190222.00	17105179.00	1127155.00	40957888.00
16	Institutional Charges	4867327.00	0.00	181000.00	4867327.00	1306607.00	0.00	3560720.00
	Sub Total (E)	**66739944.00**	**0.00**	**1696312.00**	**66739944.00**	**20597197.00**	**1127155.00**	**45015592.00**
	Revenue Expenditure Sub-total (C+D+E)	**100658498.00**	**0.00**	**1849758.00**	**100658498.00**	**22808218.00**	**6423469.00**	**71426811.00**
	Grand Total (A+B+C+D+E)	**108592643.00**	**356000.00**	**1849758.00**	**110798401.00**	**28263830.00**	**6423469.00**	76111102.00

S.No	Equipment	Amount in (Rs)
1.	Office equipment (Computers and peripherals)	349,634/-
2.	Electroporator	409,290/-
3.	Camera, Camera Accessories and Portable Mic (8,04,078/- (5,54,622/- debited from Computer and Peripherals;2,49,456/- debited from minor repairs and renovation works)	8,04,078/- (Rs. 554,622/- + Rs. 2,49,456/-)
4.	Interactive Panel Display & Digital Signage Notice Board	1,727,401/-
5.	Inverters & Air Conditioners	1,165,440/-
6.	Agricultural Books	999,769/-
	Total amount in (Rs.)	**54,55,612/-**

Digital Signage Notice Board



Interactive Panel Display



Electroporator

Revenue Expenditure

- The subhead Contractual services, out of the available funds of Rs. 20,05,417 /- an amount of Rs. 19,36,147 /- has been utilized towards paymentof SRF salaries leaving a balance of Rs.69,270 /-.
- Under subhead Travel expenses, an amount of Rs.2,49,264 /- (Rs. 9433/- + Rs. 2,39,831/-) was utilized for travel from the available funds of Rs. 6,76,978 /- during 2021-22 with left over balance of Rs. 4,27,714 /.
- Under subhead Institutional charges, an amount of Rs. 48,67,327 /- was available during year 2021-22 out of which an amount of Rs.13,06,607 /- was utilized leaving a balance of Rs.35,60,720/-
- Under subhead Operational costs, an amount of Rs. 1,82,32,334 /- (including outstanding advances) was utilized towards guest lectures, webinars, national and skill development programmes for undergraduate students from the available funds of Rs.5,91,90,222 /- during 2021-22, with left over balance of Rs.4,09,57,888 /-

In total, an amount of Rs. 2,28,08,218 /- (Rupees Two Crores Twenty Eight Lakhs Eight Thousand Two Hundred and Eighteen only) was utilized from the available funds of Rs.10,06,58,498 /- towards revenue expenditure during FY 2021-22 leaving a balance amount of Rs.7,32,76,569/-

S.No	Particulars	Amount in (Rs)
1.	International Training	19,68,196 /-
2.	Meetings & Workshops	2,42,825 /-
3.	Travel expenses	2,49,264 /-
4.	Contractual Services (RA/SRF/ System Analyst /Programmer)	19,36,147 /-
5.	Operational Costs	1,71,05,179 /-
6.	Institutional Charges	13,06,607 /-
	Total amount in (Rs.)	**2,28,08,218 /-**

2. Faculty International Trainings

As the NAHEP guidelines were relaxed with respect to the publications of the NAAS rated journals, the faculty of ANGRAU could apply for international trainings under IDP. The revised NAHEP guidelines for selection of faculty for international trainings were communicated to all accredited colleges and requested the Associate Deans of all colleges to motivate the faculty to apply for the trainings. The IDP team made all the efforts to communicate the revised guidelines so that more number of faculty could get benefited. A link was created on website specifying the details of IDP, guidelines and application forms for an international training to faculty. Accordingly, many faculty who are eligible as per the NAHEP guidelines applied.

The screening and selection of faculty was done in accordance with the criteria and guidelines prescribed by NAHEP. Five facutly have successfully completed their international training programme at different universities in United States of America.

Faculty International Trainings

S.No.	Particulars	Project title	Duration	Host Institution	Expenditure incurred (Rs.)
2.1	Dr. B. Sreenivasula Reddy, Associate Professor, Dr. N T R College of Agril.Engineering, Bapatla	915 MHz Pilot ScaleContinuous Microwave Dryer for increasing the throughput of rice	08.10.2021 to 05.02.2022	University of Arkansas, Fayettevill, Arkansas, USA	9,40,086 /-
2.2	Dr. M. Madhava, Professor and Head, Department of Food Engineering, Dr. N T R College of Agril. Engineering, Bapatla	Steam Parboiling of Durum Wheat to Produce Bulgur	17.11.2021 to 14.02.2022	Kansas State University, USA	9,66,625 /-
2.3	Dr.LalAhamed Mohammad Associate Professor, Dept. of Genetics and Plant Breeding, Agricultural College, Bapatla	Plant Phenotyping and Advanced Molecular Breeding and Diagnostic Methods	01.01.2022 to 31.03.2022	Tifton campus, University of Georgia,USA	9,52,483/-
2.4	Dr. M. Suresh, Associate Professor & Head, Dept. of Plant Pathology, Agril. College, Naira	Identification of Peanut Genotypes for Stem rotresistance through phenotyping anddisease modeling	21.02.2022 to 20.05.2022	New Mexico StateUniversity (NMSU), New Mexico, USA	10,52,948 /-
2.5	Dr. V. Uma Mahesh, Associate Professor, Dept. ofCrop Physiology, S V Agricultural College, Tirupati	Nutrient deficiencies in plants under controlled environment agriculture	01.03.2022 to 31.05.2022	University of California, Davis, USA	11,66,525 /-
	Total				**50,78,667/-**

The total funds available under faculty international training programmes was Rs.2,98,58,754/-. An amount of Rs.50,78,667/- (including outstanding advances) was expended for the faculty international programmes by the end of FY 2021-22 leaving a balance amount of Rs. 2,47,80,087/-.

2.1. University of Arkansas, Fayetteville, Arkansas,USA

Dr. B. Sreenivasula Reddy, Associate Professor, Dr. N T R College of Agril. Engineering, Bapatla participated in an international training program at The Food Science Department, University of Arkansas, Fayetteville,

Arkansas, USA with project titled "915 MHz pilot scale continuous microwave dryer for increasing the throughput of rice" from 08.11.2021 to 05.02.2022 with a financial assistance of Rs. 9,40,086/- under IDP, ANGRAU. He stated that rapport has been built with the Food Science Department and Department of Agricultural Biological Engineering, University of Arkansas, Fayetteville.

He visited various departments namely Departments of Grain Science and Industry; Department of Animal Sciences and Industry, Kansas State University, Manhattan, Kansas.

- Faculty members shown great interest for collaborative research works or to help the students of our university by all the possible means. He worked with other Masters and Ph.D students in the rice processing program of the department, and known about various research projects on value addition and processing of rice.
- Learned new techniques such as rice processing and value addition, complete knowledge of rice quality evaluation methods, drying of rough rice by employing of microwaves, EMC drying, desiccant drying, shelf life estimation of packaged products, wheat milling, rice value added products through extrusion processing and advanced techniques in sensory evaluation.
- The training program at Food Science Department, USA, Fayetteville imparted the requisite knowledge and expertise in the rice processing and quality evaluation. The working exposure at Arkansas Food Innovation Center is of help to run Incubation Center *etc*., at our college / university. The exposure for wheat milling, wheat quality evaluation, wheat storage in silos *etc*., is of great importance for teaching UG and PG courses at college.
- The rice processing laboratory at Food Science Department, University of Arkansas houses related laboratory and pilot scale processing equipment and state of the art instrumentation from all over the world. To take an advantage of the available facility, a major project with an objective of enhancing the throughput in high power microwave (MW) drying of rough rice (RR) was meticulously planned and executed.
- As part of the project execution, a sequence of experiments such as MW drying of RR, EMC chamber drying, fissuring estimation using X-rays, milling and head rice yield determination, rice flour making and its viscous properties measurement with Rapid Visco Analyzer (RVA), estimation of Surface Lipid Content (SLC), color and protein with NIR spectrophotometer were performed.
- The experiments resulted in a great insight on rice processing and quality assessment related aspects and lead to make useful conclusions about high temperature and short term RR drying employing microwaves.
- The visit helped to know the other research projects happening in the food science particularly in rice processing and other food grains. The visit provided the greatest opportunity to gain the much needed technical knowledge.
- The team members and PI of the program also wished to collaborate with our university on collaborative research and student exchange programs.

g. Master's student's research work on robotic arm for cutting / processing shrimp. As e job of shrimp processing is difficult, robotic arm will help lot in reducing the ndgury.

g. Research work on bio-waste conversion. Uses poultry litter and wheat straw to

2.2. Kansas State University, USA

Dr. M. Madhava, Professor and Head, Department of Processing and Food Engineering,Dr. N.T.R College of Agril. Engineering, Bapatla participated in an international training program with research project titled "Steam parboiling of durum wheat to produce bulgur"at Kansas State University, USA from 17.11.2021 to 14.02.2022 with financial assistance of Rs. 9,66,625/- under IDP. Dr. Kali Ramesh, Assistant Professor, Department of Grain Science and Industry, KSU offered the training.

- Dr. M. Madhava interacted with the teaching, technical faculty and research scholars of the department and exchanged the ideas. The studies on physicochemical and the milling characteristics of bulgur wheat will emphasis its importance on economic perspective and product development with the following objectives.

Objectives

i. To optimize the pressure vs time conditions for steam parboiling of durum wheat.

ii. To study the effect of steam parboiling on gelatinization and pasting characteristics of durum wheat.

iii. To study the milling and physicochemical properties of the bulgur wheat.

- The Department of Grain Science and Industry seeks to educate students and professionals, conduct innovative research, transfer of new technologies and knowledge, offer high-quality outreach programs and services that impact the global grain & plant-based food, feed, fiber, fuel and bioproducts supply chains.
- Aacquainted with bulgur and wheat processing technologies, advanced lab equipment such as "Acqua lab" for dynamic vapour isotherms, mixolab and RVA to measure the textural characteristics of the dough *etc,.*
- Exposed to the ongoing research activities, modern laboratory facilities including both commercial & pilot scale flour mills, analytical equipment for testing various properties of grain throughout the flour milling and separation processes, advanced grain processing equipment and engineering facilities of grain processing, baking science, nutrition, extrusion technology and feed science.
- Durum wheat was subjected to steam treatment at steam pressures of 15, 20 and 25 psi against 15, 20 and 25 min at various combinations. Physico-chemical, milling, textural characteristics of bulgur was studied to optimize the parboiling conditions.

Results

i. Parboiling of durum carried out at different pressures for different times and effect of steam parboiling on physic-chemical properties of parboiled wheat were evaluated.

ii. Steam parboiled durum wheat was debranned using laboratory debranner and milled using roller mill of 1 mm clearance and sieved using sieving machine for two minutes to grade the bulgur into coarse, medium and fine size.

iii. The physical properties such as bulk density, true density, poracity, colour and water activity of bulgur was studied.

iv. Cooking characteristics of the fine, medium and coarse size bulgur samples of different treatments were analysed using rapid visco analyser.

v. Dynamic moisture sorption (Adsorption and Desorption) isotherms of different size bulgur samples with different process treatments are obtained using Acqualab VSA and processed to adsorption rate curves, derivative curves and also fitted to different isotherm modes.

- Future collaborative research with KSU and submission of common research proposals for external funding agencies was discussed.

Bio-Materials and Technology Lab

Hal Ross Flour

Visit to University of Aarkanas

2.3. University of Georgia, USA

Dr. Lal Ahamed Mohammad, Associate Professor, Dept. of Genetics and Plant Breeding, Agricultural College, Bapatla as short time scholar attended training programme on "Plant Phenotyping and Advanced Molecular Breeding and Diagnostic Methods" at Department of Plant Pathology, Tifton Campus, University of Georgia, USA from 01.01.2022 to 31.03.2022 with financial assistance of Rs. 9,52,483/- under IDP.

Objectives

a. Phenotyping and genotyping for stem rot resistance in groundnut

b. Molecular detection of the pathogen collected citrus leaf samples of different orchards of Georgia State were tested for Huanglong- bing (*HLB*, or *citrus greening)* pathogen using different molecular detection kit.

c. Familiarity with the latest diagnostic kits for the early and accurate detection of the plant pathogens by using qPCR, LAMP and RPA.

- Phenotyping and molecular breeding work started with the collection of the MAGIC mapping population received from the USDA groundnut programme and separated 200g of seed for the phenotyping and genotyping work.

- 50 pods from this material was sorted out and the data pertaining to 50 pods weight, number of two seeded pods, two seeded pods weight, number of single seed pods and their weight and number of triple seeded pods and their weight.
- 10 pods of two seeded pods were used for the imaging with a scale to record the length and breadth of the pods.
- The 50 pods were shelled for the number of seeds and their weight along with the number of matured seed and weight, number of immature seeds and their weight and number of trash/diseased pods.
- A random sample of 10 seeds were imaged using Image analyzer (EPSON Make) for seed characteristics like length, width.
- These lines were genotyped by using the specific markers linked to the stem rot, nematode resistance, tomato spotted wilt virus resistance and late leaf spot.
- KASP SNP genotyping assay for these traits was very well established in the laboratory and was exploited for the identification of lines showing multiple disease resistance along with the FAD alleles for high oleic acid content.
- DNA from these samples was extracted using the high throughput DNA extraction protocol and robotic pipetting was performed for addition of dNTPs mixture including the dyes, A sample of 382 were used for pipetting of DNA mixture, Taq Polymerase, dNTPs with two positive and two negative controls in a single plate. Later, it was kept in DNA analyzer to perform the KASP genotyping.
- Thousands of samples were analysed and selected the samples were taken for further analysis and field experimentation.
- Further, an experiment was conducted in controlled conditions to know the resistance in the backcross population of 50 advanced breeding lines in 3 replications to white mold by using the stem cuttings of the peanut genotypes and the Sclerotium inoculum suspension (2%) and mycelial disc methods.
- The data was recorded on 6^{th}, 9^{th}, 12^{th}, 16^{th} and 20^{th} day after inoculation. Some of the lines showed very high levels of resistance as they do not showed the symptoms after 20^{th} day while some are highly susceptible as the symptoms started visible from the 3^{rd} day onwards.
- A crossing programme was also executed by making crosses between the high yielding, high oleic acid, nematode resistant lines and stem rot and late leaf spot resistant wild germplasm sources for the introgression of late leaf spot and stem rot resistance.

Conferences and meetings attended

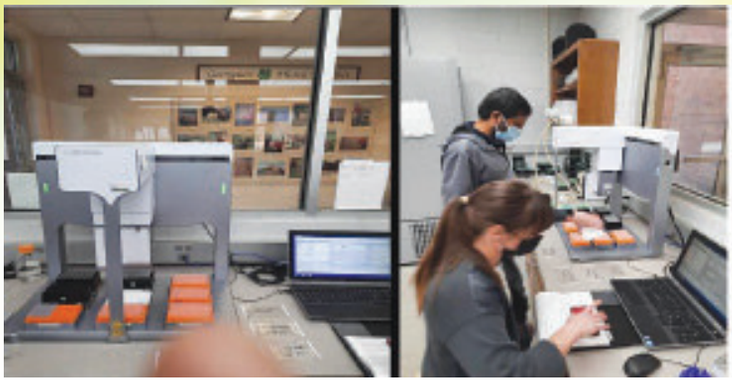
i. Georgia Peanut Farm Show and Conference

ii. Corteva Agriscience Plant Center Spring Symposium

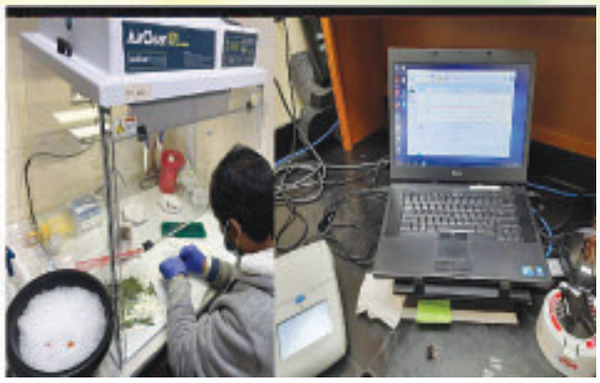
iii. North American Plant Phenotyping Network Conference (NAPPN – 2022)

Emasculation and crossing in peanut using wild species

Phenotyping of peanut seed and pod characteristics



High throughput pippetting uing robot



Loop-mediated Isothermal Amplication (LAMP)

2.4. New Mexico State University (NMSU), New Mexico, USA

Dr. M. Suresh, Associate Professor & Head, Dept. of Plant Pathology, Agricultural College, Naira attended a research training programme at New Mexico State University (NMSU), New Mexico, USA from 14.02.2022 to 13.05.2022 with financial assistance of Rs.10,52,948/- under IDP. He worked on "Identification of peanut genotypes for stem rot resistance through phenotyping and disease modelling techniques" unde the mentorship of Dr. Naveen Puppala, College Professor & Peanut Breeder at Agriculture Science Centre, Clovis, New Mexico State University with the following objectives:

i. To strengthen peanut research and development program at ASC, Clovis, NMSU

ii. To standardize the stem rot pathogen inoculation techniques for effective screening.

iii. To identify peanut germ plasm tolerant to stem rot pathogen through phenotyping and disease modelling.

He was actively involved in the following activities during his visit to Agriculture Science Centre, Clovis, NMSU

i. Standardization of screening techniques for peanut resistance selection against, *Aethalia rolfsi*

- Stem rot pathogen sclerotial production.
- Stem rot pathogen mass multiplication was standardized on different media, both solid and liquid, including peanut shells for identification of best suitable medium for quick growth and suitable for soil application/plant application at field level for better colonization and disease appearance, thus resulting in uniform pathogen distribution was cultured on different media and acidic PDA medium found to be best with maximum.

ii. Identification of resistance in peanut mini core collection to stem rot by modelling and phenotyping under controlled conditions (incubator and greenhouse studies) several germplasm accessions available with the station/peanut breeder were screened under controlled conditions (green house as well as incubator).

- A total of 78 accessions of ASC entries and 115 US mini core accessions along with local checks in three replications were screened for resistance against stem rot pathogen under in vitroconditions.
- Under incubator conditions, the temperature was kept standard and humidity was maintained above 80% with continuous 12 hour light period for creating optimum conditions for pathogen as well as plant growth.
- In green house, the accessions were sown in large tubs in three replications and the data was recorded at specified points of time.
- Stem rot pathogen was inoculated, following slurry method and being standardized after trying different treatments.

iii. Field evaluation of peanut mini core collection for AUDPC studies.

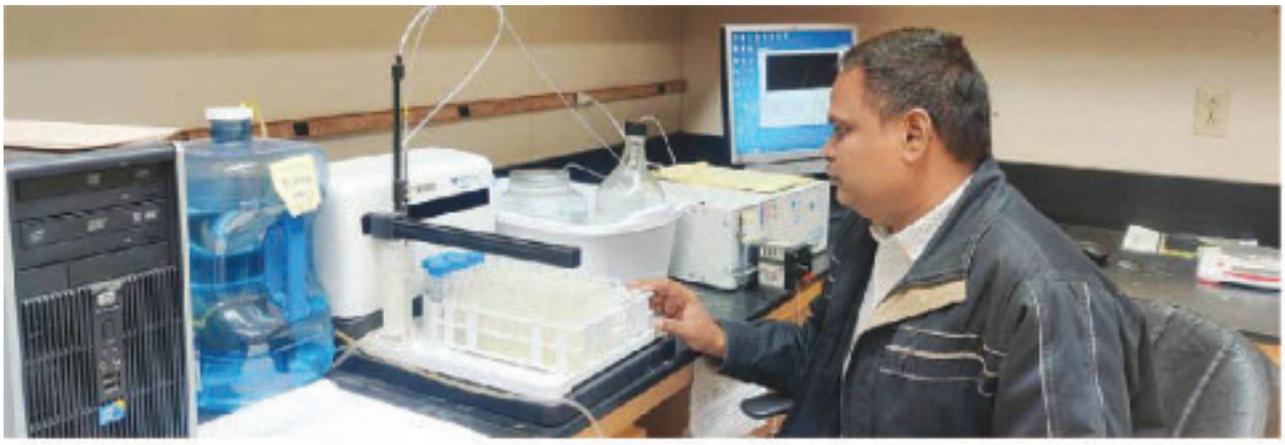
- Sowings were taken up at different locations to evaluate the peanut accessions
- Data will be recorded on plant stand, disease incidence in terms of lesion length, disease score for every ten days starting from 30 days after sowing.
- Mass inoculation of stem rot pathogen will be done by placing the pathogen inoculated peanut shells / peanut twigs at the base of the stem or around collar region.

iv. Interacting and collaborative work scientists from Alabama, Florida, Georgia, and Texas pathologists and working on the AUDPC studies.

vi. Visit to Research/Extension/Processing facilities

- Visited the student centre in the main campus and other facilities of the university
- Visited the lab and had orientation programme on photosynthetic analyzer equipment (M/s. Licor)
- Visited the R&D centre and had a meeting with the crop protection team.
- Visited the peanut processing plants and peanut butter making plants
- Visited some of the large cotton ginning facilities located near the ASC.
- Visited Texas Tech University located at Lubbock, Texas and visited the University students' recreation centre and various labs located in the School of Soil and Environmental Sciences
- Visited the Palla Inc dairy farm at clovis and get familiarized with the dairy operational procedures.

vii. Acting as member of advisory committee to Mrs.Sangita Subedi, PG student, Department of Plant and Environmental Sciences, College of Agricultural Consumer & Environmental Sciences, Las Cruces, NMSU.



Auto sampler for N estimation

Peanut processing plant

Peanut screening facility

Attended PG student advisory meeting at College of ACES, Las Cruces, NMSU on 28.03.2022.

Stem rot pathogen inoculation – lab

Lab visit by the Senior Pathology Professor, Dr Soum Sonago

2.5 . University of California, Davis, USA

Dr. V. Uma Mahesh, Professor, Dept. of Crop Physiology, S.V.Agricultural College, Tirupati attended training on 'Nutrient deficiencies in plants under controlled environment agriculture' at University of California, Davis from 01.03.2022 to 31.05.2022 with financial assistance of Rs.11,66,525 /- under IDP.

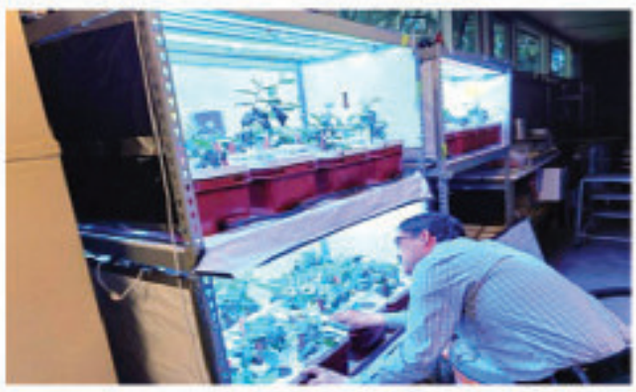
- He stated that this training helped him to improve his core teaching and research competency. As a part of training, involved in maintenance of a greenhouse space with using different sensors and data loggers.
- Learned operation of fertigation tanks, usage of liquid fertilizers, control of foggers and different growth media used to raise the plants.
- This exposure is helped for me to modernize our existing greenhouse space so as to formulate research projects on screening of crop varieties for a variety of abiotic stresses.
- Trained on controlled environment agriculture wherein, he learned new techniques of growing crops under protected cultivation by using hydroponics and aeroponics.
- Received an extensive training on measurement of gaseous exchange with latest portable photosynthetic systems (LI-6400 XT and LI-6800) under different artificial and natural light conditions.
- Acquired knowledge in preparation of different nutrient recipes (Hoagland solution and readymade commercial liquid fertilizers) for crops like lettuce, spinach, wheat, tomato, beans, mint and strawberry.

- Involved in regular maintenance of the crop till harvesting as well as fixing up of pH and EC probes to monitor the plant nutrition status. Got an exposure to metabolome profiling of tea (*Camellia sinensis*) through mass spectrometry.
- Audited two courses namely Field Techniques in Plant Physiology (PLS-217) and Greenhouse and Nursery Crop Production (ENH-125), which helped him to understand the way in which teaching is organized in world class universities, including training in development of educational videos and 'e-content'.
- Attended the 'Research Expo-2022' at UC Davis, through which he acquired knowledge on latest 'plant phenotyping platforms'.
- Visited the 'Department of Biosystems engineering' at University of Arizona, wherein solar power is used to reduce the energy cost, also visited their vertical farming facility. He also had interactive sessions with Dr. Shamim Ahmed of Biological and Agricultural Engineering department at UC Davis. He is also working on usage of alternate energy sources for protected cultivation systems.

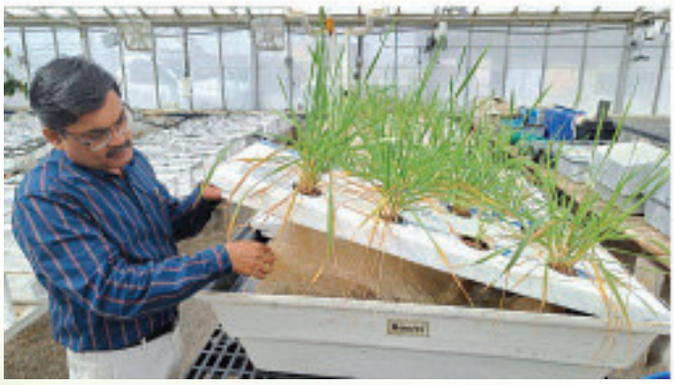
On the whole, this training has opened new vistas of research in ANGRAU and also opportunities to collaborate with world class laboratories at University of California, Davis.

Greenhouse space at Department of Environmental Horticulture and at Bowley Centre, UC Davis

Hydroponic cultivation of crops



Aeroponic cultivation of tea (*Camellia sinensis*)



Hydroponic systems used for root studies

Growing of plants using a humidifier system

Measurement of photosynthetic rate under natural and artificial light conditions using portable photosynthetic systems (LI- 6400XT and LI- 6800)

3. Workshops conducted during FY 2021-2022

A total of five workshops and eight (8) webinars successfully conducted in both online and offline mode during the year 2021-2022.An amount of Rs.4,02,825/- (including outstanding advances) was utilized for organization of workshops and meetings from the available funds of Rs.4,17,800/-under workshops and meetings.

S.No	Name of the Programme	Name of the College	Expenditure Incurred (Rs.)	Duration
3.1	Soil and Water Management for Climate Smart Crop Production	Agricultural College, Bapatla	20,000/-	04.12.2021 to 08.12.2021
3.2	Strengthening market linkages towards doubling of farmers income	Agricultural College, Bapatla	20,000/-	14.12.2021 to 15.12.2021
3.3	Advanced Research Methodologies in Agricultural Extension	Agricultural College, Bapatla	20,000/-	17.02.2022 to 22.02.2022
3.4	Enrichment of Professional Skills to Enhance Academic and Research Competency of the Faculty	S.V. Agricultural College, Titupati	80,000/-	17.03.2022 to 21.03.2022
3.5	Creation of digital content for effective teaching & training	Agricultural College, Mahanandi	80,000/-	24.03.2022 to 26.03.2022
	Total		2,20,000/-	

3.1. Soil and Water Management for Climate Smart Crop Production

A National workshop on “Soil and Water Management for Climate Smart Crop Production” was conducted from 04.12.2021 to 08.12.2021 by the Departments of Soil Science and Agricultural Chemistry, Agronomy and Crop Physiology of Agricultural College, Bapatla under IDP.

Date & Time	Topic
Day 1 04.12.2021 02.30 PM to 04.00 PM	Cropping system management for climate smart crop production by Dr. Mandal Deep Tuti Senior Scientist, ICAR-IIRR, Hyderabad.
Day 2 05.12.2021 02.30 PM to 04.00 PM	Management of salt affected soil for boosting agricultural production and sustainable livelihoods by Dr. P. Balasubramaniam, Professor and Head, ADACRI, Tiruchirapalli (TNAU)
Day3 06.12.2021 02.30 PM to 04.00 PM	Managing spatial variability in soil properties and fertility for site – specific agricultural input management using geospatial techniques by Dr. M.S.S. Nagaraju, Principal Scientist and Head, ICAR – NBSS&LUP, Nagpur
Day4 07.12.2021 02.30 PM to 04.00 PM	Crop establishment methods in rice and water saving technologies for sustainable productivity by Dr. R. Mahendra Kumar, Principal Scientist and Head, ICAR – IIRR, Hyderabad
Day5 08.12.2021 02.30 PM to 04.00 PM	Enhancing abiotic stress tolerance in rainfed crops – Challenges and Strategies by Dr. M. Maheswari, Former Director & Head, ICAR-CRIDA, Hyderabad

National workshop on "Soil and Water Management for Climate Smart Crop Production"

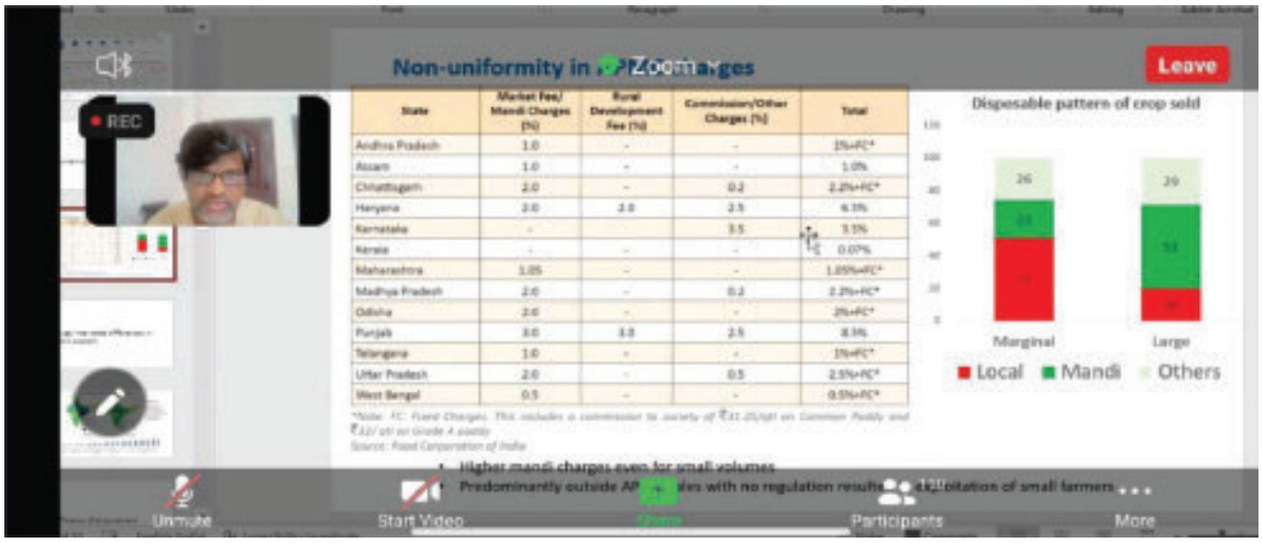
3.2. Strengthening market linkages towards doubling of farmers income

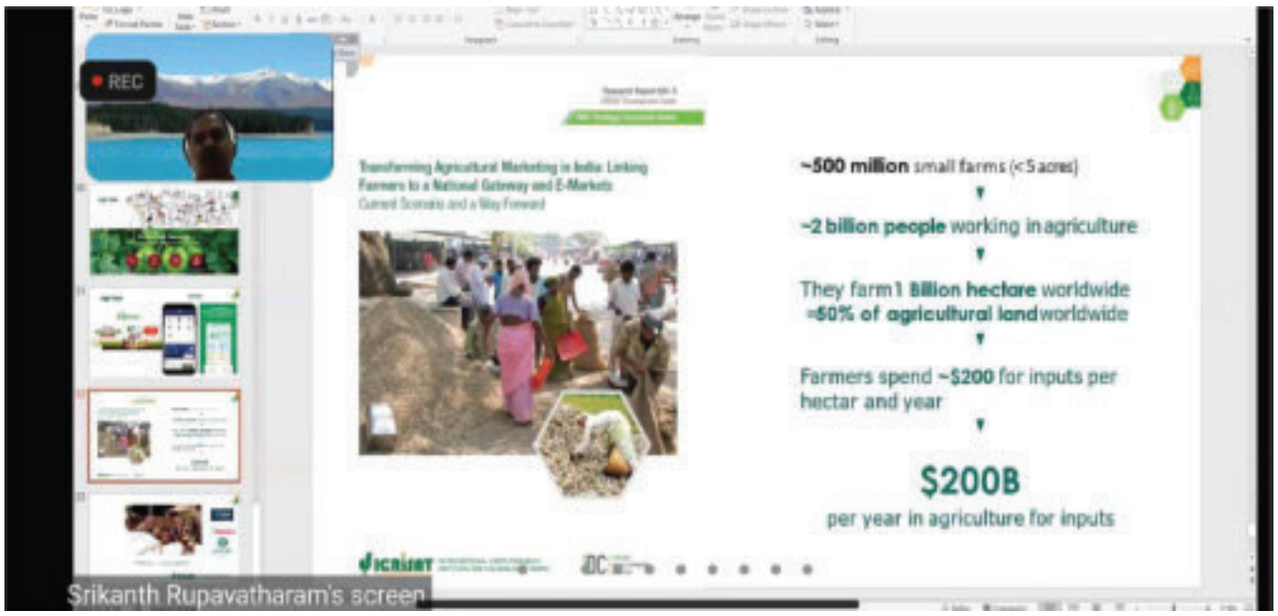
A National workshop on "Strengthening market linkages towards doubling of farmers income" was conducted through online mode by the Dept. of Agricultural Economics, Agricultural College, Bapatla on 14.12.2021 and 15.12.2021 under IDP.

Dr. A. Amarender Reddy, Principal Scientist (Agril. Economics), ICAR-CRIDA spoke on market reforms for increasing farmer's income issues and the way forward.

- He touched upon current status of MSP implementation and stated that there is efficiency in the procurement of paddy and wheat and this is biased against oilseeds and other crops.
- Highlighted about the current status of APMC markets, stagnant agricultural markets, higher mandi charges even for small volumes.
- APMC sales with no regulation resulted in exploitation of small farmers by the traders and 90% trade is in petty private sector. So, the direction of Government policy should be towards one nation – one market, barrier free inter-state market, market function with right-private participation, freedom and choice to farmers.
- Dr. Srikanth Rupavatharam, Senior scientist, Digital agriculture, ICRISAT spoke on Artificial Intelligence for Agri-Market Linkages and emphasized that the smart phone users increased from 76 million in 2013 to 760 million in 2021 and expected to increase to 974 million by 2025. So, linking farmers to national gateway and e-markets in the current scenario should deserve special attention.

- Highlighted about the successful digital platforms like Kalgudi, Andhra Greens and e-Bharti involved in transacting the agricultural produce.
- Dr. Srinivas Konduru, Professor and Chair, Department of Agribusiness, California State University has delivered a talk on strengthening better market linkages for farmers towards efficient transaction of produce.
- Highlighted the differences between traditional agricultural markets vs organized value chains. So, policies are to be discussed to improve market linkages.
- Suggested alternative marketing platforms like eNAM, commodity futures and options & warehousing systems, highlighted that investment in the infrastructure like Transportation, Communication, Market – Grades & Standards and Food Safety is necessary to improve market efficiency.
- Emphasized upon, promoting aggregation models, enabling conditions for contract farming, investing in infrastructure and improving connectivity, establishing better market policies and operating systems.





Glimpses of National Workshop on 'Strengthening Market Linkages for Doubling of Farmers Income'

3.3. Advanced Research Methodologies in Agricultural Extension

A five day national workshop on 'Advanced Research Methodologies in Agricultural Extension' was conducted from 17.02.2022 to 22.02.2022 by the Department of Extension Education, Agricultural College, Bapatla.

The Chief patron of the programme, Dr.A.Vishnuvardhan Reddy, Hon'ble Vice – Chancellor, ANGRAU; Dr. A. Pratap Kumar Reddy, Dean of Agriculture and Chief Advisor and Dr. P. Rambabu, Director of Extension appreciated the organizers for conducting such a demanding program. The programme was organized under the chairmanship of Dr. G. Ramachandra Rao, Associate Dean, Agricultural College, Bapatla. The expertise shared by the eminent scientists from reputed institutes include 'Methods for analysing impact of agricultural technologies' by Dr. P. Sethuraman Sivakumar, Principal Scientist, ICAR-CTCRI, Trivandrum; 'Meta-analysis' by Dr. G.A.K. Kumar, Principal Scientist, ICAR-NRRI, Cuttak; 'Thematic analysis using Nvivo12' by Dr. P. Venkatesan, Principal Scientist, ICAR-NAARM; 'Confirmatory factor analysis in social science research' by Dr. A. Dhandapani, Principal Scientist (Stat), ICAR-NAARM; and 'Evaluation of extension programmes and ethics' by Dr. P. V. K. Sasidhar, Professor, IGNOU, New Delhi.

Glimpses of National workshop on 'Advanced Research Methodologies in Agricultural Extension'

3.4. Enrichment of Professional Skills to Enhance Academic and Research Competency of the Faculty

A National workshop on "Enrichment of Professional Skills to Enhance Academic and Research Competency of the Faculty" was successfully conducted from 17.03.2022 to 21.03.2022 through online mode at S.V. Agricultural College, Tirupati. The main objective of this workshop is to create awareness among the participants on academic research and paper writing, scientific way of editing the text, selection of suitable journal for publishing and on writing of research project proposals. Further, it also focused on hands on experience on online editing tools, video making and photoshop techniques to create effective infographics for scientific publications.

Key topics covered:

a. Research proposal writing .

b. Selection of a journal for scientific publishing

c. Scientific editing of research papers

d. Strategy for writing a research paper

e. Creating a effective infographics by using online tools and corel draw.

f. The art of crafting stories with an online editing tool

g. Data tabulation and visualization techniques

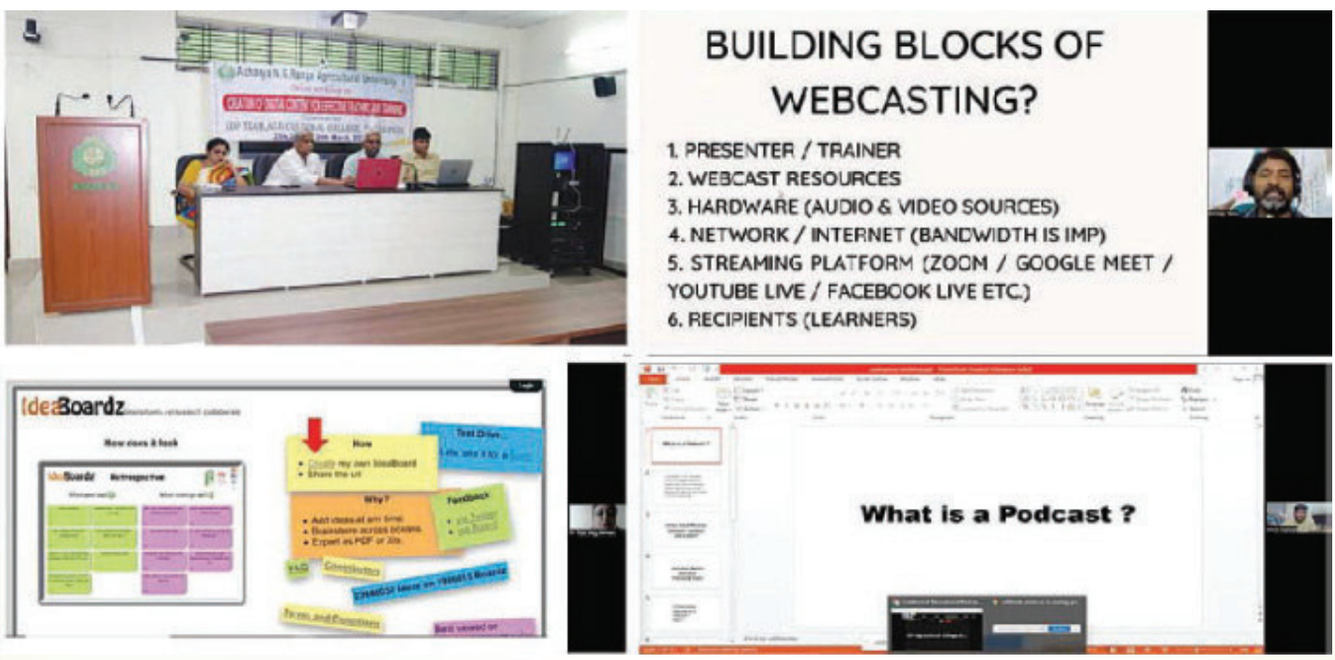
h. The art of taking your image to next level.

Glimpses of National workshop on 'Enrichment of Professional Skills to Enhance Academic and Research Competency of the faculty'

3.5. Creation of digital content for effective teaching & training

A National workshop on "Creation of digital content for effective teaching & training" was conducted on virtual mode at Agricultural College, Mahanandi from 24.03.2022 to 26.03.2022 under IDP, ANGRAU.

- The priority should be to utilize Digital technology to create an advantageous position for millions of young students in India.
- It is need of the hour for the educational institutions to strengthen their knowledge and Information Technology infrastructure to be ready for facing COVID-19 like situations.
- Participants learned how to design educational posters, create interactive e-books, interactive presentations, infographics, create interactive quizzes, create and edit podcasts, create interactive videos and to make video broadcasting/webcasting.
- A total of 201 participants registered and on an average, 60 participants attended each session.



Glimpses of National workshop on 'Creation of digital content for effective teaching & training'

4. Webinars conducted during FY 2021-2022

A total of eight (8) webinars were successfully conducted during the year.

S.No	Name of the programme	Participants	Duration	Expenditure Incurred (Rs.)
4.1	International webinar on 'Water and Food Security in the Face of COVID-19'	438	05.04.2021	11,816/-
4.2	National webinar on 'Scope of Cluster Analysis in Agriculture and Allied Sectors'	323	09.07.2021	8,000/-
4.3	International webinar on 'Emerging technologies in Agricultural Engineering for Food Safety and Security'	473	25.08.2021 to 27.08.2021	70,625/-
4.4	National webinar on 'Entrepreneurship Development in Processing of Jaggery and its Value Added Products'	197	23.09.2021	---
4.5	International webinar on 'Strategic Role of Agricultural Universities in Achieving National Food Security and Rural Development'	500+	06.10.2021 & 07.10.2021	85,673/-
4.6	International webinar on 'ICT applications in Agriculture'	500	26.10.2021 & 27.10.2021	80,000/-
4.7	National webinar on 'Application of Artificial Intelligence Techniques in Modelling Agricultural Time Series Data'	342	10.12.2021	4,000/-
4.8	National webinar on 'Organic Farming: A Focus on Eco – Health'	500	23.03.2022 & 24.03.2022	16,000/-
	Total	**3273+**		

4.1 International Webinar on Water and Food Security in the Face of COVID-19

An international webinar on " Water and food security in the face of COVID-19" was conducted virtually on 05.04.2021 under IDP, ANGRAU, Lam, Guntur. There is severe increase in global food insecurity during COVID-19 pandemic impacting vulnerable households in almost every country. The World Food Programme (WFP) estimates that 149 million people (including refugees) were acutely food insecure (*i.e.,* facing food crisis conditions or worse, also known as Integrated Phase Classification – Phase 3 or higher) across 79 countries in 2019 (https:// www.worldbank.org). There is not enough clean and fresh water to currently manage and sustain the world's population and end hunger and malnutrition.

- Water plays a central and connecting role in food production, animal health, public health and the environment. Hence, better water management is crucial for global food and nutrition security. The linkages between water quality and food safety must be acknowledged and managed to improve food safety across the farm-to-table continuum.
- In this regard, an International webinar on 'Water and Food Security in the Face of COVID-19' was conducted on 05.04.2021 to understand the implications of COVID-19 on global water and food security and find the solutions given the deep uncertainty surrounding the COVID 19 pandemic.
- Engaging two eminent International Speakers David Zilberman, Wolf Prize Laureate, Professor and Robinson Chair, Department of Agricultural and Resource Economics, 217 University Hall, University of California, Berkeley, CA, USA and Dafna M. Di Segni, Associate Professor, Financial and Economic consultant in Natural Resources Management and Economic Development, Department of Economics and Management, Tel-Hai College, Israel. Dr. David spoke on the lessons of COVID to water systems in California and globally.

- There was a discussion on how to plan and manage water to increase resilience and reduce vulnerabilities for both humans and ecosystems and experts weighed on the implications of Covid-19 on global water and food security and how water planning could be incorporated to overcome critical uncertainities.
- Dr.Dafna focused on the impact of COVID-19 on agriculture and food security in Israel, a small economy functioning as an island in its geopolitical location in the East Mediterranean.
- She stated that the global impact of COVID-19 on international trade directly affected Israel's local agricultural production and food security, but to some extent, the trade impact is balanced by its strong agro-technology sector and low sensibility to climate and socioeconomic changes.

Glimpses of International Webinar on 'Water and Food Security in the Face of COVID-19'

4.2. Scope of Cluster Analysis in Agriculture and Allied Sectors

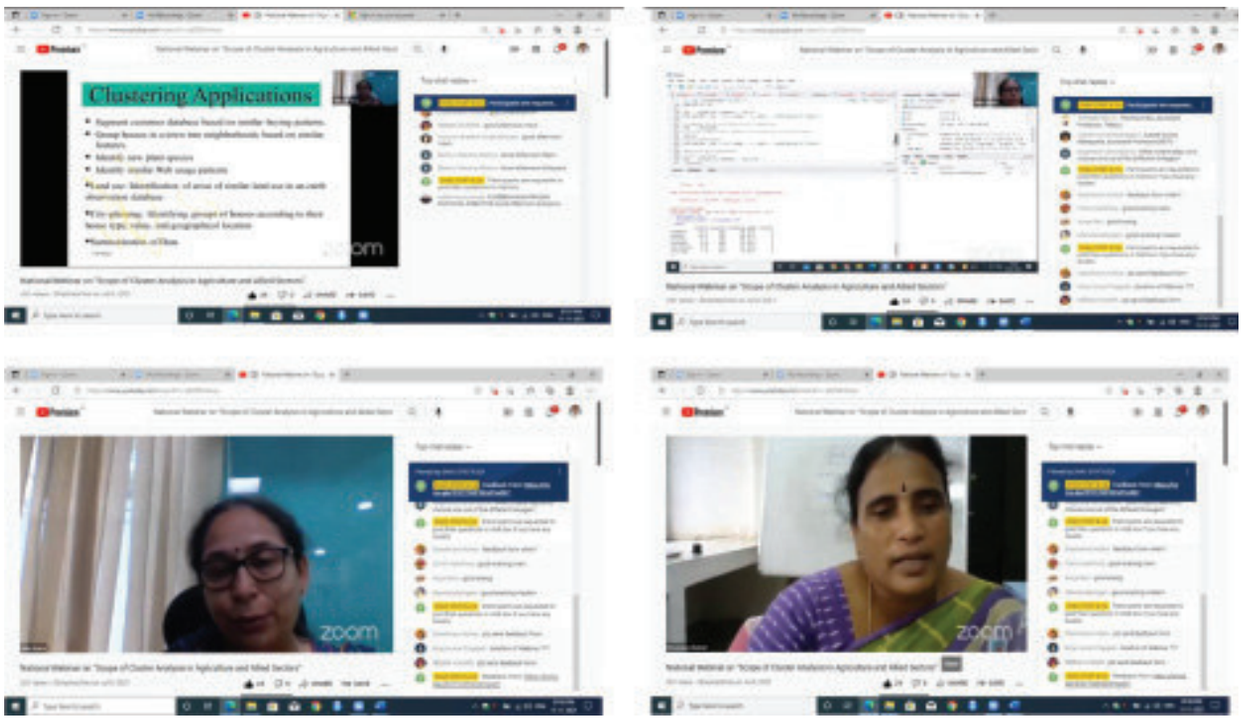
A national webinar on "Scope of Cluster Analysis in Agriculture and Allied Sectors" was conducted on 09.07.2021 virtually by engaging Dr. Alka Arora, Principal Scientist, Division of Computer Applications, ICAR, IARI, New Delhi.

Topics covered include

a) Introduction to Cluster Analysis and its applications in agriculture

b) Cluster Analysis using R software.

- The topic Cluster Analysis encompasses various similarity measures and clustering algorithms for empirical model building that needs a flow of delivery in a unique way for both theoretical and practical sessions.
- It has given a quick understanding to the participants from agriculture (non-mathematical) and allied areas in a couple of sessions.
- **Benefits of the programme:** Knowledge enhancement for Post Graduate Students (PG/Ph.D.) and Teaching Staff /Scientists from Faculty of Agriculture, Faculty of Agricultural Engineering & Technology, Faculty of Community Science and Agribusiness Management.
- This programme provided both theoretical and practical knowledge on cluster analysis to reach innovations in agriculture.
- About 323 members participated in the webinar.



Glimpses of Webinar on 'Scope of cluster analysis in agricultural and allied sectors'

4.3. International webinar on Emerging technologies in Agricultural Engineering for Food Safety and Security

The engineering technological interventions at all stages of crop production, processing and storage are becoming inevitable for sustainable agriculture. In this regard, an international webinar on "Emerging technologies in Agricultural Engineering for Food Safety and Security" from 25.08.2021 to 27.08.2021 was conducted virtually by Dr. N. T. R College of Agricultural Engineering, Bapatla under IDP. The webinar focused on the following themes.

a. Natural Resource Management for Climate Resilient Agriculture

b. Precision Agriculture and Smart Farming

c. Emerging Trends in Food Process Engineering

There was a discussion on the following topics

S.No	Particulars
1.	Sensing and automation technologies for site specific and precision management of production agriculture
2.	Sensor based machinery for precision agriculture
3.	Climate change impact and strategies for adoption for water resource management
4.	Sustaining crop production while conserving natural resources under changing climate
5.	Artificial intelligence and machine learning for smart water management in agriculture
6.	Resilience through natural resources management and automation of farm operations through drones
7.	Robotics and cold plasma technology in agri-food processing

Glimpses of International Webinar on 'Agricultural Engineering for Food Safety and Security'

4.4. Entrepreneurship Development in Processing of Jaggery and its Value Added Products

A National webinar on "Entrepreneurship Development in Processing of Jaggery and its Value Added Products" by AICRP on PHET, RARS, Anakapalle was conducted on 23.09.2021 on virtual mode in zoom platform provided under IDP. A total of 197 persons participated in webinar including Dr.S.N. Jha ADG (Proc.Engg), ICAR; Dr.S.K.Tyagi, Project Coordinator, AICRP on PHET; Dr. N. Trimurtulu, Director of Research, ANGRAU; Dr.K.Yella Reddy, Dean of Agricultural Engineering, ANGRAU and Dr. T Giridhara Krishna, Registrar, ANGRAU.

- The meeting started with presidential address by Dr. N. Trimurtulu, Director of Research, ANGRAU. Enlightened the use of natural clarificants in place of chemical clarificants during jaggery making.
- Later Dr. S. N.Jha, ADG (Proc. Engg.), ICAR, New Delhi addressed the gathering and emphasized on development of jaggery making system on business mode and suggested to conduct awareness programmes on quality jaggery preparation and its value added products.
- Dr. K. Yella Reddy, Dean of Agricultural Engineering, ANGRAU highlighted on commercialization of granular jaggery and stressed on development of good packaging material for jaggery products.
- Dr. S. K. Tyagi, Project Coordinator, AICRP on PHET, CIPHET, Ludhiana thrown light on entrepreneurship development by addressing the research gaps during jaggery processing such as mechanization of jaggery manufacturing process, good packaging technologies and clarification of juice using natural clarificants.
- Dr. M. Bharatha Lakshmi, Associate Director of Research addressed the gathering on role of sugarcane varieties for production of quality jaggery and explained briefly on the sugarcane crop management practices for quality jaggery preparation.
- Dr. P. V. K. Jagannadha Rao, Principal Scientist (Agricultural Engineering) briefed the present status and scope for entrepreneurship development in jaggery industry. Explained about the process for solid, liquid and granular jaggery and explained regarding preparation of various jaggery value added products such as jaggery chocolates, cookies, cakes, ginger and amla based mouth fresheners and sugarcane juice jellies *etc,.*
- Dr. P. Sreedevi, Principal Scientist (Agricultural Engineering) explained about FSSAI regulations for quality jaggery making and briefed about semi-mechanized system for quality jaggery making, packaging technologies, high pressure processing of sugarcane juice and byproduct utilization.
- Dr. Dilip Kumar, Principal Scientist (ASPE), IISR Lucknow elucidated the use of three pan furnaces instead of conventional furnaces for preparation of quality jaggery for entrepreneurship development in jaggery industry.
- Dr. B. G.Gaikwad, Senior Research officer, AICRP on PHET, RS & JRS, Kohlapur explained the preparation of liquid form of jaggery duly following HACCP protocol and briefed about hazards associated with liquid jaggery making.
- During the interaction session, entrepreneurs have posed questions on how to check adulteration in jaggery, shelf-life of liquid jaggery, why solid jaggery gets melted in during storage, how to test moisture content in jaggery moulds and powder and is there any automatic drying processes for jaggery powder.
- The webinar was ended with concluding remarks by Dr. P. V. K. Jagannadha Rao.

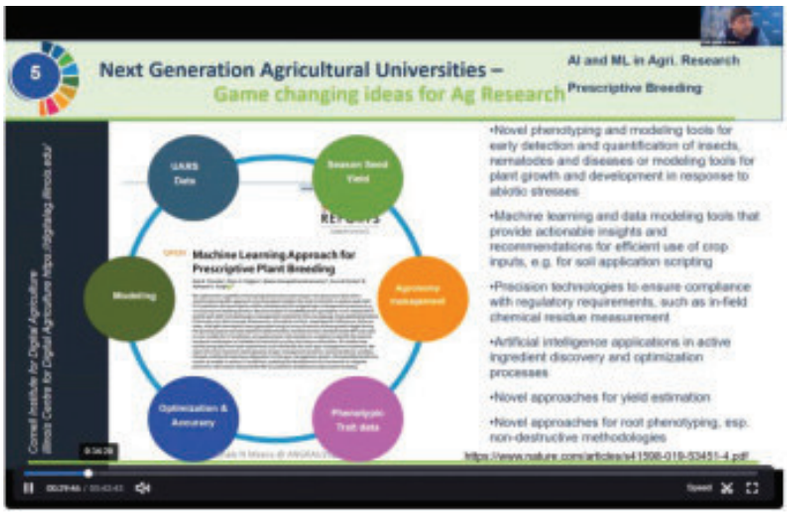
Release of brochure by Dr.A.Vishnuvardhan Reddy, Vice Chancellor

Glimpses of the Webinar

4.5. Strategic Role of Agricultural Universities in Achieving National Food Security and Rural Development

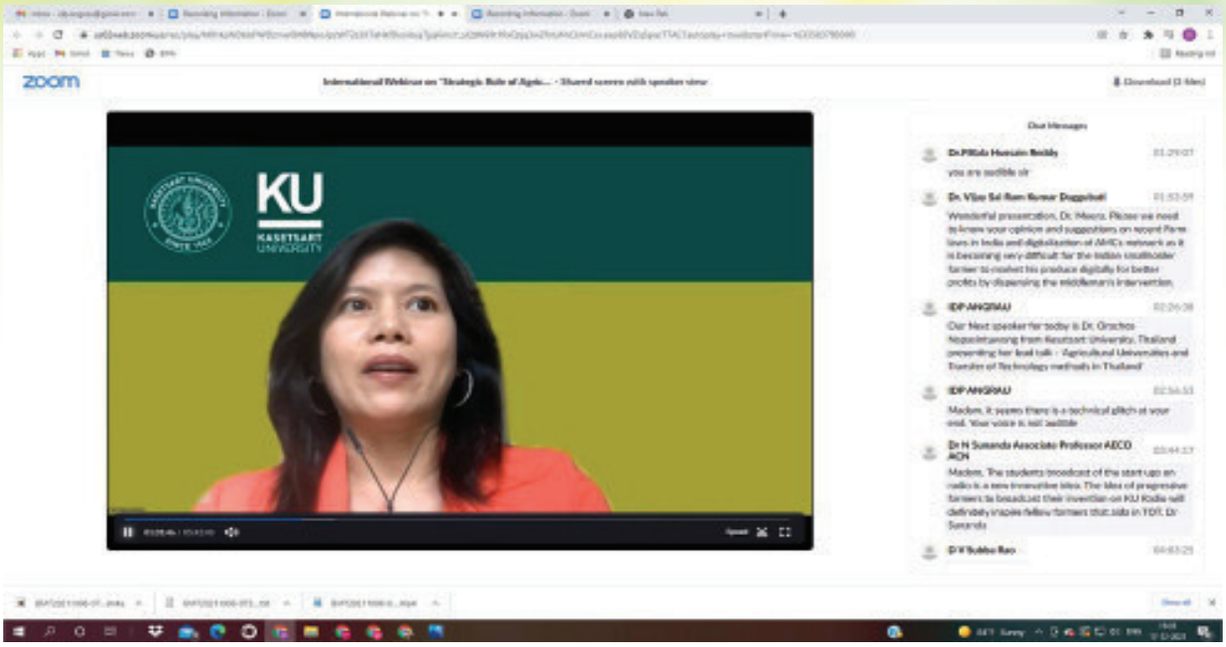
An international webinar on 'Strategic Role of Agricultural Universities in Achieving National Food Security and Rural Development' conducted virtually on 06.10.2021 and 07.10.2021 under NAHEP,IDP by Acharya N.G. Ranga Agricultural University with an objective to create awareness and evaluate the strategies of Agricultural Universities across the world in achieving National Food Security and Rural Development.

Dr. A. Lalitha, PAIO (FAC), AI & CC, ANGRAU and convener of the webinar extended a warm welcome to the Hon'ble Vice Chancellor, ANGRAU, Lam; Dean of Agriculture & PI, IDP ANGRAU, Guntur; Director of Extension and other delegates, subject experts and participants from various parts of the world. Dr. A. Pratap Kumar Reddy, Dean of Agriculture & PI of IDP ANGRAU, Guntur and Dr.P.Rambabu, Director of Extension, ANGRAU,Guntur participated as Guests of Honour in the inaugural session. Technical sessions were conducted after the inaugural session with eminent speakers from around the globe. A total of 500 plus participants attended the webinar.



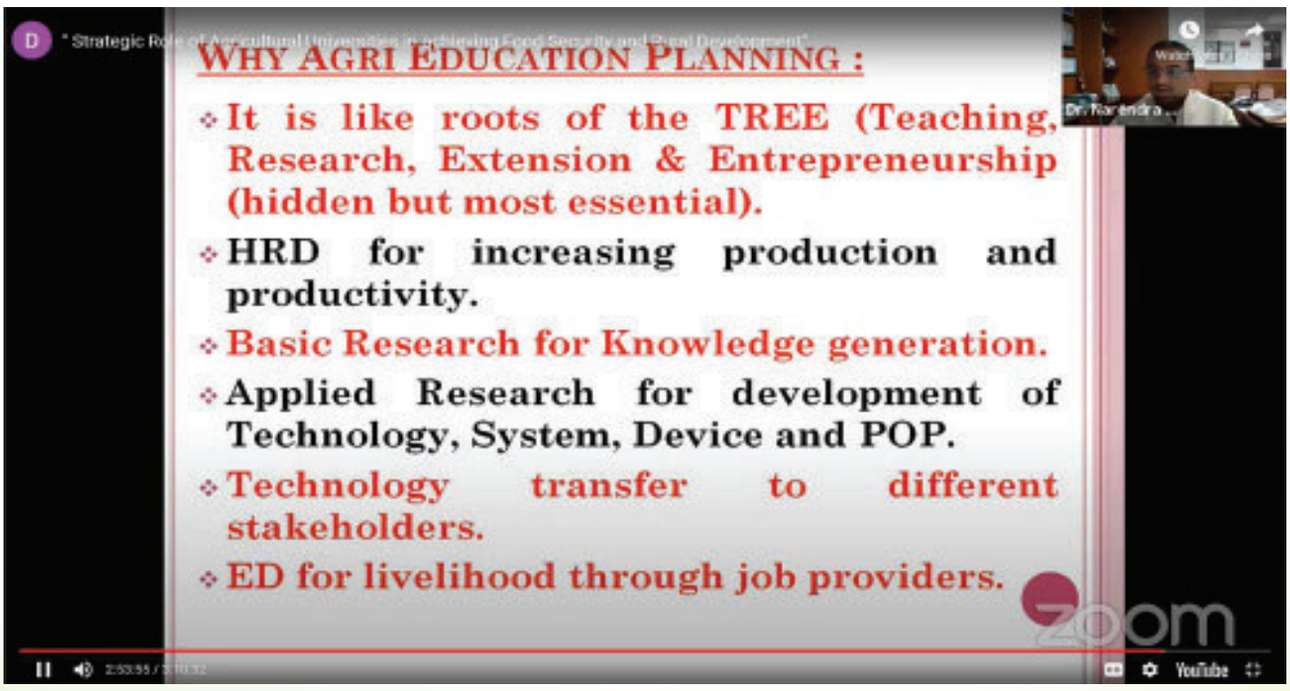
Address by Dr. S.N. Meera, Senior Technical Expert (Digital agriculture), IFAD, Cairo, Egypt

Address by Prof. Kadambot H. M. Siddique, Hackett Professor of Agriculture Chair & Director, UWA Institute of Agriculture, University of Western Australia, Australia

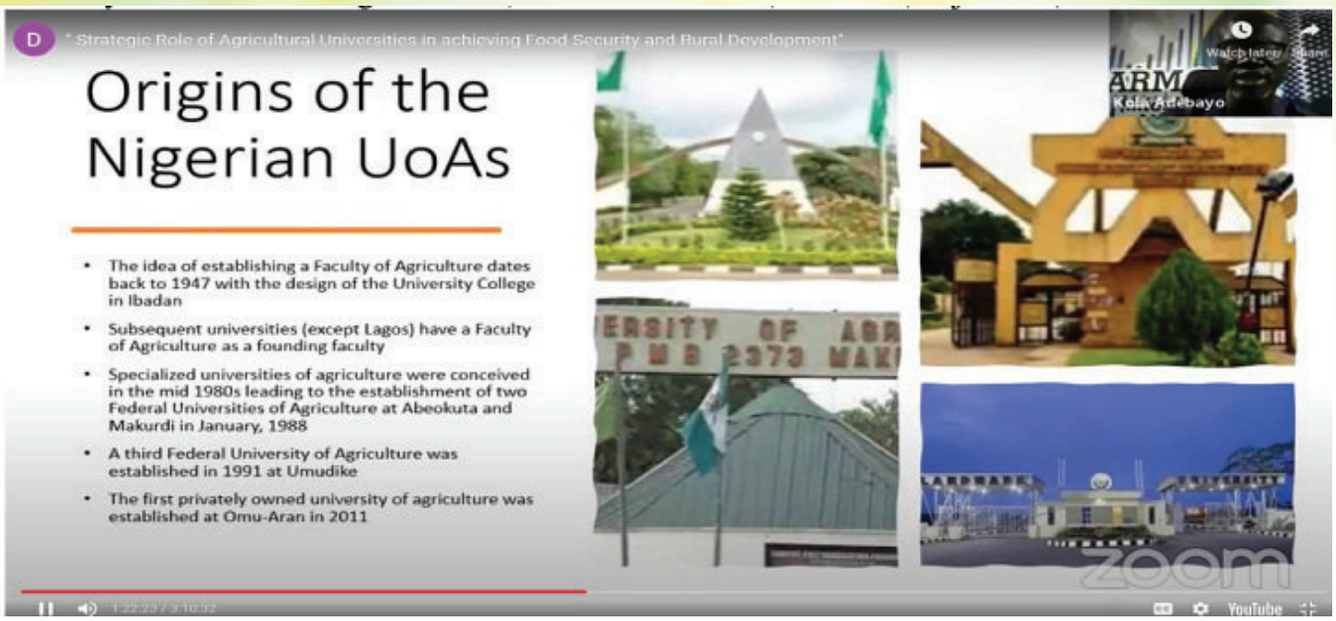


Address by Dr.Orachos Napasintuwong, Asst. Professor, Dept. of Agricultural and Resource Economics, Kesatsart University, Thailand

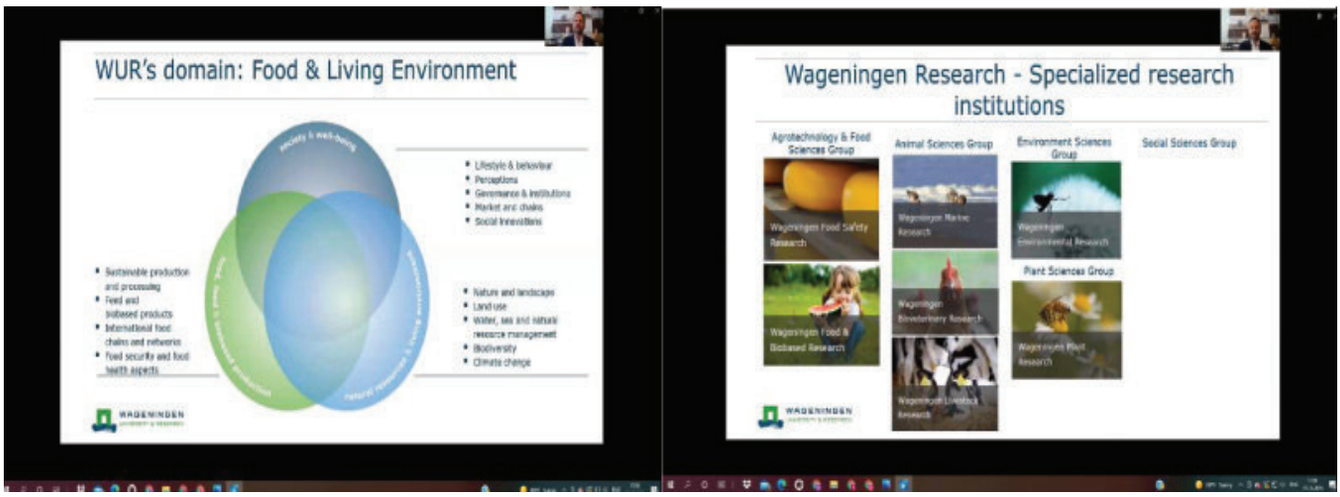
Address by Prof. ZhuJing, Chair Professor and Dean, College of Economics and Management, Nanjing Agricultural University, China



Address by Dr. Narendra Singh Rathore, Vice Chancellor, MPUAT, Rajasthan, India



Address by Prof. Kolawale Adebayo, Professor of Agriculture and Rural Development, Federal University of Agriculture, Abeokuta, Nigerian



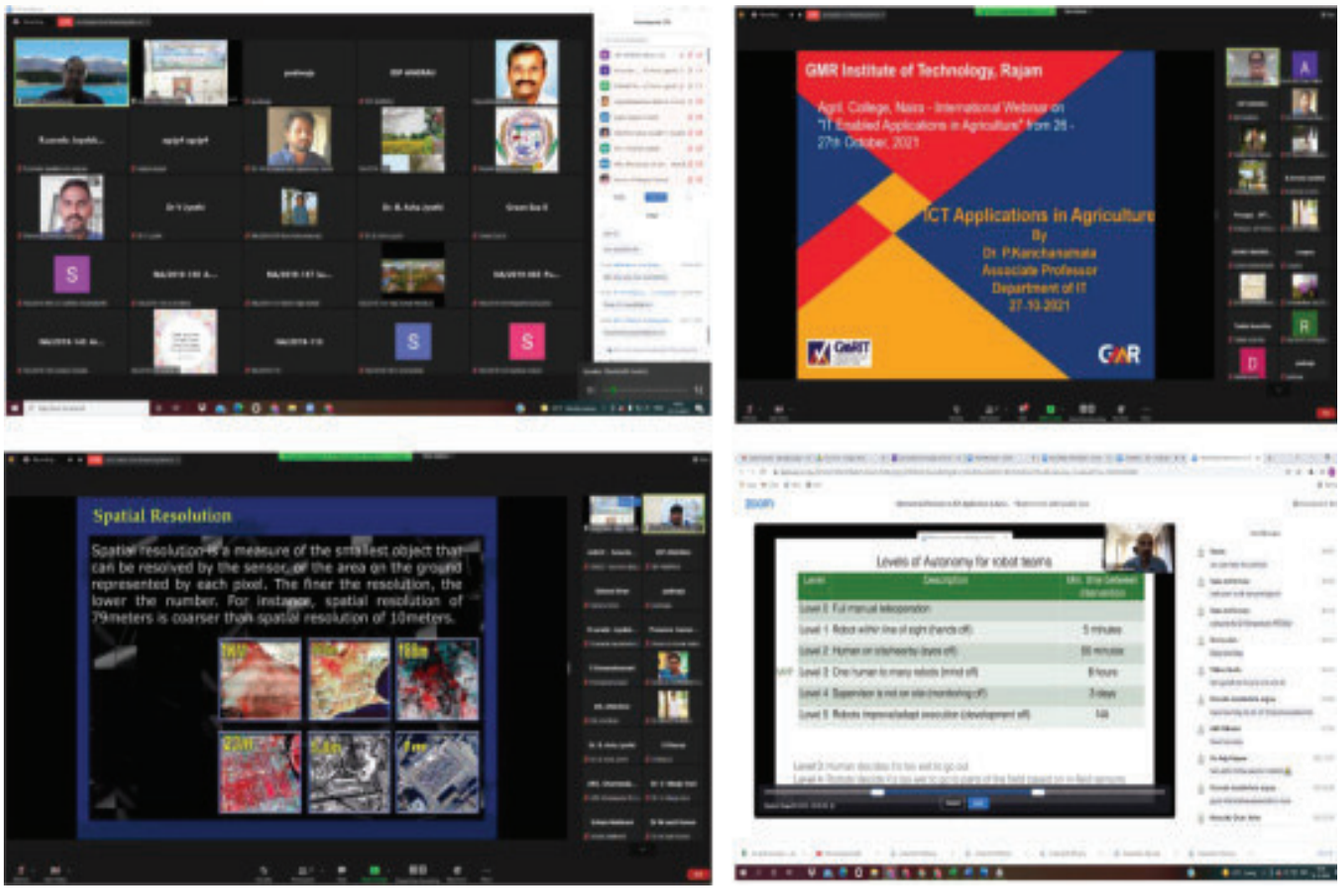
Address by Mr. Kalyan Chakravarthy Guntuboyina**,** Account Manager, Asia, Wageningen University & Research, Netherlands

4.6. International webinar on ICT applications in Agriculture

International Seminar (Virtual) on 'ICT enabled applications in Agriculture' was conducted on 26.10.2021 & 27.10.2021 at Agricultural College, Naira. The webinar was organized by committee members *viz.,* Dr. M. Suresh Kumar, Associate Dean, Agricultural College, Naira; Dr. A. Upendra Rao, Professor & Head, Department of Agronomy; Dr. N. Sunanda, Associate Professor & Head, Dept. of Agricultural Economics; Dr. V. Rajendra Prasad, Associate Professor, Dept. of Agricultural Economics and Dr. S. Govinda Rao, Assistant Professor, Dept. of Statistics & Computer Applications, Agricultural College, Naira.

- International Speakers Dr. Girish Chowdary, Director, Earth Sciences Institute, University of Illinois, USA delivered a talk on Artificial Intelligence (AI) and Machine Learning applications in agriculture.
- Dr. Vijaya Gopal Kakani, Warth Distinguished Professor & Sarkeys Distinguished Professor, Department of Plant and Soil Sciences, Okhlahama State University, USA delivered a talk on Drone Technology in Agriculture.
- Dr. Renuka V, Data Analytics Scientist at School of Engineering and Applied Sciences, University of Pennsylvania, USA delivered a talk on Data Analytic applications in agriculture.

- Prof. Laury Baker, Department of Agricultural Education & Communication, Institute of Food & Agricultural Sciences, University of Florida delivered a talk on online tools in agricultural education.
- Speakers from National Institutes like IIT, Tirupati; PJTSAU, Hyderabad; ICRISAT, Hyderabad; ICAR-NBSS & LUP, Bangalore; GMRIT, Rajam; Soil & Land Use Survey of India, New Delhi; Ministry of Agriculture, Govt. of India and ANGRAU-Rajamahendravaram .
- A total of 500 participants from all over the world have joined virtually in the conference.



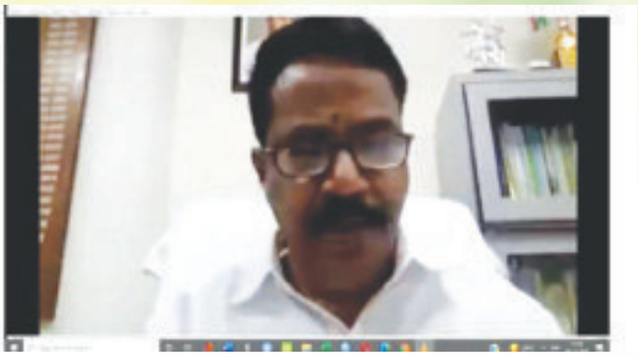
Glimpses of International Webinar on 'ICT Applications in Agriculture'

4.7. Application of Artificial Intelligence Techniques in Modelling Agricultural Time Series Data

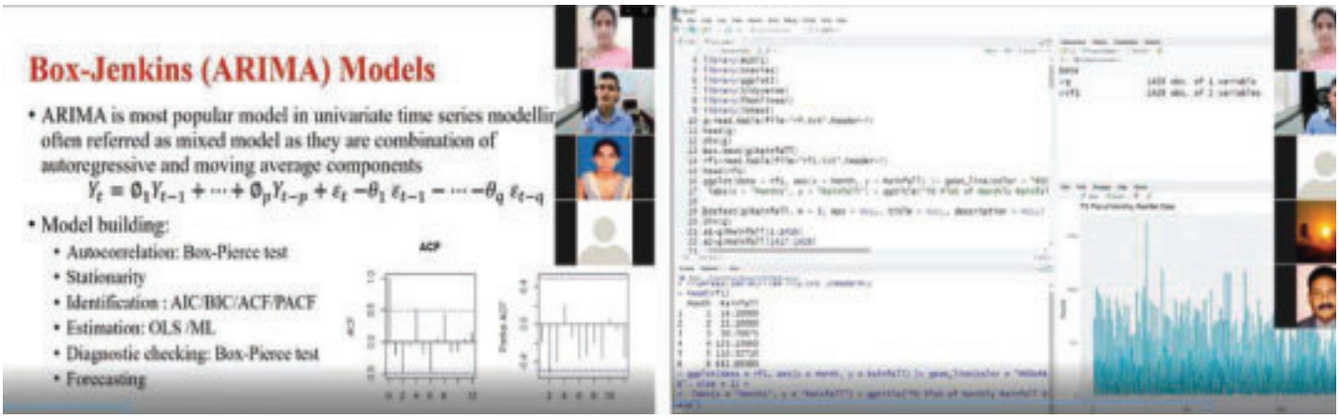
A national webinar on "Application of Artificial Intelligence Techniques in Modelling Agricultural Time Series Data" was conducted by the Dept. of Statistics & Computer Applications, S.V. Agricultural College, Tirupati on 10.12.2021.

- Dr. B. Ravindranatha Reddy, Associate Dean, S.V. Agricultural College, Tirupati has given welcome address wherein he explained the need and importance of the topic.
- Further, opening remarks on topic was given by Dr. V. Srinivasa Rao, Professor & University Head, Hon'ble member of BOM, ANGARU, Dept. of Statistics & Computer Applications, Agricultural College, Bapatla.
- In the first session, the Speaker, Dr.Santosha Rathod, Scientist (Agril. Statistics), ICAR-Indian Institute of Rice Research, Rajendra Nagar, Hyderabad explained on 'Importance & Application of Artificial Intelligence Techniques in Modelling for Time Series Data. Various time series models and their importance, advantages and disadvantages and also their uses like, ARIMA, Vector Autoregressive model, Support Vector Machine Models, Long Memory Models and Hybrid Models etc,. were covered in the session.
- Later, in the session, speaker explained on 'Artificial Intelligence Techniques using R-Software', how to run R-Progamme on Artificial Intelligence and explained the output.
- About 342 participants benefited from the webinar.

Opening remarks by Dr. V. Srinivasa Rao, Professor & University Head



Welcome address by Dr. B. Ravindranatha Reddy, Associate Dean



Glimpses of the webinar on 'Application of Artificial Intelligence Techniques in Modelling Agricultural Time Series Data'

4.8. Organic Farming: A Focus on Eco – Health

National webinar on 'Organic Farming: A Focus on Eco – Health' by Agricultural College, Bapatla scheduled on 23.03.2022 and 24.03.2022 by the invited speakers, Dr. S.K. Sharma, Director of Research, MPUAT, Udaipur, Rajasthan; Dr. Dhanunjay Singh, Professor, Directorate of University Farm, G.B.P.U.A. & T, Pantnagar, Uttarakhand; Dr. Yaasin, Professor in Agronomy, TNAU, Coimbatore, Tamil Nadu and Dr.L.J. Desai, Principal Scientist, NPOF, Sardar Krishi Nagar, Dantiwada, Gujarat under IDP, ANGRAU.

Invigorating the escalation of organic farming as a pragmatic strategy for soil and ecosystem restoration is the major objective of the webinar. The webinar addressed the challenges and prospects of organic farming on one side and to inculcate positive hope against adverse future environmental condition on the other thereby attaining important goals and targets.

The webinar with talks from eminent speakers of International repute was planned to depict the essence of coordinated management to monitor progress towards mitigating stress in crop plants, improving soil quality and nutritional compliances as the need of the hour.


Glimpses of National webinar on 'Organic Farming: A Focus on Eco – Health'

5. National and International Guest Lectures

A total of 17 No. of National and International Guest lectures both online and offline mode and 25 National training programmes (24 No. of student training programmes and 1 No faculty online course) were successfully organized during the year.

S.No	Name of the programme	Duration	No of Participants	Expenditure Incurred (Rs.)
5.1	International Pulse Markets and Production Economics	20.04.2021	186	--
5.2	Water Food Energy Nexus: The Integrated Management for Efficient use of Resources	26.04.2021	125	--
5.3	Seed Business: Challenges and Opportunities	04.05.2021	155	4,000/-
5.4	Creating Effective Online Learning Environments: A Strategy	18.05.2021	296	11,040/-
5.5	U.S. Production Agriculture	16.06.2021	355	11,816/-
5.6	Pangenomes: Beyond Single Reference Genomes	25.06.2021	80	11,121/-
5.7	Recent Advances in Weed Management	02.07.2021	98	4,000/-
5.8.	Land Resources Inventory for Farm Level Planning	07.07.2021	395	4,000/-
5.9	Scope of Biological Control in Organic Agriculture	16.07.2021	52	4,000/-
5.10	Biomass in liquid fuels and sustainable development	28.07.2021	70	4,000/-
5.11	Weed Management in Organic Agriculture	30-07-2021	90	4,000/-
5.12	Marker Assisted Breeding in Groundnut	30.07.2021	362	4,000/-
5.13	Pest Surveillance and Monitoring	30.07.2021	477	4,000/-
5.14	How to study and prepare for competitive exams	16.09.2021	500	4,000/-
5.15	Studying abroad as an MS or MS/PhD combined program student with a full scholarship	17.09.2021	500	----
5.16	Disruptive Innovation in Digital Agriculture	18.10.2022	425	4,000/-
5.17	SNP genotyping platforms and Applications	18.10.2022	454	4,000/-
	Total		**4,620**	

National / International Guest Lectures conducted under IDP-NAHEP-ANGRAU

International Seminar Series – Guest Lecture – 1

Date: 20.04.2021

Name of the Topic: International Pulse Markets and Production Economics

Name of the Speaker: Dr.Yelto Zimmer, Managing Director, Global networks gUG, Germany

A guest lecture was conducted on "International Pulse Markets and Production Economics" on 20.04.2021 by engaging Dr.Yelto Zimmer, Managing Director, global networks gUG, Head of agri benchmark, Bundesallee 63, 38116 Braunschweig, Germany. There was a discussion on attractive market of pulses, its high growth rates in trade value, competitive pulse production system schemes, how to sort out logistic issues, global production problems and evolution of pulses and so on. About 186 participants including faculty and students benefited from the guest lecture.

Glimpses of presentation by Dr. Yelto Zimmer and interacting with faculty participants

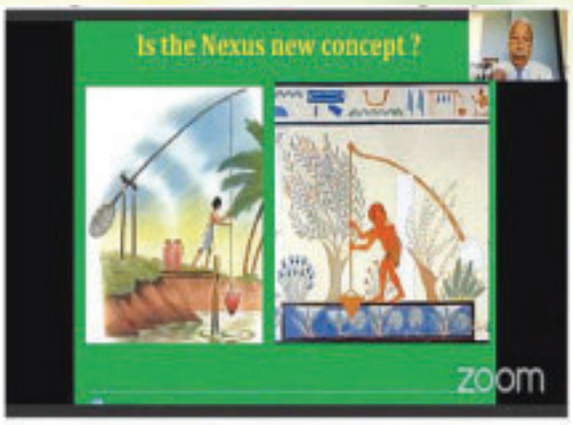
International Seminar Series – Guest Lecture – 2

Date: 26.04.2021

Name of the Topic: Water Food Energy Nexus: The Integrated Management for Efficient use of Resources

Name of the Speaker: Dr. Ragab Ragab, President, International Commission on Irrigation and Drainage (ICID)

A guest lecture was conducted on "Water Food Energy Nexus: The Integrated Management for Efficient use of Resources" on 26.04.2021 by engaging Distinguished Professor, Dr. Ragab, President, International Commission on Irrigation and Drainage (ICID). Elucidated about the essential resources of life and importance of water – food-energy in human life. Enlightened the participants on the water – food – energy nexus approach, how to implement an integrated nexus approach and benefits of the nexus at field level, national level, types of nexus, nexus study in macro – micro level, water productivity and models as tools for management to optimize the input use and obtain maximum output and other aspects. About 125 participants benefited from the programme.



Glimpses of presentation by Dr. Ragab

Dr. Ragab interacting with Dr. K. Yella Reddy, Dean of Agricultural Engineering & Technology and other faculty participants

National Seminar Series – Guest Lecture – 3

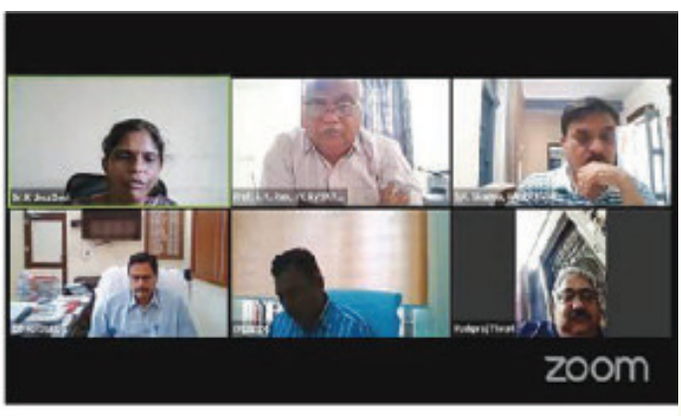
Date: 04.05.2021

Name of the Topic: Seed Business: Challenges and Opportunities

Name of the Speaker: S. K. Rao, Hon'ble Vice Chancellor, RVSKVV, Gwalior

A guest lecture was conducted on "Seed Business: Challenges and Opportunities" by engaging distinguished Professor (Dr.) S. K. Rao, Hon'ble Vice Chancellor, RVSKVV, Gwalior on 04.05.2021. Enlightened the participants about the seed sector, its global scenario, challenges and opportunities of seed business, seed business threats, policies and key issues. There was a discussion on latest opportunities for start-ups, successful seed business in indian seed industries and scaling up issues – business support services. About 155 participants including faculty and students participated in the guest lecture.

Address by Dr. A. Pratap Kumar Reddy, PI, IDP



Dr. S.K. Rao interacting with participants

Address by Dr. A. Subbarami Reddy,
Director (Seeds)

Glimpses of presentation by
Dr. S.K. Rao, Hon'ble Vice-Chancellor, RVSKVV

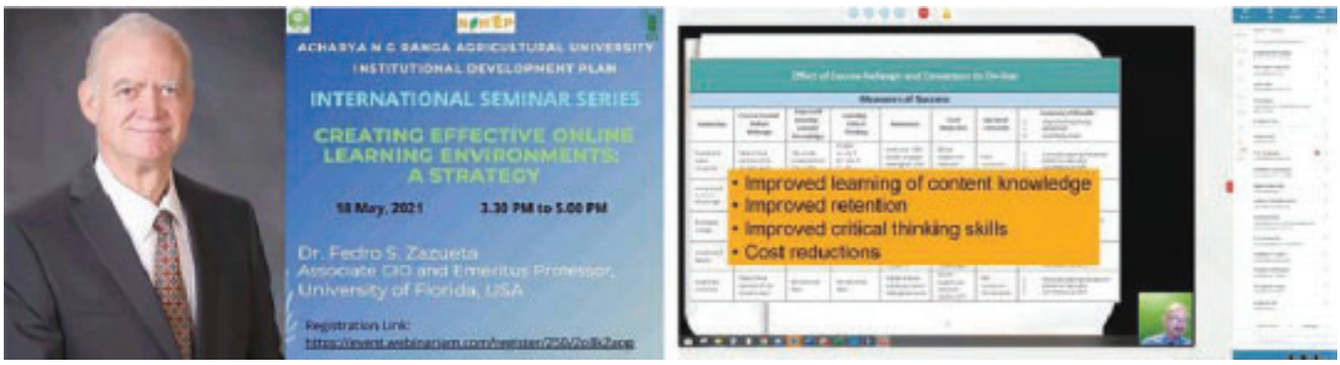
International Seminar Series – Guest Lecture – 4

Date: 18.05.2021

Name of the Topic: Creating Effective Online Learning Environments: A Strategy

Name of the Speaker: Dr.Fedro S. Zazueta, Associate CIO and Emeritus Professor, University of Florida, USA

A guest lecture was conducted on "Creating Effective Online Learning Environments: A Strategy" by Dr. Fedro S. Zazueta, Associate CIO and Emeritus Professor, University of Florida, USA on 18.05.2021. The talk enlightened the participants on recent aspects of online teaching-learning experiences and focused on how to improve learning outcomes and reduce cost of instruction using technology, how to use technology in classroom which require investment through IT transformed physical spaces like classrooms and focus on learner, technological innovations that brings about deep change, what technologies we have to invest on, how can technology improve learning and various other aspects. About 296 participants including faculty and students benefited from the guest lecture.



Address by Dr.Fedro S. Zazueta

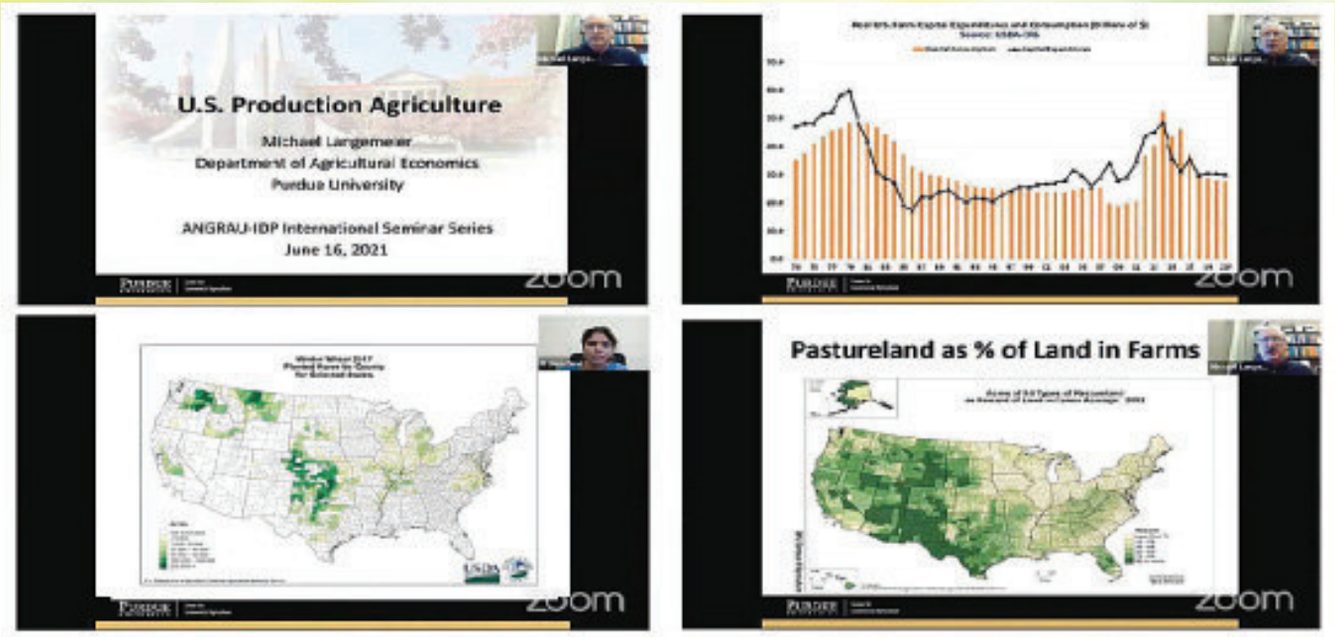
International Seminar Series – Guest Lecture – 5

Date: 16.06.2021

Name of the Topic: U.S. Production Agriculture

Name of the Speaker: Prof. Michael Langemeir, The Director, Center for Commercial Agriculture, Purdue University,USA

A guest lecture was conducted on "U.S. Production Agriculture" on 16.06.2021 by distinguished speaker Prof. Michael Langemeir, The Director, Centre for Commercial Agriculture, Purdue University, USA. Though US practices cannot be totally adopted in India as it is not possible to have such large holdings, some of the measures can be adopted. These include regular testing of soil quality, satellite image of the field, better communication with farmers to promote technical knowledge and better use of IT infrastructure to provide direct subsidies.About 355 participants (faculty/scientists and students of ANGRAU and other universities) actively participated in the programme.



Glimpses of presentation by Prof. Michael Langemeir

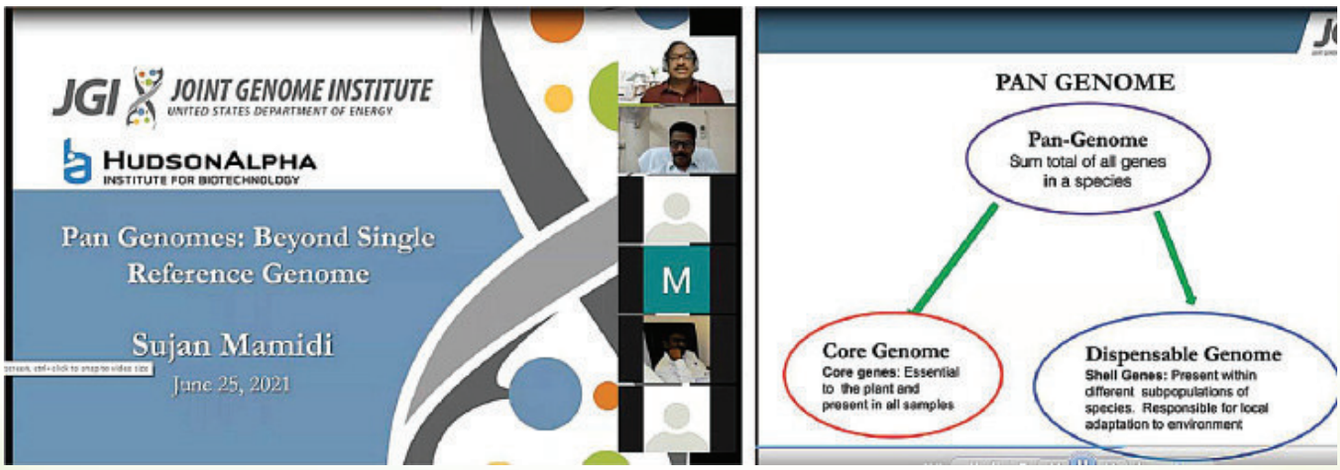
International Seminar Series – Guest Lecture – 6

Date: 25.06.2021

Name of the Topic: Pangenomes: Beyond Single Reference Genomes

Name of the Speaker: Dr. Sujan Mamidi, Senior Scientist (Computational Biology), Hudson, Alpha Institute for Biotechnology, Alabama, USA

A guest lecture on "Pangenomes: Beyond Single Reference Genomes" was conducted by distinguished speaker Dr. Sujan Mamidi, Senior Scientist (Computational Biology), Hudson Alpha Institute for Biotechnology, Alabama, USA on 25.06.2021. This event is jointly organized by the Dept. of Genetics and Plant Breeding and Dept. of Molecular Biology and Biotechnology, S.V. Agricultural College, ANGRAU, Tirupati. Approximately 80 participants attended the lecture.



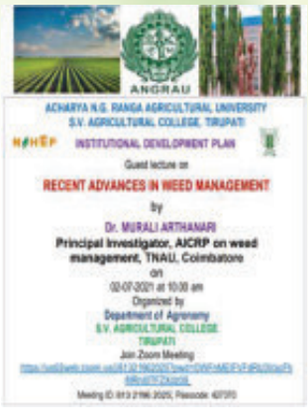
Glimpses of presentation by Dr. Sujan Mamidi

National Seminar Series – Guest Lecture – 7

Date: 02.07.2021

Name of the Topic: Recent Advances in Weed Management

Name of the Speaker: Dr. P. Murali Arthanari, Principal Investigator, AICRP on weed management, TNAU,Coimbatore



A guest lecture was conducted by Dept. of Agronomy, S.V. Agricultural College, Tirupati on 02.07.2021 on the topic titled "Recent Advances in Weed Management" by engaging the guest speaker, Dr. P. Murali Arthanari, Principal Investigator, All India Coordinated Research Project on Weed Management, TNAU, Coimbatore. The speaker highlighted the importance of weed management in agriculture, use of nano herbicides, residue management of herbicides, use of myco herbicides and bio herbicides, use of bio fluids, Robotics & Artificial Intelligence (AI), remote sensing, application of drones in weed management, Laser technology, RNA Interference (RANi), nano technology, thermal weed control and organic weed management practices. Approximately 98 participants benefited from the guest lecture.

National Seminar Series – Guest Lecture – 8

Date: 07.07.2021

Name of the Topic: Land Resources Inventory for Farm Level Planning

Name of the Speaker: Dr. Rajendra Hegde, Principal Scientist and Head, ICAR-NBSS & LUP, Bengaluru

A guest lecture on "Land Resources Inventory for Farm Level Planning" was conducted by the Department of Soil Science and Agricultural Chemistry, S.V. Agricultural College, Tirupati, ANGRAU by engaging distinguished speaker, Dr. Rajendra Hegde, Principal Scientist and Head, ICAR-National Bureau of Soil Survey & Land Use Planning, Bengaluru on 07.07. 2021. He stated that the technological advances in the field of remote sensing *i.e.,* Global Positioning System (GPS) and Geographic Information System (GIS) have augmented the efficiency of land resource inventory and mapping. The recent advances in remote sensing have immense potential to explore the full range of spectral, spatial and temporal resolutions of high-resolution satellites in soil resource mapping and characterization. A total of 395 participants benefited from the guest lecture.

National Seminar Series – Guest Lecture – 9

Date: 16.07.2021

Name of the Topic: Scope of Biological Control in Organic Agriculture

Name of the Speaker: Dr. A. H. Hosmani, Professor and Head (Entomology), University of Agricultural Sciences, Raichur, Karnataka

A guest lecture on "Scope of Biological Control in Organic Agriculture" was conducted by engaging distinguished speaker, Dr. A. H. Hosmani, Professor and Head (Entomology), University of Agricultural Sciences, Raichur, Karnataka on 16.07.2021. He explained the importance of biological control agents in suppression of pests and diseases. He narrated about different types of parasitoids, predators and entomopathogenic microorganisms like NPV, Bt, Fungi *etc,.*He described the status of bioagents in IPM programmes and detailed the success stories of biological control with special emphasis on insects. The details on commercial formulations of bioagents were explained the benefits of biological control include protection to the crop throughout the crop period, as they do not cause toxicity to the plants, multiply easily in the soil and leave no residual problem. Biocontrol agents not only control the disease but also enhance the root and plant growth by way of encouraging the beneficial soil micro flora *etc,.* A total of 52 participants benefited from the guest lecture.

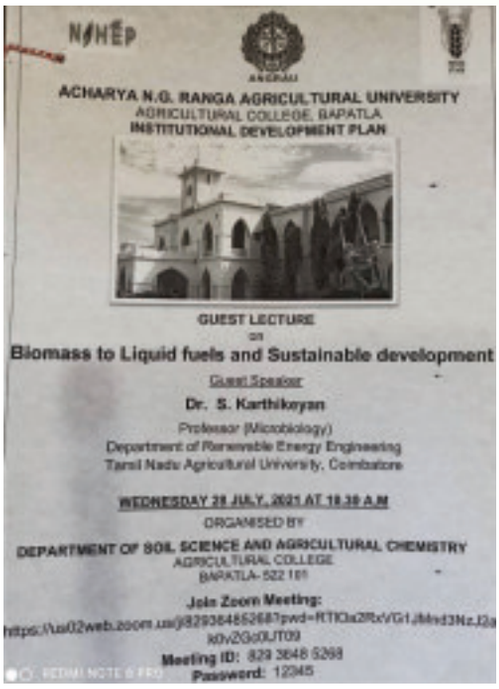
National Seminar Series – Guest Lecture – 10

Date: 28.07.2021

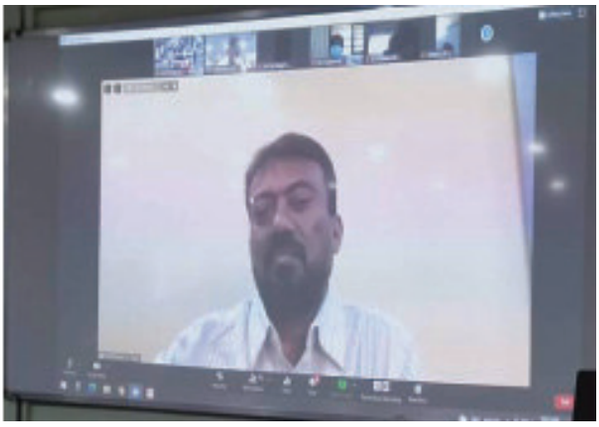
Name of the Topic: Biomass in liquid fuels and sustainable development

Name of the Speaker: Dr. S. Karthikeyan, Professor (Microbiology), Department of Renewable Energy Engineering, Coimbatore (TNAU)

A guest lecture on 'Biomass in liquid fuels and sustainable development' was conducted by the Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla on 28.7.2021 through virtual mode in the IDP hall of the College. Dr. G. Ramachandra Rao, Associate Dean, Agricultural College, Bapatla in the inaugural address stated that producing fuels from food grade materials has become controversial as there are several million people in the world without sufficient food. Hence, the second generation technologies to produce fuels and chemicals from non-edible feed stocks such as agricultural residue, forest residue, municipal solid waste, industrial waste and dedicated energy crops are gaining importance. Further, he mentioned that development of energy efficient technologies *viz.,* pretreatment, enzyme hydrolysis and microbial fermentation, accompanied by-products and establishment of biofuel and biochemical standards is the need of the hour. Dr. S. Karthikeyan, Professor (Microbiology), Department of Renewable Energy Engineering, Coimbatore (TNAU) delivered a talk on these topic. About 70 members participated in the meeting on virtual mode.



Address by Dr. G. Ramachandra Rao, Associate Dean, Agricultural College, Bapatla



Address by Dr. S. Karthikeyan

Glimpses of Guest lecture on 'Biomass in liquid fuels and sustainable development'

Summary and way forward

- Bioenergy technologies are fast evolving and are getting better & cheaper.
- Still technical challenges are formidable.
- Biomass availability studies in India is necessary and biomass supply logistics need to be explored.
- India to develop best suited technology platform mainly for converting lignocellulosic biomass.
- One major microbiological challenge lies in the difficulty to ferment xylose and the other in developing low cost in-house enzymes.

- Technology advancement to improve the fermentation process and to reduce energy consumption in the separation phase.
- Apart from biofuels production from biomass, resource recovery of the non-cellulosic component of biomass such as lignin and hemicelluloses are also a major domain.
- Transition to integrated biorefineries by replacing the oil analogs and the related policy implementation is a major player.

National Seminar Series – Guest Lecture – 11

Date: 30.07.2021

Name of the Topic: Weed Management in Organic Agriculture

Name of the Speaker: Dr. E. Somasundaram, Professor (Agronomy) & Special Officer (WLFD), AC & RI, Killikulam (TN)

A guest lecture on "Weed Management in Organic Agriculture" was conducted by the Dept. of Agronomy, S.V. Agricultural College, Tirupati on 30.07.21 by engaging speaker Dr. E. Somasundaram, Professor (Agronomy) & Special Officer (WLFD), AC & RI, Killikulam (TN). Topics covered cultural methods of weed management include crop rotation, cover crops, intercropping, field scouting and mulching (organic mulch and living mulch); Thermal weed control by soil solarization, flamers, infra red weeders and freezing; Biological weed control by alleopathy, use of beneficial & biocontrol agents, competitive plants and commercial myco herbicides. There was a discussion on various strategies to be adopted inorganic weed management. About 90 participants benefited from the guest lecture.

Guest Lecture by Dr. E. Somasundaram

National Seminar Series – Guest Lecture – 12

Date: 30.07.2021

Name of the Topic: Marker Assisted Breeding in Groundnut

Name of the Speaker: Dr. P. Janila, Principal Scientist (Groundnut Breeding), Crop improvement division, ICRISAT, Hyderabad

A guest lecture on "Marker Assisted Breeding in Groundnut" jointly conducted by Department of Genetics and Plant Breeding and Department of Molecular Biology and Biotechnology, S. V. Agricultural College, Tirupati on 30.07.2021 by distinguished speaker, Dr. P. Janila, Principal Scientist (Groundnut Breeding), Crop improvement division, ICRISAT, Hydearabad.

- She mentioned that Marker Assisted Selection (MAS) can be used to enhance cost effective selection of target traits, where large number of selection candidate genes can be tested, thus increasing the genetic gain.
- Shared her practical experiences in marker assisted breeding of groundnut and development of Quantitative Trait Loci (QTL) derived diagnostic SNPs for high oleic acid, rust and late leaf spot resistance.
- Delaying the MAS to F4 and later generations is advantageous than early generations as higher proportion of desirable homozygotes are produced in later generations.
- Dr. P. Janila discussed the concept of seed chip genotyping, an efficient high throughput genotyping techniques as it does not require plant or planting of F4 in field tagging.
- A total of 362 participants benefited from the programme.

Glimpses of Guest Lecture on "Marker Assisted Breeding in Groundnut"

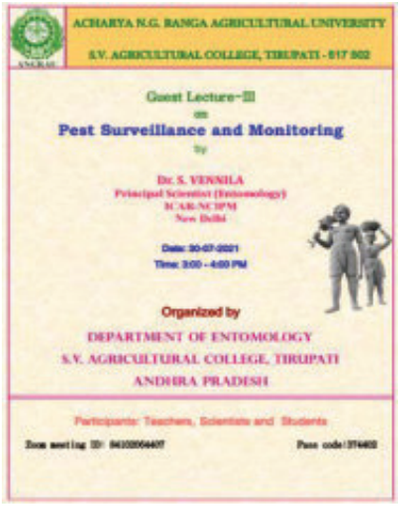
National Seminar Series – Guest Lecture – 13

Date: 30.07.2021

Name of the Topic: Pest Surveillance and Monitoring

Name of the Speaker: Dr. S. Vennila, Principal Scientist (Entomology), ICAR-National Centre for Integrated Pest Management

A guest lecture on "Pest Surveillance and Monitoring" was conducted by Dept. of Entomology, S. V. Agricultural College, Tirupati on 30.07.2021 by engaging speaker, Dr. S. Vennila, Principal Scientist (Entomology), ICAR-National Centre for Integrated Pest Management, New Delhi. The lecture focused on pest survey and surveillance, quantitative and qualitative surveys, essentialities of pest surveys, phytosanitory measures, guidelines for surveillance, pest sampling techniques, geospatial technology for pest monitoring, satellite added surveillance, e-pest surveillance system, isocline maps and surveillance data based predictions of outbreaks. A total of 477 partipants benefited from the guest lecture.



Guest Lecture by Dr. S. Vennila.

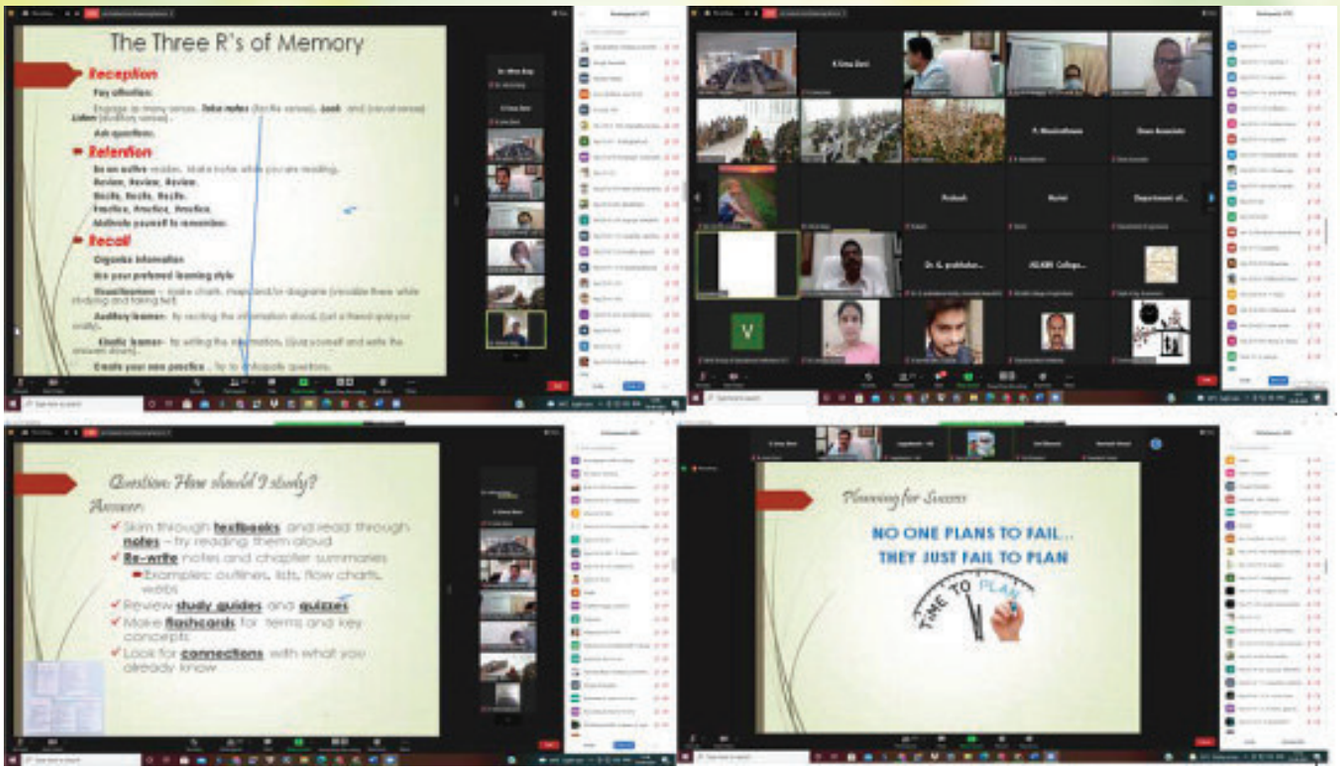
National Seminar Series – Guest Lecture – 14

Date: 16.09.2021

Name of the Topic: How to study and prepare for competitive exams

Name of the Speaker: Dr. Mirza Baig, Assistant Professor, Agronomy, College of Agriculture, Vasantrao Naik Marathwada Agriculture University, Parbhani.

A guest lecture on "How to study and prepare for competitive exams" was conducted by engaging distinguished Speaker, Dr. Mirza Baig, Assistant Professor, Agronomy, College of Agriculture, Vasantrao Naik Marathwada Agriculture University, Parbhani on 16.09.2021. About 500 undergraduate students participated in the guest lecture.



Glimpses of Guest Lecture on 'How to study and prepare for competitive exam'

National Seminar Series – Guest Lecture – 15

Date: 17.09.2021

Name of the Topic: Studying abroad as MS or MS/PhD combined program student with a full scholarship

Name of the Speaker: Ms. Renuka Vallarapu, Data Analyst at the School of Engineering and Applied Sciences, University of Pennsylvania, USA

The university, in its efforts to strengthen collaboration with leading institutes globally, an international seminar series is planned on varied contemporary issues pertaining to agriculture and allied sciences for providing a wholesome learning experience. In this regard, a guest lecture on "Studying abroad as an MS or MS/PhD combined program student with a full scholarship" was conducted through online mode for students of ANGRAU under IDP on 17.09.2021.

Ms. Renuka Vallarapu, Data Analyst at the School of Engineering and Applied Sciences, University of Pennsylvania, USA was the guest speaker. She has rendered quality and valuable information to the students about how to make sure their profile standout for admission to the foreign universities full scholarship, coursera courses, summer Ag projects/internships, timeline of activities semester-by-semester for the students encouraging the students to develop rock solid profile. About 500 participants including faculty and students participated and benefited from the programme. Ms. Renuka also has given time-slots for 4 additional ZOOM sessions as follow-up to the very first overview session on the following topics:

1. "ANGRAU-IDP-Study abroad for FREE B.Sc. Ag Semester-1 and Semester-2 TO DO List"– OCT-1-2021 from 5.00 PM to 6.00 PM
2. Topic: "ANGRAU-IDP-Study abroad for FREE B.Sc. Ag Semester-3 and Semester-4 TO DO List"– OCT-8-2021 from 5.00 PM to 6.00 PM
3. Topic: "ANGRAU-IDP-Study abroad for FREE B.Sc. Ag Semester-5 and Semester-6 TO DO List"– OCT-22-2021 from 5.00 PM to 6.00 PM
4. Topic: "ANGRAU-IDP-Study abroad for FREE B.Sc. Ag Semester-7 and Semester-8 TO DO List"– OCT-29-2021 from 5.00 PM to 6.00 PM

Glimpses of Guest lecture on 'Studying abroad as an MS or MS/PhD combined program student with a full scholarship'

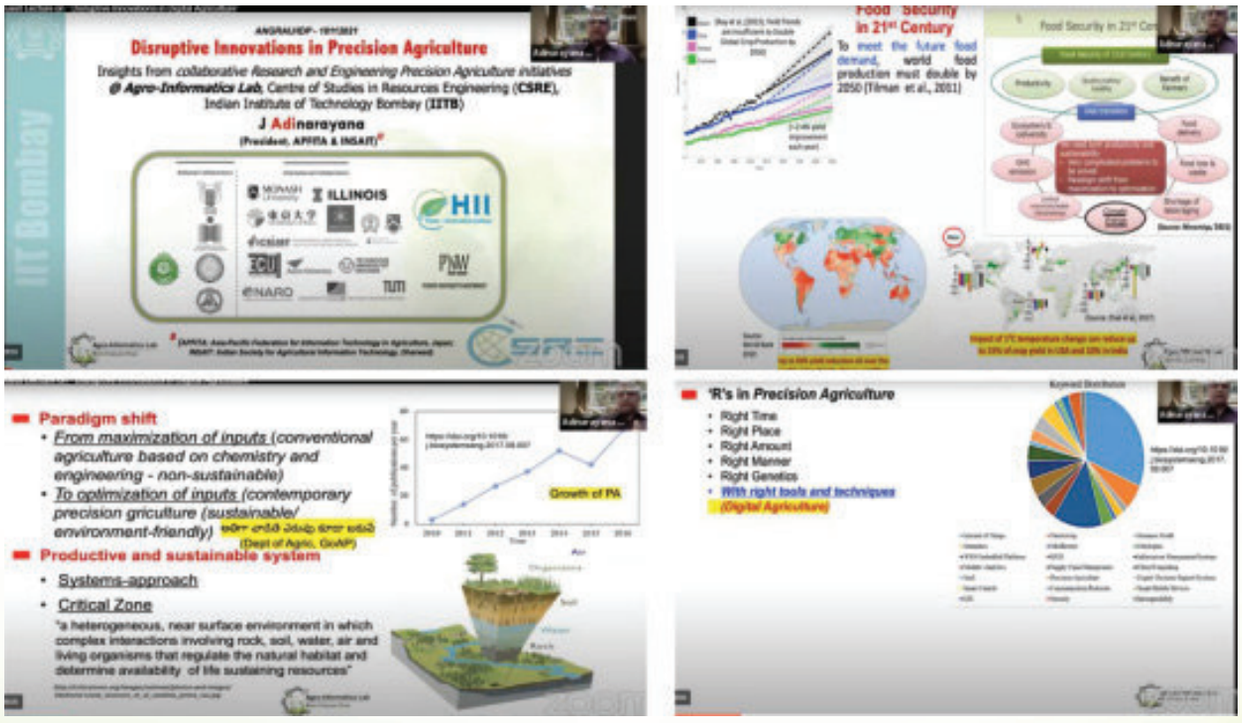
National Seminar Series – Guest Lecture – 16

Date: 18.10.2021

Name of the Topic: Disruptive Innovation in Digital Agriculture

Name of the Speaker: Dr. J. Adinarayana, Institute chair Professor, Centre of studies in Resources Engineering, IIT Bombay.

A guest lecture on "Disruptive Innovation in Digital Agriculture" was conducted by engaging distinguished speaker, Dr. J. Adinarayana, Institute chair Professor, Centre of studies in Resources Engineering IIT, Bombay on 18.11.2021 for the benefit of students and faculty of ANGRAU. About 425 participants benefited from the programme.



Glimpses of Guest Lecture on 'Disruptive Innovation in Digital Agriculture'

National Seminar Series – Guest Lecture – 17

Date: 18.10.2021

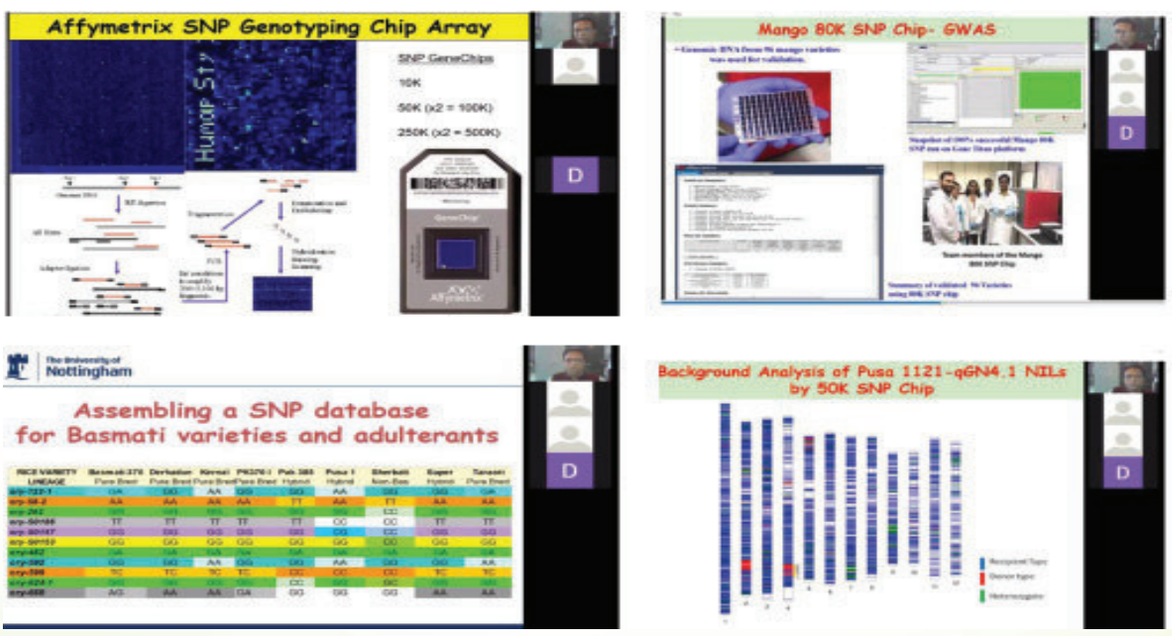
Name of the Topic: SNP Genotyping platforms and Applications

Name of the Speaker: Prof. Nagendra K. Singh, National Professor (B. P. Pal Chair), ICAR-National Institute of Plant Biotechnology, Pusa Campus, New Delhi-110012 .

As a part of diamond jubilee celebrations of the S. V. Agricultural College, Tirupati, the Department of Molecular Biology and Biotechnology was conducted a guest lecture on 'SNP Genotyping platforms and Applications' on 18.11.2021 with an eminent scientist, Prof. Nagendra K. Singh, National Professor (B. P. Pal Chair), ICAR-National Institute of Plant Biotechnology, Pusa Campus, New Delhi-110012. About 454 participants benefited from the programme.

The salient points of the guest lecture were

- Molecular characterization and high-density fingerprinting of germplasm resources will greatly help in gene discovery and allele mining for useful traits.
- There are several SNP genotyping assays including Genotyping by Sequencing (GBS), Genotyping by Probe Hybridization – Dot blot, Reverse dot blot (SNP chips) and platforms such as Illumina 'Golden gate' and 'Infinium' arrays, Affymatrix arrays, Agilent Perl gene arrays are available.
- SNP Genotyping chip has the ability to generate whole genome wide information at 50,000 to 7,50,000 loci per sample in 96 hours. Additionally, it is hands free automated processing platform with flexible throughput – 16,24, 48, 96- and 384-array layouts used for multiple applications ranging from expression, SNP discovery with a flexibility to customize multiple species on the same array.
- The 50K SNP rice chip is routinely used for genotyping, background selection in marker assisted selection, identification of adulterants in basmati rice, monitoring the spread of rice varieties at global level *etc,*.
- The 62K genic-SNP Chip for pigeonpea developed by NIPB consists of 62,053 SNP loci of which 56 % of the reference genes incorporated in the chip.
- NIPB also developed 80K SNP chip in mango is routinely used for genotyping, DNA fingerprinting and diversity and population structure analysis of mango.
- The SNP chips can be employed for preparation of high density linkage maps, diagnosis of predisposition to genetic diseases (animals), diversity analysis fingerprinting of genotype sand evolutionary studies *etc,*.



Glimpses of Guest lecture on 'SNP genotyping platforms and Application'

5. National Trainings under IDP, ANGRAU

Under operational expenditure, national trainings and skill development programmes for undergraduate students were planned and executed at national level both online and physical mode for the financial year 2021-2022 as per the sanctioned proposal.

S. No.	Name of the programme	No. of Participants	Duration & Period	Venue & Sponsored by	Expenditure Incurred (Rs.)
5.1	**National Training Programme for UG students**				
5.1.1	A National Training Programme on "Plant Health Management"	30	12.04. 2021 to 07.05.2021	National Institute of PlantHealth Management (NIPHM), Hyderabad	8,51,130/-
5.1.2	Online Soft Skills Training, Public Speaking and Personality Development Programme	60	16.03.2021 to 30.04 2021	Mr. Vishnu Chowdhary	2,36,000/-
5.1.3	Online training programme on "Soft Skills Enhancement for Self-Improvement" for II year undergraduate students	200	07.06.2021 to 11.06.2021	Smart Series, Bengaluru	1,50,000/-
5.1.4	Online training programme on "Overall personality development"	200	14.06.2021 to 22.06.2021	SS Technologies, Hyderabad	1,94,700/-
5.1.5	Personality Developement	60	07.07.2021 to 21.07.2021	Communi Care, Pune	9,03,604/-
5.1.6	Neuro Linguistic Programming (NLP) – A tool for most effective communication – Level 1	100	12.07.2021 to 12.09.2021	Smart Series, Bangalore	2,00,000/-
5.1.7	Hydroponics Digital Master Class	359	06.08.2021 to 16.09.2021	Kryzen Biotech Pvt. Ltd	5,38,141/-
5.1.8	French for Beginners	25	01.10.2021 to 08.11.2021	English and Foreign Languages University (EFLU), Hyderabad	5,70,000/-
5.1.9	Agro Based Entrepreneurship	40	04.10.2021 to14.10.2021	Entrepreneurship Development Institute of India (EDII), Gandhinagar, Gujarat	3,28,512/-
5.1.10	Personality Development & Soft Skills	40	18.10.2021 to 03.11.2021	Communicare, Pune	4,22,688/-
5.1.11	Export and Import of Agricultural Commodities.	75	18.10.2021 to 29.12.2021	Lime Institute of Export and Import Training, Gujarat.	10,00,000/-
5.1.12	IoT in Agriculture	60	14.11.2021 to 31.12.2021	Aunwesha Knowledge Technologies, kolkata	1,33,000/-
5.1.13	Robotics and AI in Agriculture	100	27.12.2021 to 15.01.2022 & 14.02.2022 to 17.02.2022	ECIT Academy, IIITDM, Jabalpur	7,86,852/-
5.1.14	Four skills – Learning,Speaking, Reading and Writing	100	17.01.2022 to 22.01.2022	Sattva IT solutions Pvt Ltd	1,30,000/-

S. No.	Name of the programme	No. of Partici pants	Duration & Period	Venue & Sponsored by	Expenditure Incurred (Rs.)
5.1.15	French for Beginners	25	14.02.2022 to 14.03.2022	English and Foreign Languages University (EFLU), Hyderabad	1,70,000/-
5.1.16	Advanced French course	25	16.02.2022 to 16.03.2022	English and Foreign Languages University (EFLU), Hyderabad	1,70,000/-
5.1.17	Export and Import of Agricultural Commodities	75	14.03.2022 to 13.05.2022	Lime Institute of Export Import training, Rajkot, Gujarat.	10,00,000/-
5.1.18	Remedial Course on English	30	15.11.2021 to 15.12.2021	English and Foreign Languages University (EFLU), Hyderabad	1,70,000/-
	Total	**1604**			

5. National Training Programmes

5.1.1 Plant Health Management

A National Training Programme on 'Plant Health Management' was conducted at National Institute of Plant Health Management (NIPHM), Hyderabad from 23.03.2021 to 12.4.2021 for a batch of 30 undergraduate students.

S.No	Topics covered
1.	Principles and concepts of Integrated Pest Management (IPM)
2.	Introduction to biological control - Principles and concepts
3.	Principles of ecological engineering for pest management
4.	Different plant parasitic nematodes and their management in horticultural crops
5.	Mass production of important insect predators and their role in pest management
6.	Agro Ecosystem Analysis (AESA) concepts
7.	Role of EPF and NPV in pest management
8.	EPN mass production techniques
9.	Role of botanicals in pest management
10.	Role of organic farming in sustainable agriculture
11.	Production protocols for important bio fertilizers
12.	Vermicomposting technology
13.	Trap crops, intercropping and companion planting in pest management
14.	Rodent pest management in different crops pesticide spraying techniques
15.	Quality control protocols for microbial bio pesticides
16.	On-farm production of *Trichoderma*
17.	On farm production of *Corcyra cephalonica*
18.	On-farm production of *Pseudomonas*
19.	On farm mass production parasitoids
20.	On-farm production of bacterial biofertilizers
21.	On farm mass production of important insect predators
22.	On-farm production of bacterial *Mycorrhiza*
23.	EPN mass production
24.	Quality control of biofertilizers

25.	Vermicomposting technology
26.	Working methodology of fermenter
27.	On-farm production of EPF
28.	On-farm production of NPV
29.	Spodoptera and Helicoverpa rearing method
30.	Preparation of ITKs
31.	Varsha Biotech unit visit

Students involved in larval feeding

Preparation of media for corcyra culturing

On farm production of bio fertilizers

Students involved in inoculation of Pseudomonas culture media

NIPHM: Student feedback

Keerthana E
NA/17-88
Agricultural college, Naira

This training class was a great opportunity for us to gain knowledge about agriculture even more than what we know. I am very glad to participate in this training session and engage with efficient scientists. This was a new experience .Actually, through the classes we learnt about theoriesbut hands on experience were very rare and after getting into NIPHM we got a chance to interact with our mentors and were able to understand various techniques in preparing bio fertilizers and its application in field .Theymade us so comfortable that we can ask our doubts freely to our mentors and we did all the work with fullinterest.This was a newexperience and it may helpus in moulding our future .

వ్యవసాయ సాంకేతిక పరిరక్షణకు శిక్షణ అవసరం

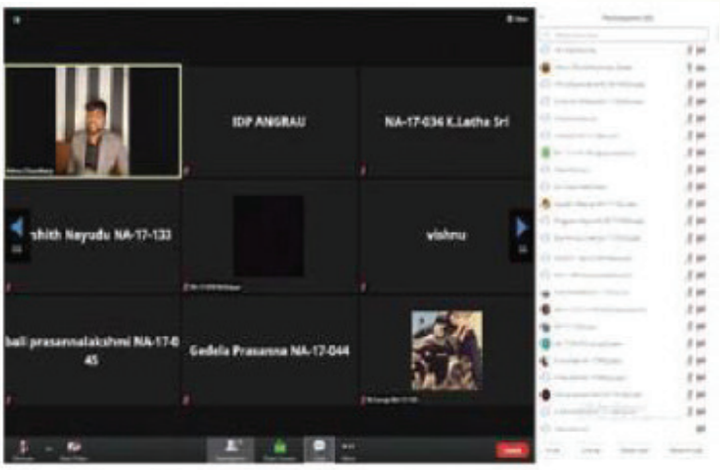
– డాఁ రామచంద్రరావు వెల్లడి –

Sun, 21 March 2021

Glimpses of Training programme

5.1.2 Online Soft Skills Training, Public Speaking and Personality Development Programme

Voice-out, the Communication Skills & Personality Development workshop was conducted to enhance communication skills of students, instil confidence and develop the overall personality of the students. Trainer Mr. Vishnu Chowdhary is a public speaker with an impeccable record in managing and hosting event on a grand scale. The programme was conducted virtually for 5 batches with 60 students in each batch for 5 days each @ 2 hours daily from 16.03.2021 to 30.04.2021.



Mode of teaching

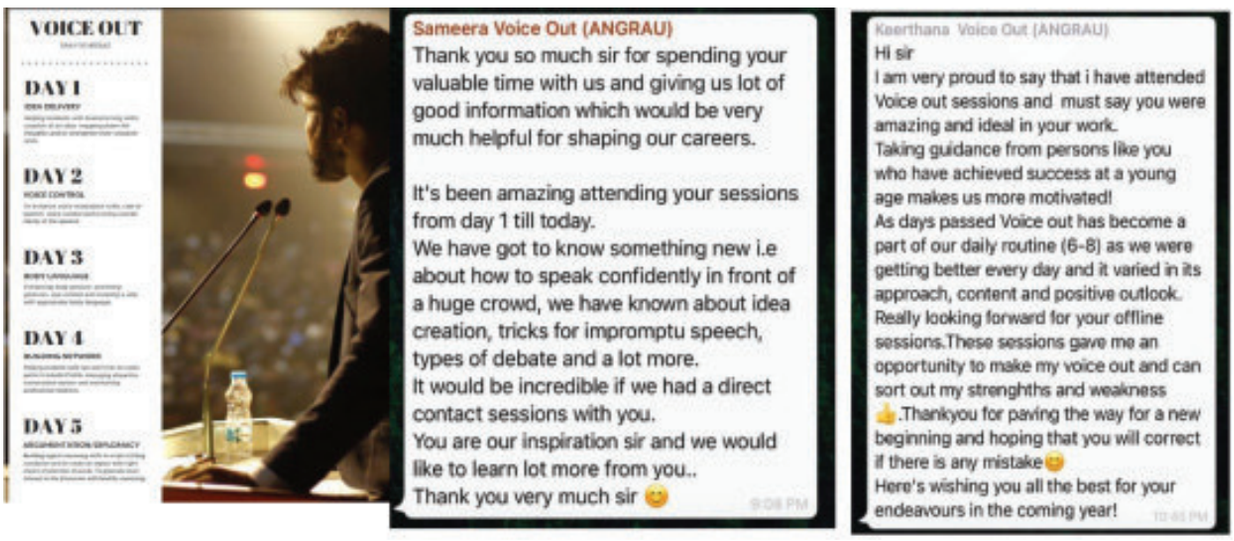
Day – 1 : Idea Delivery

Day – 2 : Voice Control

Day – 3 : Body Language

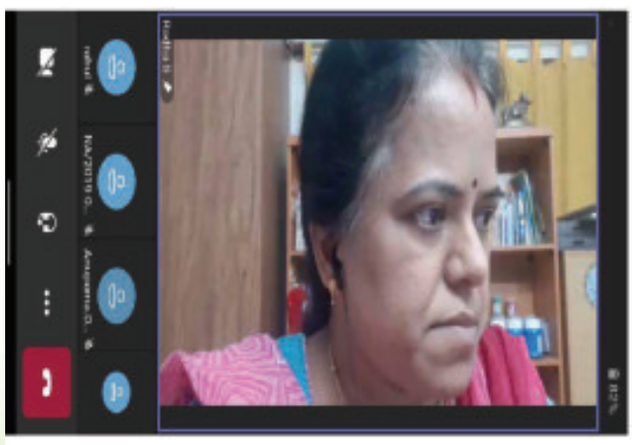
Day – 4 : Building Network

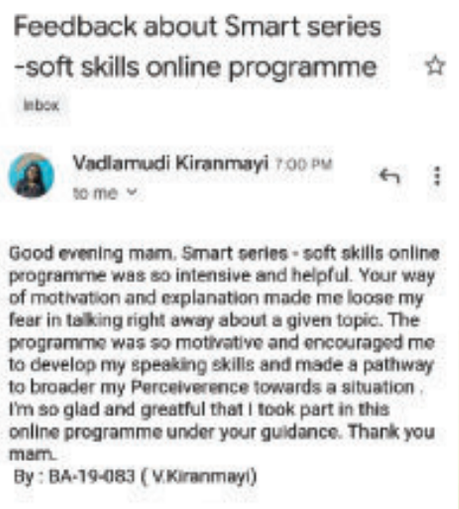
Day – 5 : Argumentation / Diplomacy

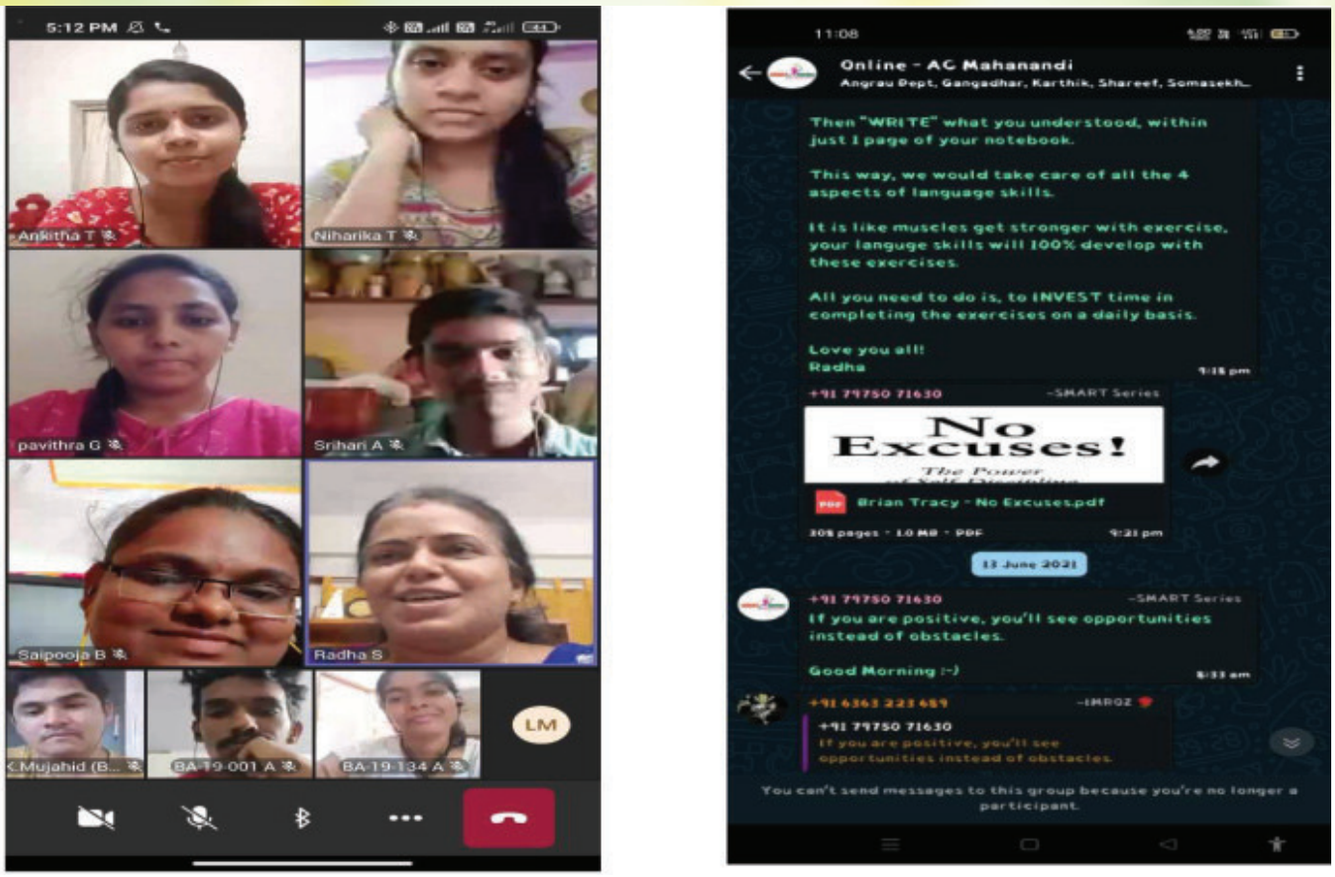


5.1.3 Online training programme on "Soft Skills Enhancement for Self improvement

Online training programme on "Soft Skills Enhancement for Self- Improvement" was conducted in collaboration with Smart Series, Bengaluru from 7.06.2021 to 11.06.2021 for second year undergraduate students (200Nos) of five accredited colleges under IDP-ANGRAU.







Interactive session on soft skills enhancement

5.1.4 Online training programme on "Overall Personality Development"

An online training programme on "Overall personality development" was conducted in collaboration with SS Technologies, Hyderabad from 14.06.2021 to 22.06.2021. About 200 undergraduate students from five accredited colleges participated and got benefited from the programme. Dr. B. Sivaprasad of SS Technologies, Hyderabad delivered the lectures and facilitated the learning of the students from the program.

Topics covered under training programme

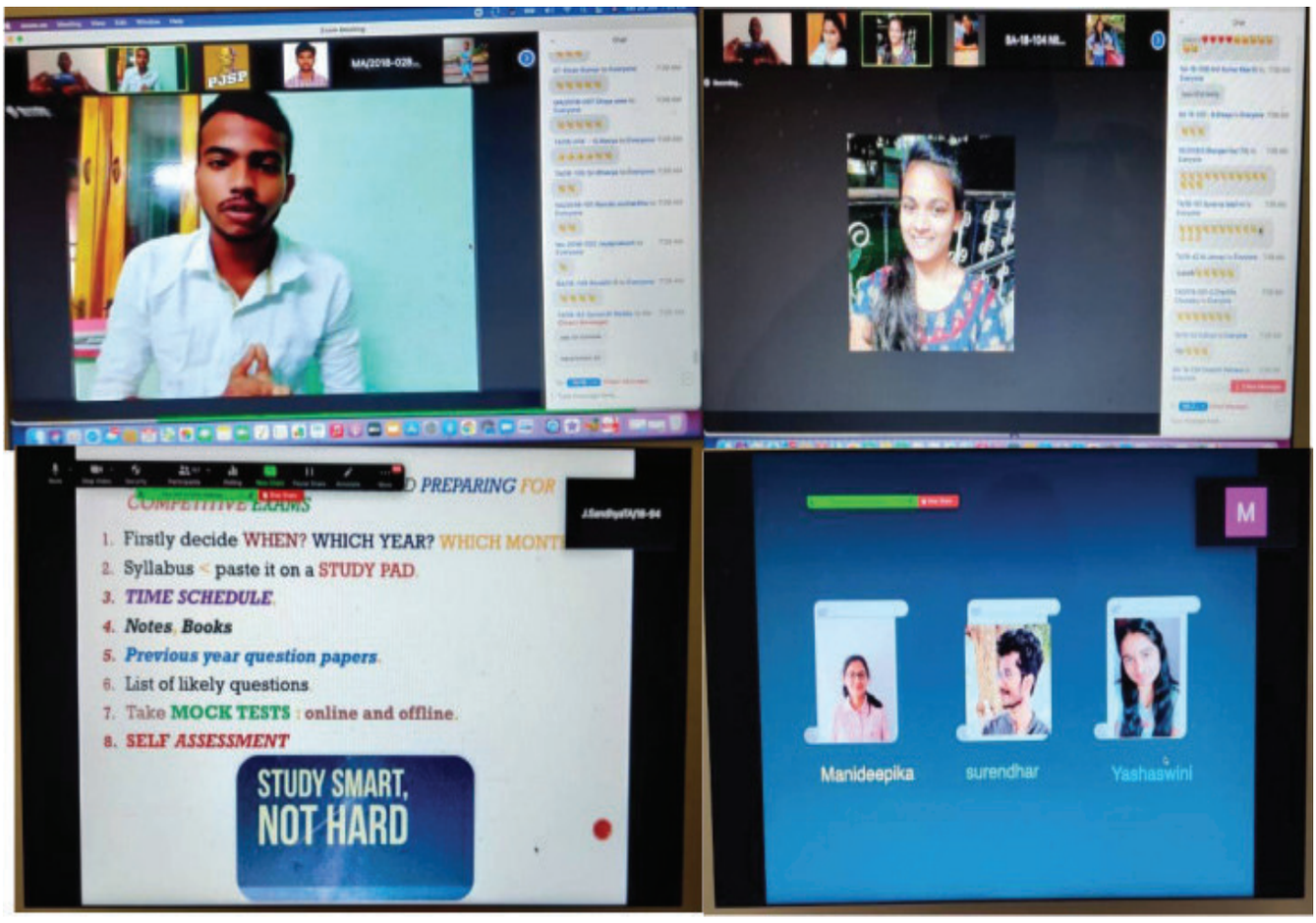
Right Attitude & Gaining Confidence	Career Opportunities & Goal Setting
Personality Development	SWOT Analysis & Career Planning
Planing & Preparing for Competitive Exams	Creative Thinking Skills
Time Management	Interactive Discussion
Interpersonal Skills	Leadership Skills
Selling Skills	Interactive Discussion
Entrepreneurial Skills	Conflict Management Skills
Emotional Intelligence	Communication Skills
Participants Learning Recap	Individual Development Planning
Participants Feedback	Post Training Evaluation & Valedictory

Salient points of the training programme

- The training program covered a range of topics including career opportunities, goal setting, SWOT analysis, confidence building, personality enhancement, interpersonal skills, communication skills, positive

attitude, time management skills, leadership skills, entrepreneurship, selling skills, conflict management skills, emotional intelligence and presentation skills.

- Students were also exposed to the pattern of different competitive exams including JRF Exam, CAT, UPSC Civil Services Exam and others. They were also given special tips that will help them in preparing for them in a more planned and systematic manner and clearing them with greater success.
- Students received the topics covered in the workshop very well and suggested that they were relevant and useful for them.
- Students expressed their gratitude and thankfulness to the university and their college administration for giving them the opportunity of attending such a training for them.
- Students attended to all the homework given to them on a daily basis and presented their responses excellently in the webinar.
- Students promised and took an oath at the end of the training program that they would make the best use of the learning they made in the program for their success
- They said that they found the program interesting and inspiring as the methodology included a number of activities, interactive discussions and powerpoint as well as video presentations.



Glimpses of online training programme on 'Overall personality development'

5.1.5 Online training programme on 'Personality development'

An online training programme on 'Personality development' was conducted from 07.07.2021 to 21.07.2021 in collaboration with CommuniCare, Pune for 60 undergraduate students of five accredited colleges of ANGRAU.

Topics covered include

Confidence, Motivation & Attitude	Group Discussion (GD) Techniques
Personal Interview (PI) Techniques	Communication Skills – Session I
Stress Management	Communication Skills Session II
Developing an Entrepreneurial Attitude	Presentation Skills
Email Etiquette	Time Management
SWOT Analysis	Goal Setting
Innovation - the need of the hour	Self-Discipline
Leadership	

Mode of delivery & Training methodology

The entire training program was delivered online on the Google Meet platform. The trainer, through his unique style of delivery, imparted crucial learning to participants. A unique and interesting mix of teaching and training techniques, including anecdotes, story telling, short videos, pictographic PPTs and fluent yet simple English language made all sessions fun and valuable for the students

Feedbacks:

Glimpses of training programme

5.1.6. Neuro Linguistic Programming (NLP)

A two months online training programme on "Neuro Linguistic Programming (NLP) – A tool for most effective communication – Level 1" from 12.07.2021 to 12.09.2021 was conducted in collaboration with Smart Series, Bengaluru to the third year undergraduate students of 100 No from five accredited colleges.

Benefits of the online program

a. Improved self-confidence

b. Students minds re-wired to accept any challenges and overcome them.

c. Absolute clarity on what to do and what NOT to do.

Students are made to set goals through a step by step process and by end of the program; students completed the assignments which are given on a daily basis and are 100% ready with their SIP (Self Improvement Plan). The program focused on time management topics and presentation skills.

Feed back on ANGRAU NLProgramme

Surekha Narayana reddy [surekhanarayanareddy@gmail.com]

Sent: Sat 18-Sep-21 1:26 PM

To: smartseriesindia@gmail.com

I have learnt many things from this program and some them are
1.planning
2.communication and also how to be a better coversationalist
3.to -do list 1 3 5 rule
4.30 30 30 rule
5.dream diary
6.goal setting
7.path to achieve goals
8.steps to achieve goals
9.goals
10.thinking in others perception
11.changing the limits of unconscious mind
I expect to learn some more things from remaining course also.

Feedback of NLP Training Programme

THE TEJAS SHRIVAS [thetejasshrivas@gmail.com]

Sent: Sat 18-Sep-21 8:39 PM

To: smartseriesindia@gmail.com

I'm really benifitted by the programme. The training helped me a lot in setting goals with good planning and clarity.
And I'm very thankful towards our trainer Dr. Radha mam for her efforts and dedication towards us.
Overall the training was Great and really helpful in real life.

Feedback

Badavath Saipooja [saipoojabadavath@gmail.com]

Sent: Tue 21-Sep-21 7:25 PM

To: smartseriesindia@gmail.com

Good evening mam
I am Badavath Saipooja BA-19-193 Student of AGRICULTURAL COLLEGE BAPATLA Have attended the Smart series -soft skills online programme which was held during the july and august months. Thank you so much for the wonderful programme mam. You gave us lots lots of confidence and encouragement through the programme mam. It was very interesting and i had great experience mam. Thank you so much mam. I also subscribed the YouTube channel mam the videos are also very interesting and inspiring mam. Thank you so much for those videos also mam. Finally i really want to thank you mam from my bottom of the heart for being such a great motivator for us mam. Thank you mam

Feedback about Smart series -soft skills online programme

Vadlamudi Kiranmayi [kiranmayivadlamudi813@gmail.com]

Sent: Tue 21-Sep-21 7:01 PM

To: smartseriesindia@gmail.com

Good evening mam. Smart series - soft skills online programme was so intensive and helpful. Your way of motivation and explanation made me loose my fear in talking right away about a given topic. The programme was so motivative and encouraged me to develop my speaking skills and made a pathway to broader my Perceiverence towards a situation. I'm so glad and greatful that I took part in this online programme under your guidance. Thank you mam.
By : BA-19-083 (V.Kiranmayi)

5.1.7. Hydroponics Digital Master Class

Online training on "Hydroponics Digital Master Class" for 40 days started from 06.08. 2021 to 16.09.2021 in collaboration with Kryzen Biotech Pvt. Ltd for third year undergraduate students of 359 No from five accredited colleges of ANGRAU.

Topics covered

a) Pre-requisite means what are the things you need to have to start a hydroponic business.

b) Costing and finance to understand how much money you need to start this business.

c) Discuss loan options and other finance options available in India.

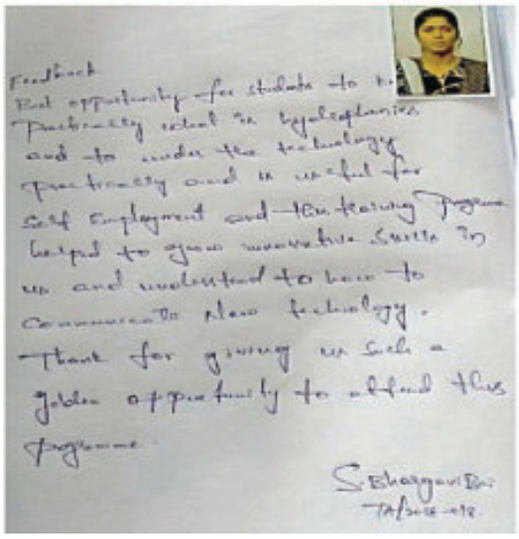
d) Difference between hydroponics and aquaponics.

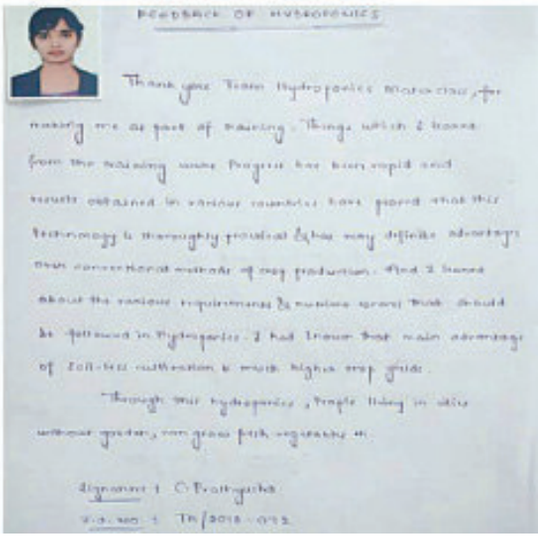
e) Market research to understand what crops we can produce toget maximum profitability.

f) Micronutrients, growth boosters, climate control and many more.

g) Seedlings water schedule, seedlings fertilizer requirement and other things.

h) Harvest techniques to yield maximum output and pruning to create new batch saplings or cuttings.





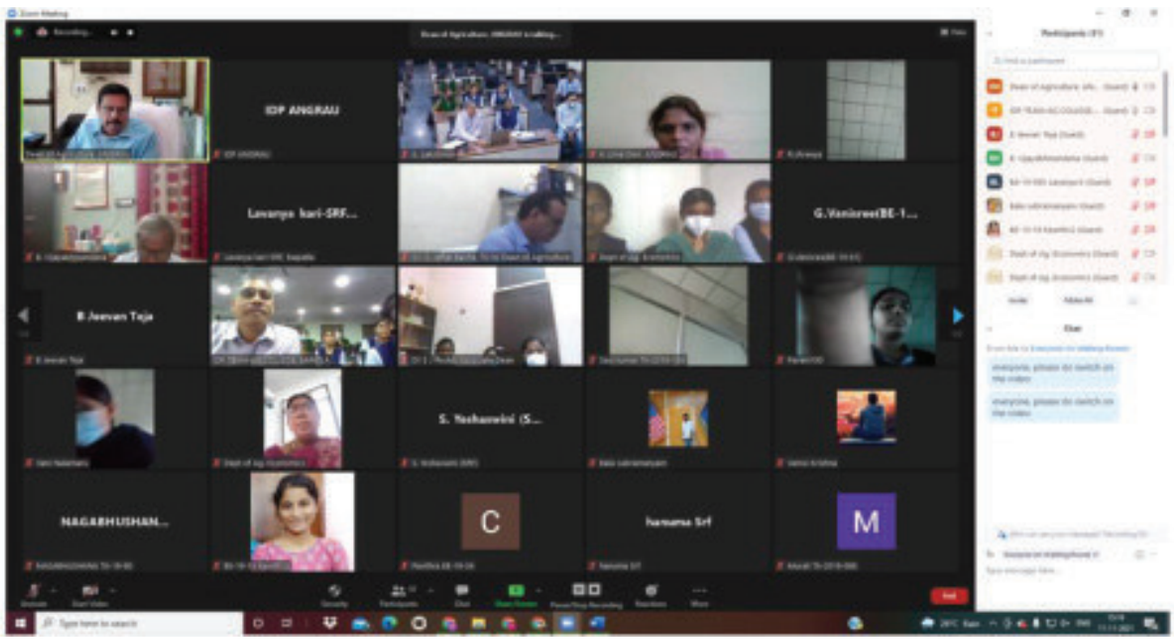
5.1.8. French for Beginners

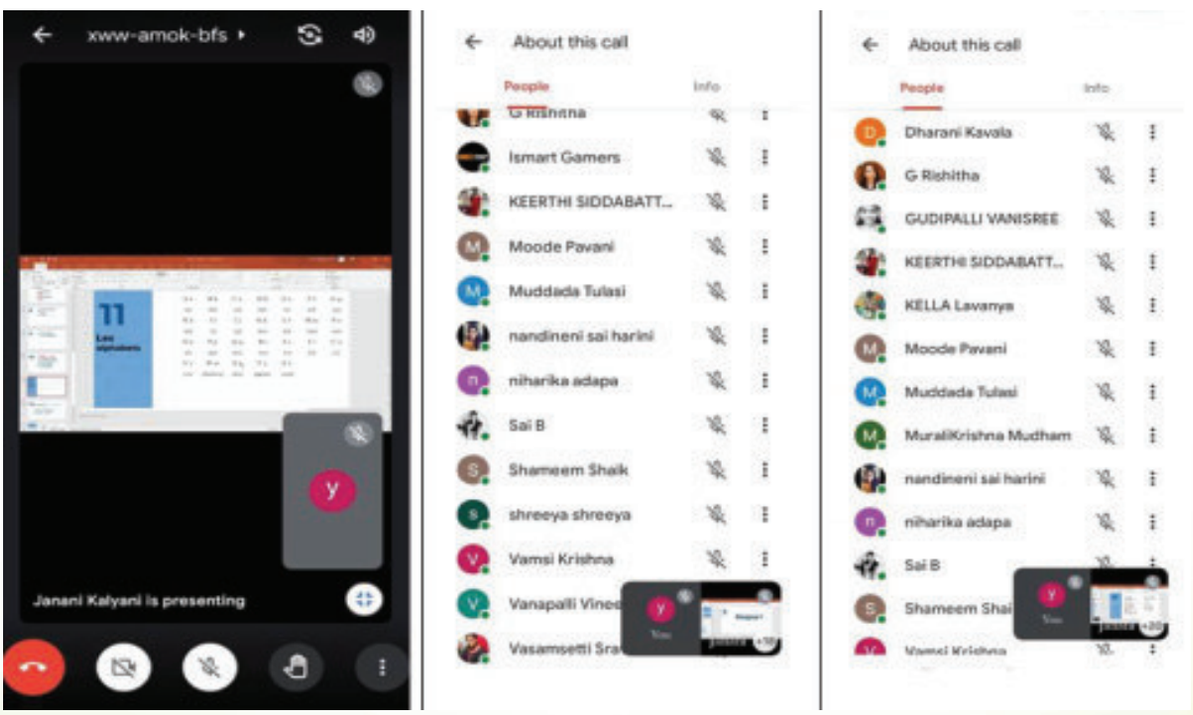
A one month online training course on "French for Beginners" in collaboration with English and Foreign Languages University (EFLU), Hyderabad was conducted from 01.10.2021 to 08.11.2021 to 25 No. of third year undergraduate students of five constituent colleges. After completion, a review meeting was conducted on 11.11.2021 with the students who attended the course. The students were asked to introduce themselves in french and all the students expressed their interest to attend advanced course in French.

Topics covered

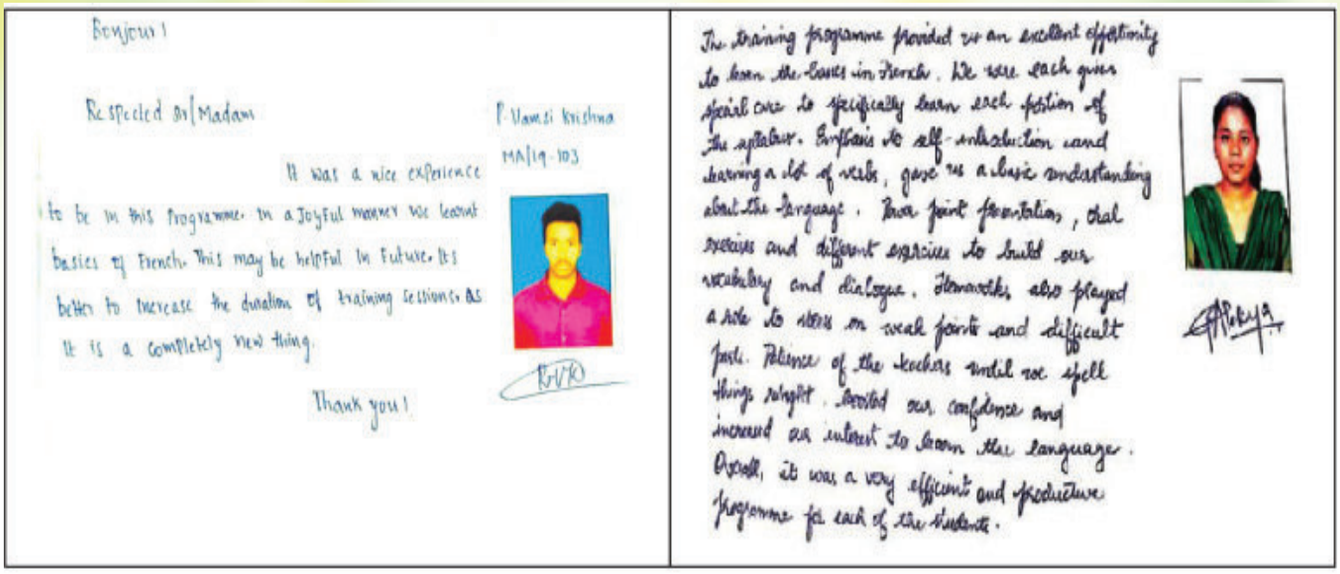
- Greetings, meeting people, introducing oneself, introducing others. Alphabets, Days of the week, Months of the year, numbers, date of birth, Telephone numbers. Grammar – Etre , avoir verbs , interrogation (yes/no questions), negative sentences,definite and indefinite articles.

- Finding one's way in a city, directions, placement of objects, means of transport. Grammar - Verbs : aller, venir, tourner, traverser, sortir. Prepositions : entre, en face de, devant, derrière, sur, sous, au-dessous, au-dessus, à cote de, près de and Interrogation
- Choice and preferences, visiting a mall, shopping, administrative formalities. Grammar: couter, acheter, vendre, pouvoir, vouloir
- Daily activities in present tense, Grammar – pronominal verbs, faire, finir, prendre, attendre, lire, écrire
- Going to the market, making purchases, ordering food in a restaurant and fruits, vegetables, basic clothing / footwear vocabulary Grammar – article partitifs Verbs : acheter, vendre, couter, pouvoir, vouloir
- Introduction to French agriculture practices and vocabulary Basic vocabulary





Glimpses of training programme



5.1.9. Agro Based Entrepreneurship

An online training programme on "Agro Based Entrepreneurship" in collaboration with Entrepreneurship Development Institute of India (EDII), Gandhinagar, Gujarat was conducted from 04.10.2021 to 14.10.2021 for 40 third year undergraduate students of five accredited colleges.

Objectives of the training

a. Widening the base of entrepreneurial awareness, scouting the ideas and innovation

b. Enabling students to understand opportunity analysis process

c. Develop communication, interpersonal, financial, team building & leadership, marketing skills and overview of business model.

Training methodology

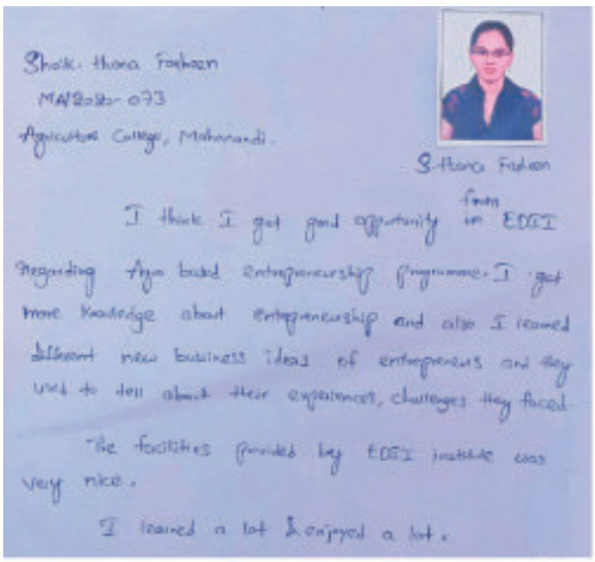
The pedagogy focused on enhancement of knowledge and upgrading of skills of the participants so that they are aware of the basic concepts in the area of agri entrepreneurship. Inputs were imparted through lecture-cum-classroom activities. In addition to this, discussions and industry visits were organized to facilitate the participants in exchanging their opinions and sort out problems in the process of learning. Efforts have been made to ensure a judicious mix of online lectures, discussions, case study methods, group presentations, online interaction/activities with entrepreneurs *etc,*. The students have ample opportunities to interact and challenge points of view of agri business on an academic platform. The participants were exposed to agri-entrepreneurship and agri business.

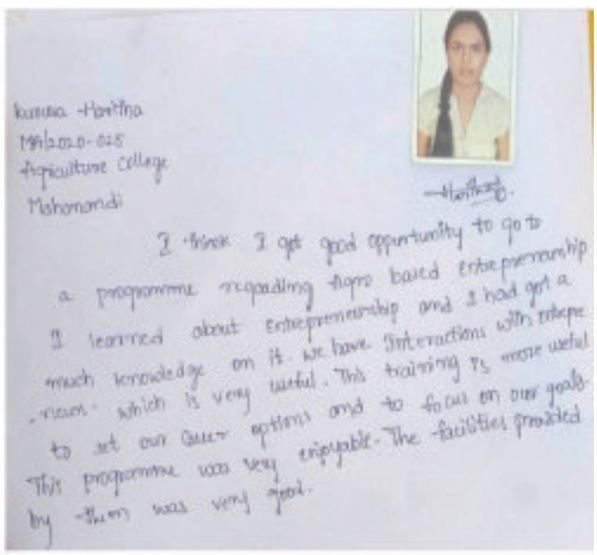
Topics covered under training

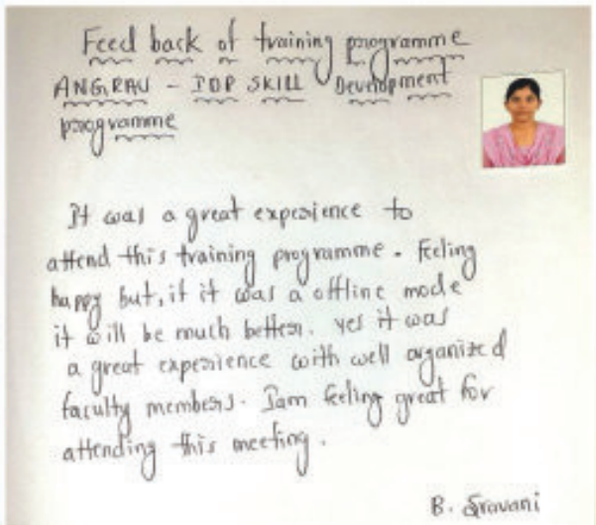
Agri Entrepreneurship	Understanding Entrepreneurial Mind-sets
Business Opportunities Identification	Soft skills for interpersonal communication
Creativity and Innovations	Opportunities in Agri Biotechnology
Ideation	Business Model Canvas
Agri business plan	Team Building and Leadership
Agri Logistics & value chain for collateral Management	Intellectual Property Rights for Agro based Enterprises
Opportunities in Dairy and Milk based businesses	




Glimpses of Training programme







5.1.10. Personality Development & Soft Skills Training

A training programme on "Personality Development & Soft Skills Training" was conducted from 18.10.2021 to 03.11.2021 in collaboration with CommuniCare, Pune for two days with 16 hours of training for 40 students (third year undergraduate students) in each college

- 18th & 19th October, 2021 at Agricultural College, Bapatla
- 21st & 22nd October, 2021 at Dr. NTR College of Agricultural Engineering, Bapatla
- 25th & 26th October, 2021 at Agricultural College, Naira
- 28th & 29th October, 2021 at Agricultural College, Mahanandi and
- 1st & 2nd November, 2021 at S. V. Agricultural College, Tirupati

The following 16 topics were covered during the training:

Confidence, Motivation & Attitude	SWOT Analysis
Group Discussion (GD) Techniques	Personal Interview (PI) Techniques
Time Management	Stress Management
Communication Skills – I	Communication Skills – II
Goal Setting	Innovation - the need of the hour
Developing an Entrepreneurial Attitude	Presentation Skills
Email Etiquette	Self-Discipline
Internet & Social Media Etiquette	Leadership

Mode of Delivery & Training Methodology

The entire training program was delivered in training halls in the respective college campus. Both trainers, through their experience and unique styles of delivery, imparted crucial learning to participants. A unique and interesting mix of teaching and training techniques, including anecdotes, storytelling, short videos, pictographic PPTs, and fluent yet simple english language made all training sessions fun and valuable for the participating students.




Glimpses of training programme

Kushal Raut is an Indian English language author of the Doorbell and Other Short Stories. He is a passionate trainer too and assists students and professionals alike with their communication, soft skills, and character enrichment needs. Kushal also caters to his corporate clients with his team building workshops and technical and creative content development. A unique continuous learning plan to build communication skills, confidence, creativity, critical thinking and leadership skills. Our focus is on learning through interaction, participation and activity-based programs

Name of the Student : G. Manaswini ID No. BA-17-092 Name of the College : Agricultural College, Bapatla. We had a training programme on "Overall Personality Development" in collaboration with CommuniCare, Pune where we had a great interaction with Prof. Kushal Raut. The classes conducted were more interesting as they were interactive type of sessions. We gained knowledge regarding group discussions and the way to participate in it. The procedure of resume writing and attending interview was explained very nicely, one main thing learned was self motivating your self. SWOT analysis helped us to work on our weaknesses, it was awesome interacting with Kushal Raut sir sessions helped us to change our thoughts and thinking process.

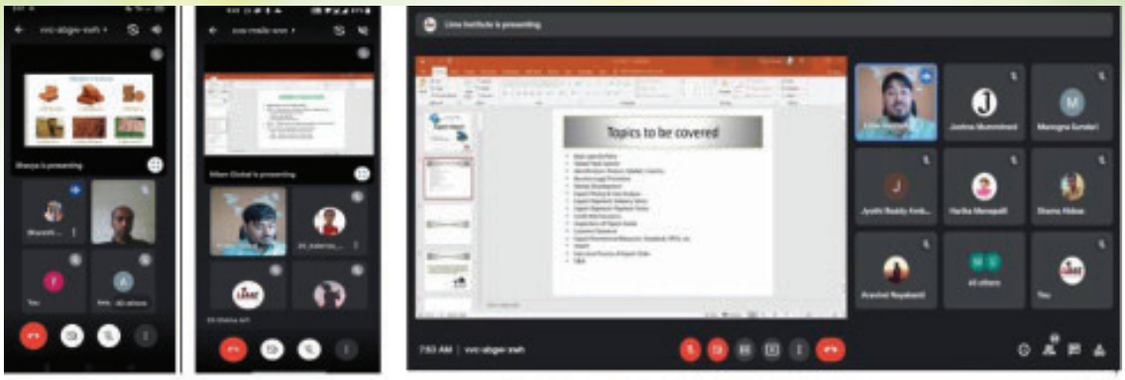
5.1.11. Export and Import of Agricultural Commodities

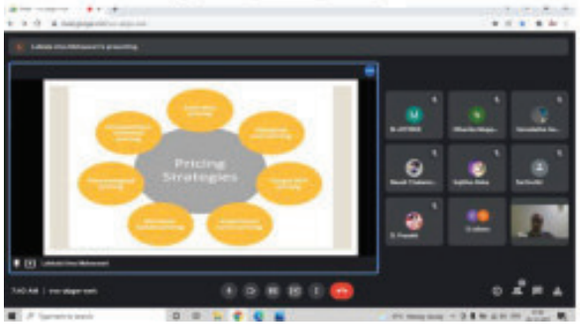
Two months online training programme on "Export and Import of Agricultural Commodities" was conducted from 18.10.2021 to 29.12.2021 for third year undergraduate students (75 No.) from five accredited colleges in collaboration with Lime Institute of Export and Import Training, Gujarat.

Project work: 14 teams (4 to 6 students in each team)

Each team made a project for different products based on their selection. The students worked on all the aspects of training in practical way. The students gained knowledge on the following topics with case studies/ live examples.

- Business Setup
- Product Knowledge
- Supplier Evaluation
- Market Selection And Segmentation
- Buyer Communication
- Export Pricing and Cost Calculations
- Export Documents
- Port Operation Videos
- Project Presentations





The IDP conducted by the Lime Institute in collaboration with Acharya N.G. Ranga Agricultural University was very useful to learn about the Export Import Process. We were having class for the last two months, studying in detail about all the processes and aspects involved in Export Imports. We were able to know how to establish a exporting company, what are all the formalities involved, rules and regulations, various bodies operating, how to export goods through various modes. Studying it helped a lot to acquire new knowledge about the topic which would be very useful for us in the future.

Thankyou.

I have learnt so many things about exports and imports. The rules we have to follow in international trade, organisations in India which guides the exporters and importers, interesting facts about trades, everything was covered in this training programme. This programme paves a way in the field of trade for employment. The method of training is also very effective and the trainers interacted very well with us and solved our doubts regarding the sessions. The content in the training programme is also very useful and knowledgable. And finally I have got a clear idea about the exports and imports which are happening in our country.

N. Pichiliha

Myself A.Ramya Reddy 3rd yr. B.Sc (Hons) Agriculture, who had attended the Imports & Exports training Program @ Lime institute. I felt previleged to become part of that training. At first, kindly thank our University for providing us such opportunity. The training was awesome & the way our trainees trained was really good. The sessions were informative. They taught us many aspects related to imports & exports *viz.,* various trade portals, licenses, payment terms, marketing strategies, certificates essential, business tactics, steps involved in carrying out the export & imports, email marketing, product transactions *etc,.* Everything was explained with examples. And we also had intermediate personality development training for few of the sessions that was quite good & interesting. And atlast we had ended our training with a presentation with the knowledge we got during the sessions. That was really a great experience. We could not attend all the sessions due to our timings being a limiting factor as we had parallel offline classes couldn't work much on it. But whatever I learned is worthy full & hope useful for guiding my future in business aspect.

5.1.12. IoT in Agriculture

Online training programme on "IoT in Agriculture" was conducted from 14.11.2021 to 31.12.2021 in collaboration with Aunwesha Knowledge Technologies, Kolkata for third year undergraduate students (60 No.) of five accredited colleges of ANGRAU.

Execution

- The content of the training was diversified to accommodate basic understanding of electronic components. Further, interfacing such components to measurement devices was also addressed.
- This kind of logical understanding would lead to numerous implementations and applications. The audience was a combination of students from the Science and Agricultural Engineering backgrounds.
- However, they had limited exposure to technology, and its applications in agriculture and farming. The training exposure was expected to overcome this barrier.
- The participation of the students reflected in their attendance with 60% students passing the minimum cut off attendance of 50%. There were SRFs and FCs also in the audience for training.
- The training was preceeded by pre assessment of the students, to be followed by post assessment after successful completion of the training.
- Additionally, our learned faculty delivered the training going beyond theoretical aspects and exposing the students to several practical case studies.
- There were special sessions on the subject matter by our guest speaker from industry.

Outcome

i. Students were able to understand working of sensors so as to implement modules for observation and measurements.

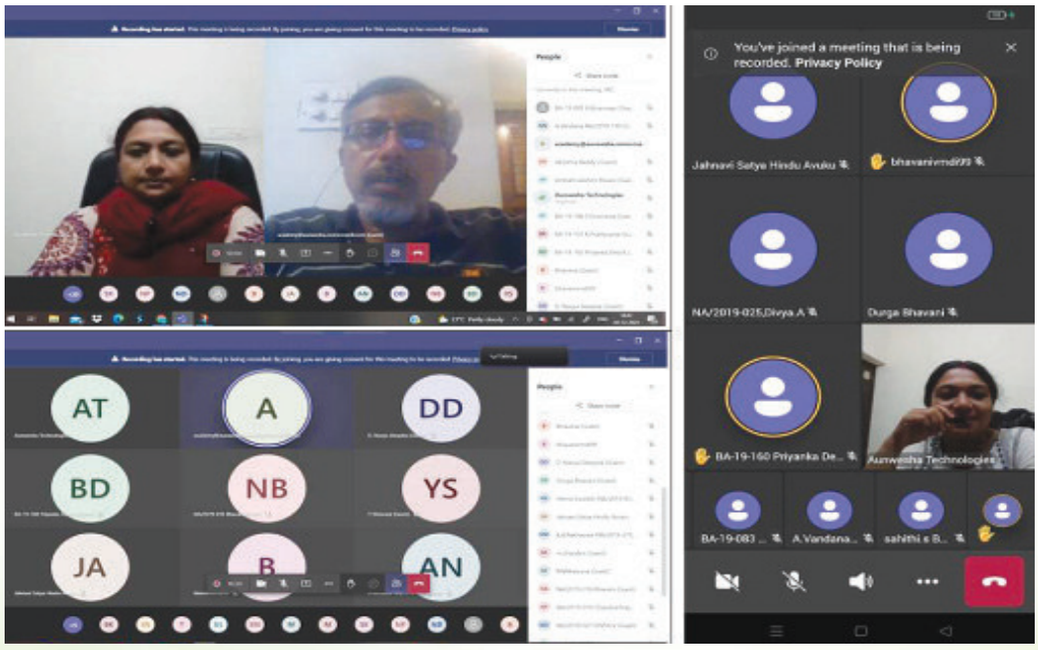
ii. They have acquired knowledge about free open source tools like WEKA and Python for black box implementation.

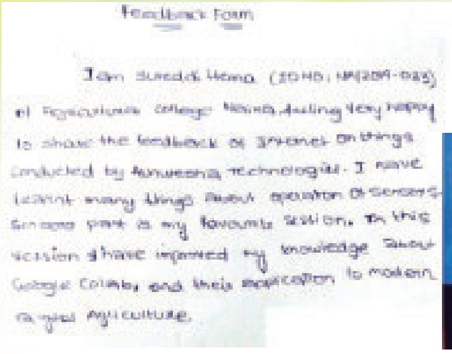
iii. They understood the importance of sequential measurements for visualization of process changes.

iv. As commercial farming moves indoors, students got the opportunity to learn about smart greenhouse solutions.

This training opportunity appropriately created by ANGRAU and successfully executed by Aunwesha in collaboration by engaging the faculty, Dr (Mrs) Geetali Saha was commendable.

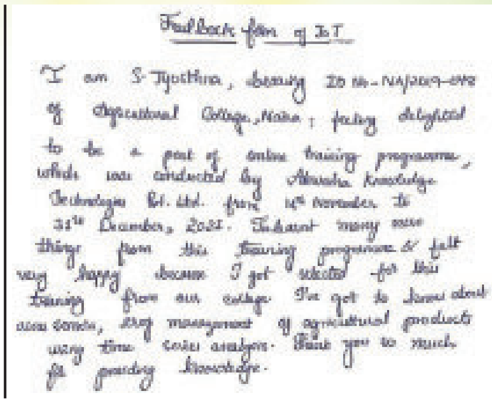
This would set the trend for more such innovative learning and development initiatives for shaping the professional careers of students in the changing world of emerging technologies.





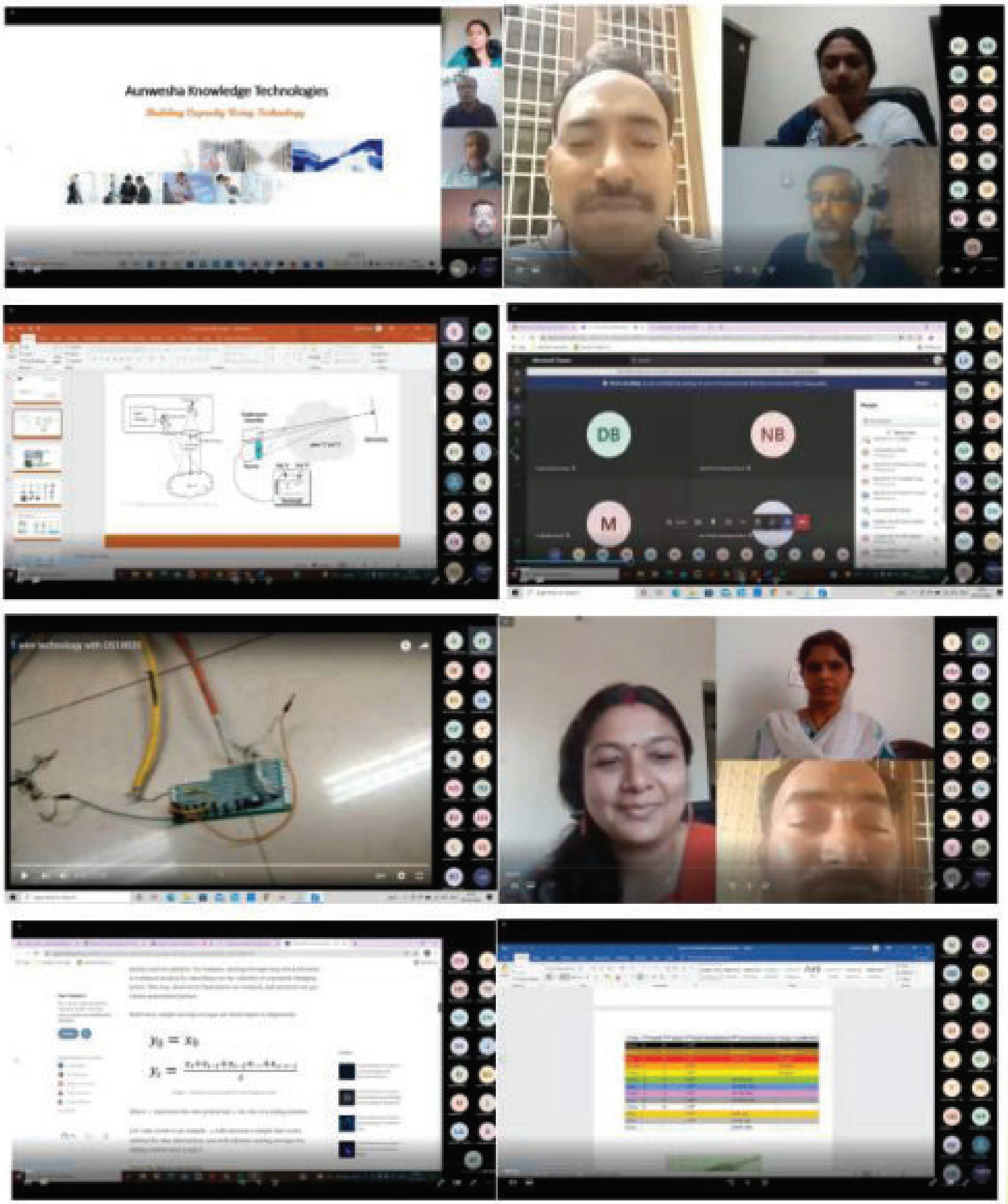
Feedback Form

I am Sureddi Hema (2016-NA/2019-025) of Agricultural College Naira, feeling very happy to share the feedback of 3 weeks on things conducted by Aunwesha Technologies. I have learnt many things about operation of sensors. Sensors part is my favourite session. In this session I have improved my knowledge about Google Colab, and their application to modern agriculture.



Feedback form of IoT

I am S. Jyothna, bearing 2016-NA/2019-090 of Agricultural College, Naira, feeling delighted to be a part of online training programme, which was conducted by Aunwesha Knowledge Technologies Pvt. Ltd. from 14th November to 31st December, 2021. I have learnt many new things from this training programme & felt very happy because I got selected for this training from our college. I've got to know about new sensors, drug management of agricultural products using time series analysis. Thank you so much for providing knowledge.

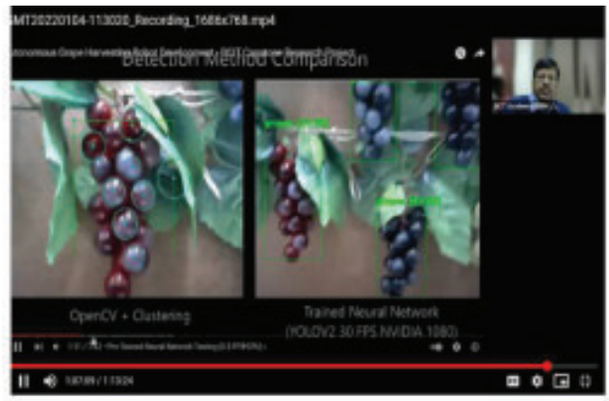


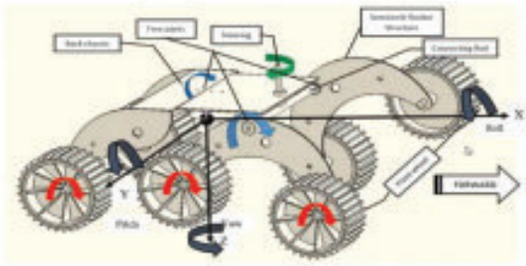
5.1.13. Robotics and Artificial Intelligence (AI) in Agriculture

An Online training programme on "Robotics and AI in Agriculture" from 27.12.2021 to 15.01.2022 & 14.02.2022 to 17.02.2022 with 20 hours of theory and 80 hours of lab sessions in 4 batches in collaboration with ECIT Academy, IIITDM, Jabalpur was conducted for 100 third year undergraduate students of five accredited colleges. The participants are receiving the knowledge of the role of different types of robots in agriculture through online lectures. In addition, the participants are receiving hands on experience on the tools for the development of robots. They are being exposed to Tinker CAD in which they can make the electronic circuit and simulate the working of the electronic circuits.

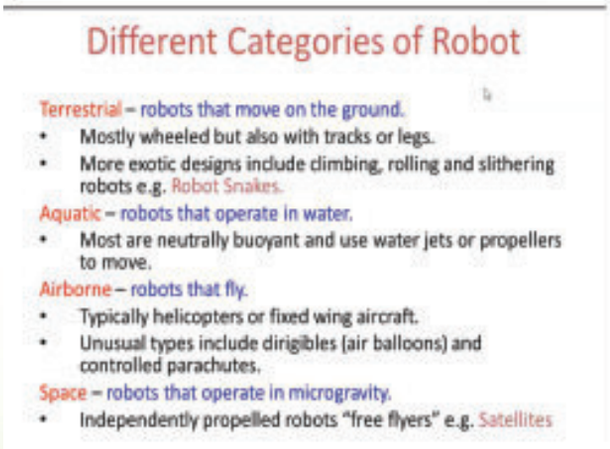
Topics covered

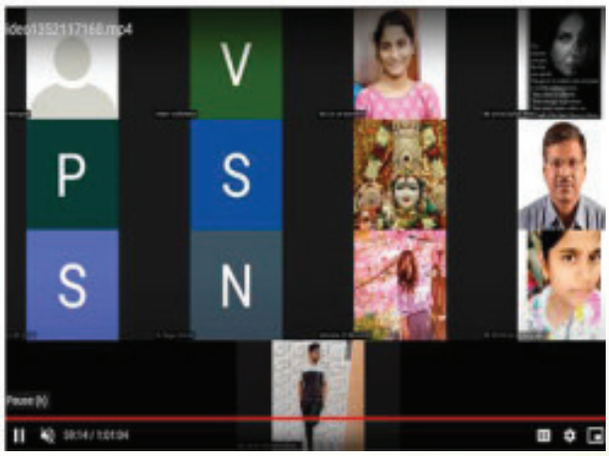
- Introductory session and introduction to robotics
- Manipulator robots
- Mobile robot
- Aerial robot
- Sensors and actuators for agricultural robotics
- Actuators: Pneumatic hydraulic, solenoid valves, relays, pumps and motors
- Interface of sensors and actuators and their programming
- Introduction to AI (Artificial Intelligence) & machine vision
- Image capturing & processing
- Design of harvesting robot (mobile and manipulator)
- Design of crop monitoring robot (mobile and drone with image processing)
- Design of smart farm robot (mobile and drone)





Uses a combination of caterpillar differential steering and worm and sector steering mechanism for turning.





Glimpses of online training programme on 'Robotics and AI in Agriculture'

5.1.14. Four skills – Learning, Speaking, Reading and Writing

A three day training programme focussing on the test, 'Upskill' was conducted on "Four skills – Learning, Speaking, Reading and Writing" in collaboration with Sattva IT solutions Pvt. Ltd from 17.01.2022 to 22.01.2022 at five accredited colleges of ANGRAU. A total of 100 participants benefited from the training. A team of two trainers delivered the sessions.

- The objective of the training programme was to train the students to take up the test, 'Upskill' through Enguru. On the first day of the programme, the students were introduced to the framework of the test.
- The session also carried detailed guidelines for them to ace the listening, speaking, reading and writing segments. The students were also involved in group activities like group discussions, fish bowl and debates so that they felt free to come forward and open up.
- The students in all the institutions were receptive and curious. Their queries were duly answered and clarified.
- On the second day, the session majorly focused on the practice test. Our trainers assisted the students in understanding how the test had to be taken.
- A detailed evaluation was given to each individual after the practice test. The students responded well and performed remarkably during the process.
- On the final day of the training programme, the application, Enguru for Enterprise, was installed in the devices brought by the students and they took up the assessment through it. The feedback from all the institutions was positive and encouraging.
- The Managing Board, the Heads and the Professors of the respective institutions felt that the programme aided their students in reaching the next stage of excellence in communication skills.

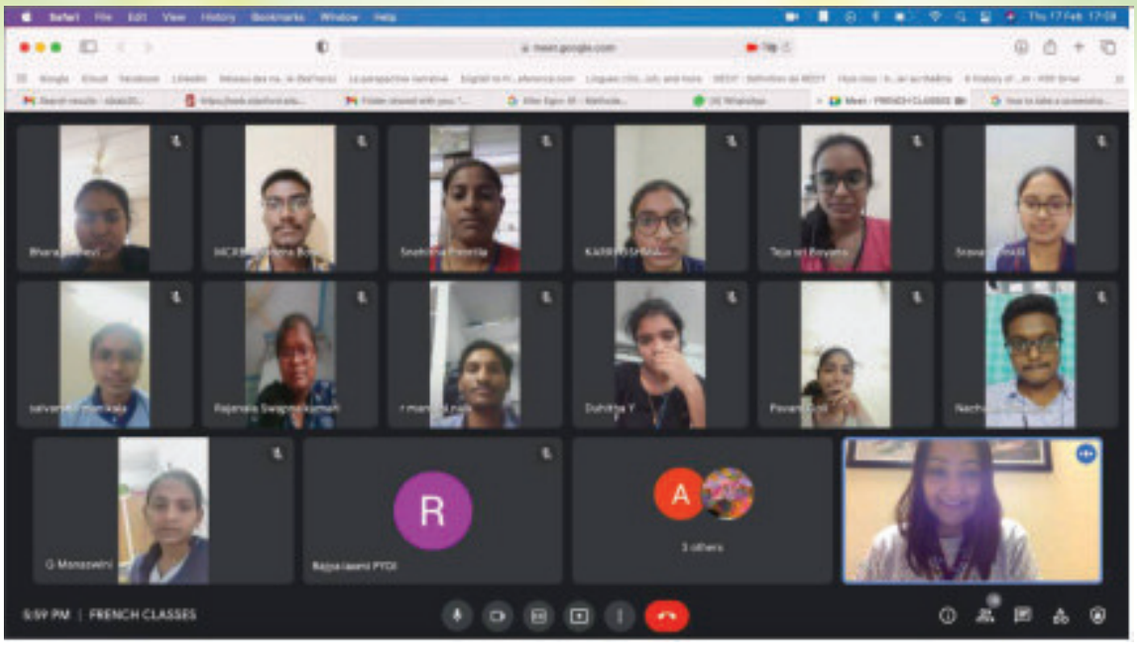
Glimpses of Training on four skills

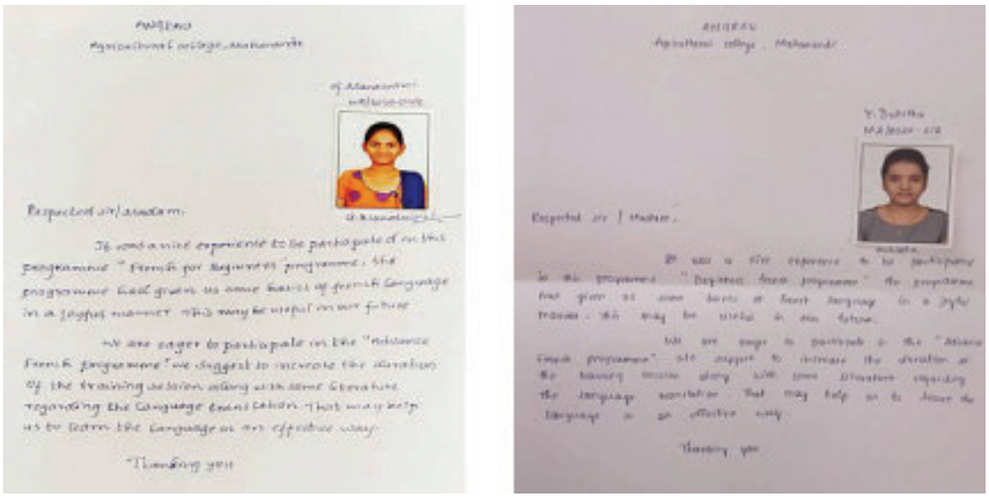
5.1.15. French for Beginners

A one-month online training course on “French for Beginners” in collaboration with English and Foreign Languages University (EFLU), Hyderabad was conducted from 14.02.2022 to 14.03.2022 for 25 No. of second year undergraduate students of five accredited colleges.

Topics covered

- Greetings, meeting people, introducing oneself, introducing others. Alphabets, Days of the week, months of the year, numbers, date of birth, telephone numbers. Grammar – Etre, avoir verbs, interrogation (yes/no questions), negative sentences, definite and indefinite articles.
- Finding one’s way in a city, directions, placement of objects, means of transport.
- Grammar - Verbs : aller, venir, tourner, traverser, sortir. Prepositions : entre, en face de, devant, derrière, sur, sous, au-dessous, au-dessus, à cote de, près de and Interrogation
- Choice and preferences, visiting a mall, shopping, administrative formalities. Grammar: couter, acheter, vendre, pouvoir, vouloir
- Daily activities in present tense, Grammar – pronominal verbs, faire, finir, prendre, attendre, lire, écrire
- Going to the market, making purchases, ordering food in a restaurant and fruits, vegetables, basic clothing / footwear vocabulary Grammar – article partitifs Verbs : acheter, vendre, couter, pouvoir, vouloir
- Introduction to French agriculture practices and basic vocabulary





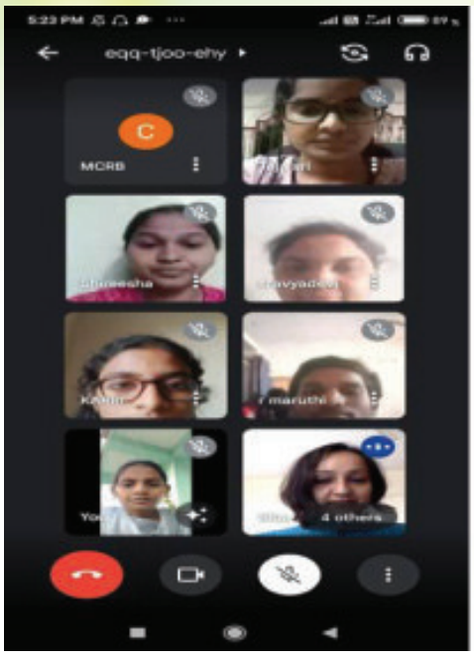
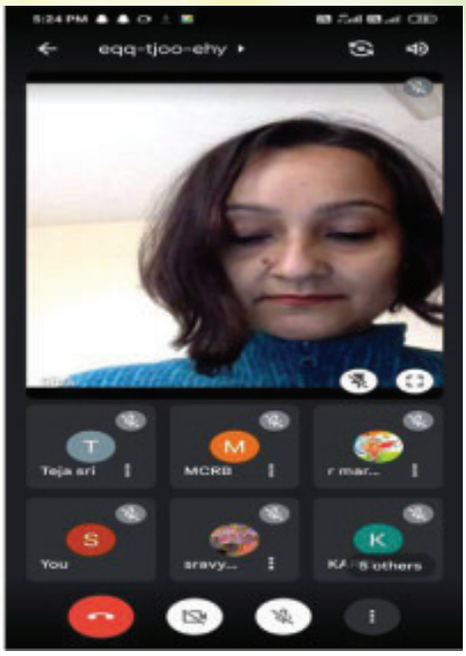
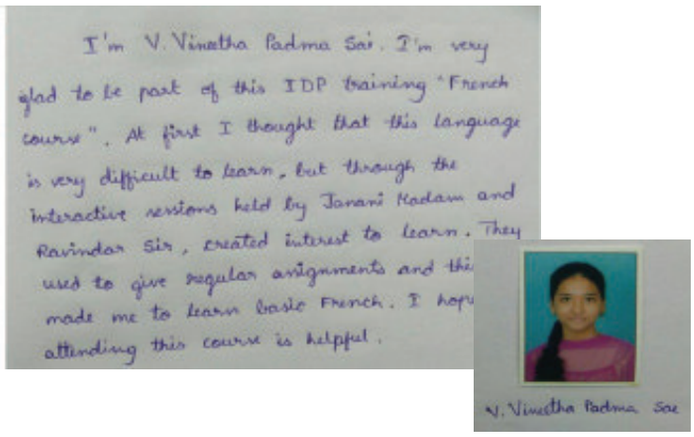
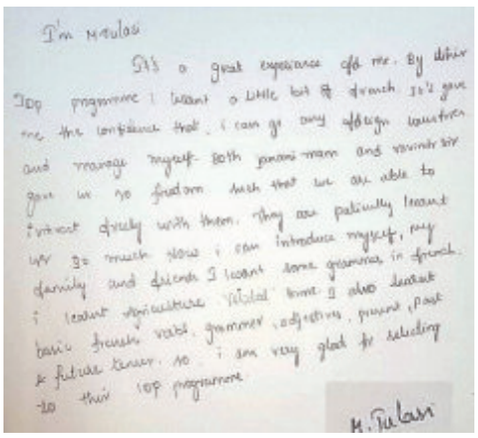
Glimpses of online training programme on 'French for beginners'

5.1.16 . Advanced French course

A one-month online training on "Advanced French course" was conducted in collaboration with English and Foreign Languages University (EFLU), Hyderabad from 16.02.2022 to 16.03.2022 for 25 no. of second year undergraduate students of five accredited colleges.

Topics covered

- Greetings, meeting people, introducing oneself, introducing others. Alphabets, days of the week, months of the year, numbers, date of birth and telephone numbers.
- Grammar – Etre, avoir verbs, interrogation (yes/no questions), negative sentences, definite and indefinite articles.
- Finding one's way in a city, directions, placement of objects and means of transport.
- Grammar - Verbs:aller, venir, tourner, traverser and sortir.
- Prepositions : entre, en face de, devant, derrière, sur, sous, au-dessous, au-dessus, à cote de, près de interrogation.
- Introduction to french agriculture practices and basic vocabulary
- Daily activities in present tense.
- Grammar – pronominal verbs, faire, finir, prendre, attendre, lire, écrire

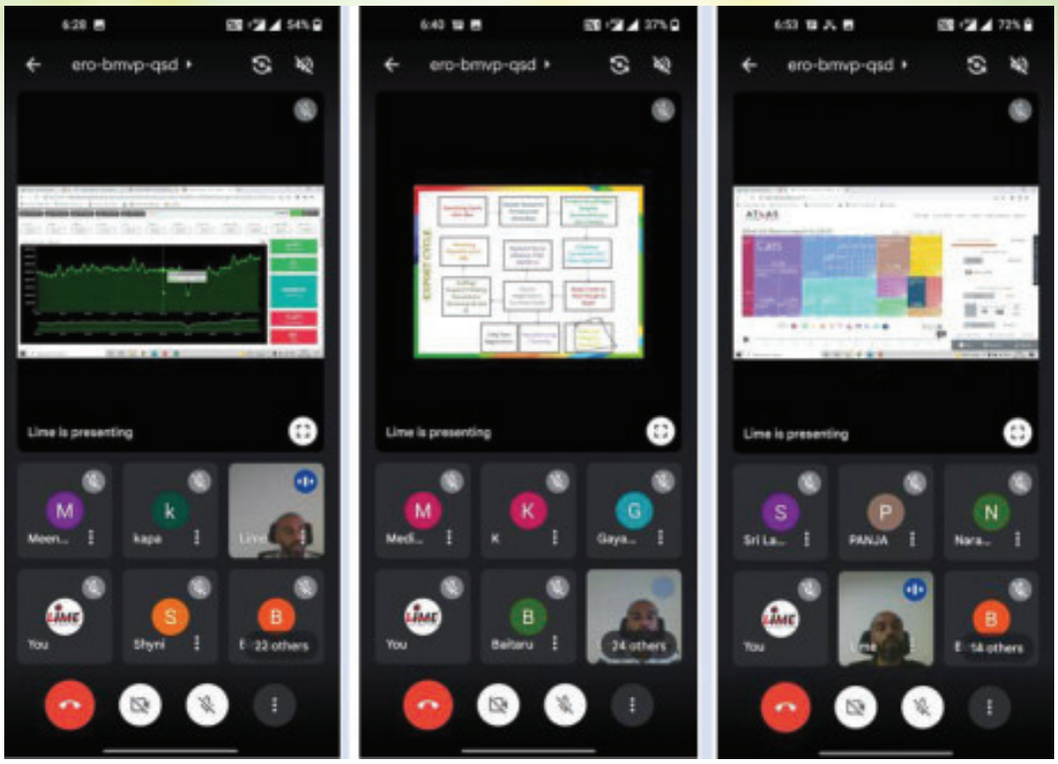

Glimpses of Training programme on 'Advanced french course'

5.1.17. Export and Import of Agricultural Commodities

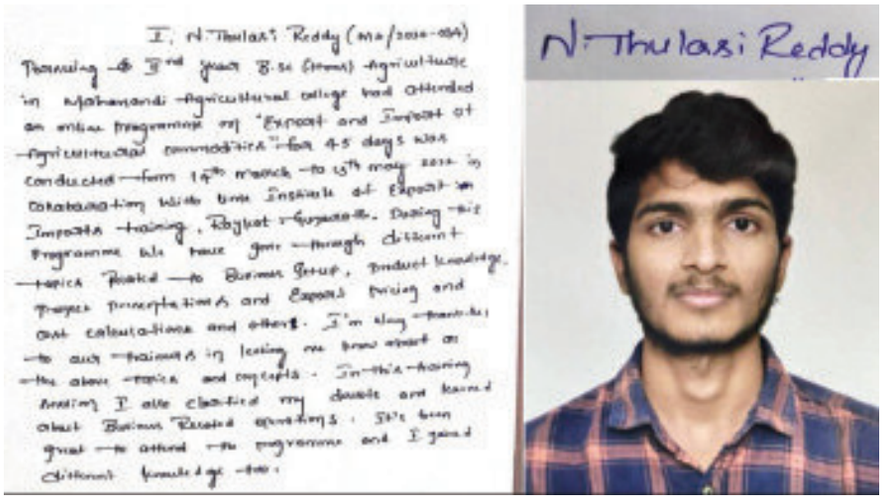
An online training programme on "Export and Import of Agricultural Commodities" for 75 No. of students for 45 days was conducted from 14.03.2022 to 13.05.2022 in collaboration with Lime Institute of Export and Import training, Rajkot, Gujarat.

Topics covered

- Business Setup
- Product Knowledge
- Supplier Evaluation
- Market Selection and Segmentation
- Buyer Communication
- Export Pricing and Cost Calculations
- Export Documents
- Port Operation Videos
- Project Presentations



Glimpses of online training programme on 'Export and Import of Agricultural Commodities'



5.1.18. Remedial Course on English

Online certificate course on " Remedial Course on English" was conducted from 15.11.2021 to 15.12.2021 in collaboration with English and Foreign Languages University (EFLU), Hyderabad for (30 No.) of third year undergraduate students of five constituent colleges.

The details of the course are the following

Academic reading - 10 hrs

- skimming and scanning
- strategies of reading

Academic Listening - 5 hrs

- listening for information
- listening for comprehension

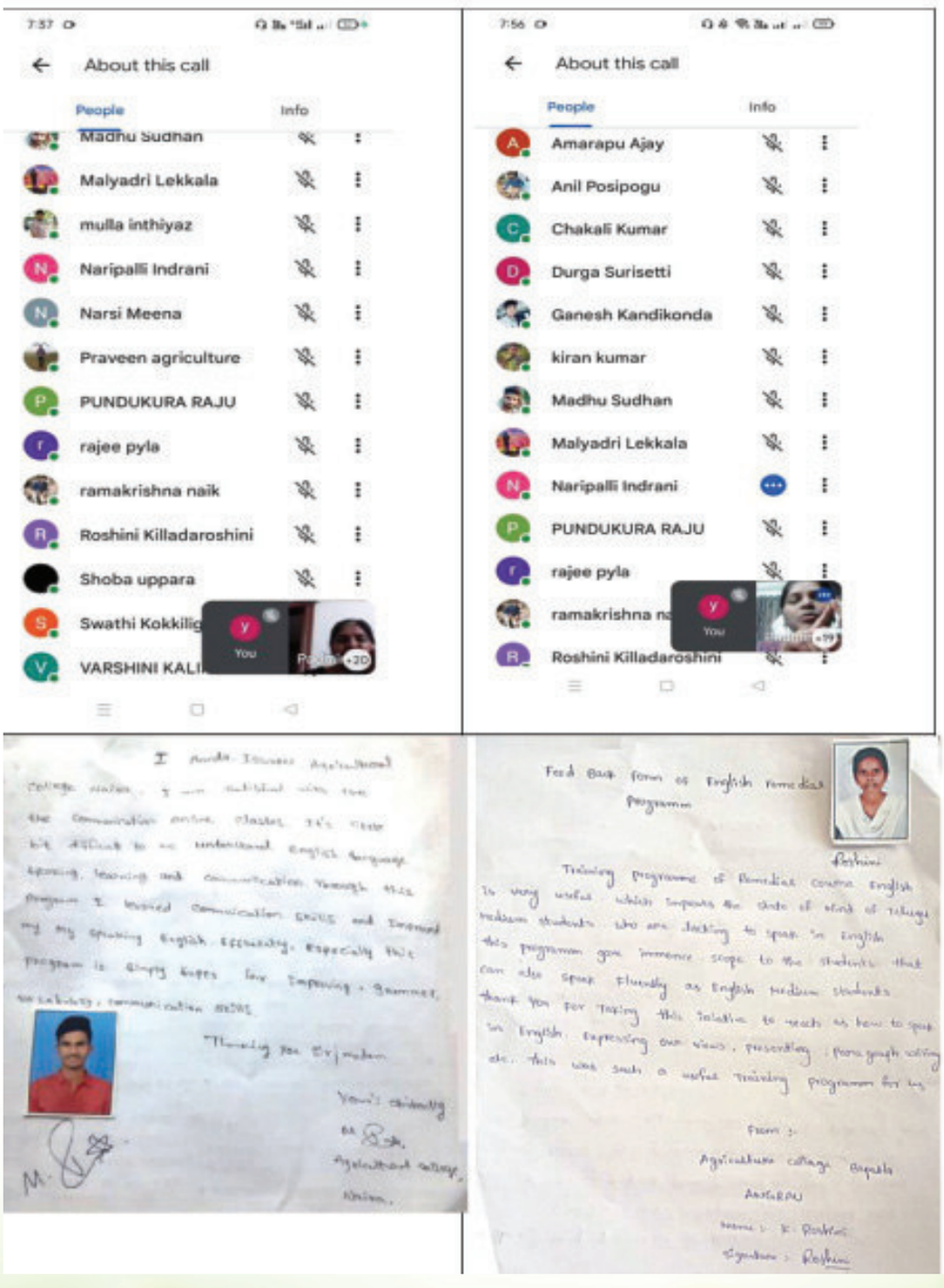
Academic Writing - 10 hrs

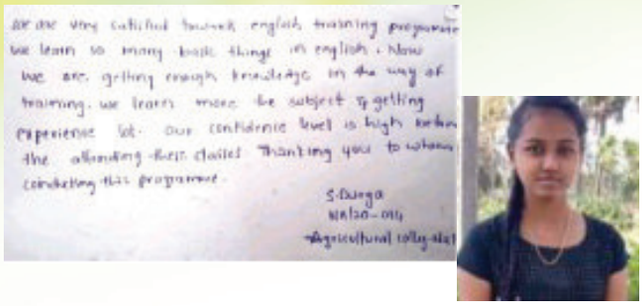
- note making and note taking
- summarising

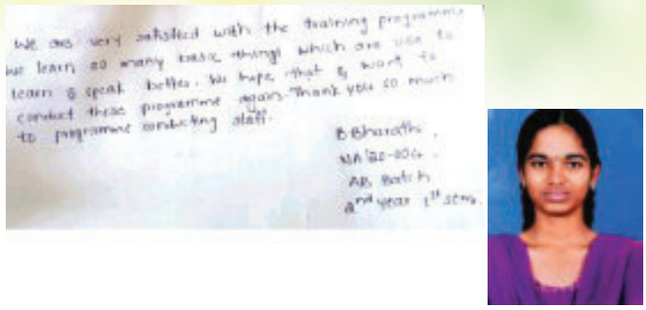
Speaking for Academic Purpose - 5 hrs

- giving a seminar presentation
- short presentation skills

Grammar - 5 hrs Vocabulary - 5 hrs







5.2. Skill Development Programme for students/stakeholders

S. No.	Name of the programme	No. of Participants	Duration & Period	Venue & Sponsored by	Expenditure Incurred (Rs.)
5.2.1	A Skill Development Programme on "Agro-based Entrepreneurship"	40	12.04.2021 to 07.05.2021	National Institute forMicro, Small and Medium Enterprises (ni-msme),Hyderabad	24,38,142/-
5.2.2	Effective water management	40	25.08.2021 to14.09.2021	WALAMTARI, Hyderabad.	1,89,980/-
5.2.3	Agro-Based Entrepreneurship	40	10.01.2022 to 04.02.2022	Entrepreneurship Development Institute of India (EDII), Gandhinagar, Gujarat	28,07,896/-
5.2.4	Hi-tech Agriculture	60	21.02.2022to to 24-03.2022	Kerala Agricultural University,Kerala	5,34,000/-
5.2.5	Effective water management	40	16.02.2022 to 03.03.2022	WALAMTARI, Hyderabad.	8,52,274/-
5.2.6	Agro-based Entrepreneurship	40	21.03.2022 to 16.04.2022	National Institute for Micro, Small and Medium Enterprises (ni-msme), Yousufguda, Hyderabad.	23,60,000/-
	Total	**260**			**91,82,292/-**

5.2.1. Agro-based Entrepreneurship Development Programme

A Skill Development Programme on "Agro-based Entrepreneurship" at National Institute for Micro, Small and Medium Enterprises (ni-msme), Hyderabad was conducted from 12.04.2021 to 07.05.2021 for 40 undergraduate students under IDP-ANGRAU.

Objectives of the Programme

i. To motivate the participants to start agro based entrepreneurship by enabling them to internalize the concept and process of entrepreneurial motivation

ii. To create learning space for understanding the entrepreneurship promotional activities in primary sector and enhance knowledge in entrepreneurial business opportunities in agriculture, animal husbandry, dairy, fisheries and other allied sectors

iii. To arrange practical session for gaining knowledge on preparation of project reports

iv. To understand various government schemes and regulatory requirements for agro based ventures.

First Week Programme (12.04.2021-17.04.2021)

As the programme is designed for Agri-based entrepreneurship development, in the first week mostly concentrated in entrepreneurship related topics like entrepreneurial motivation, entrepreneurial characters, dynamics of entrepreneurship development, business opportunity guidance & selection of projects in agri sector, design thinking & innovation *etc*,.

Second Week Programme (19.04.2022-24.04.2021)

During the second week, technical sessions like viable investment opportunities in agri sector, agri business management, market survey, marketing of agricultural products, group activity on dairy, poultry & meat, agriculture, farm machinery and agri input, fisheries, food processing and marketing. NI-MSME organized industrial visits and interactions with the successful entrepreneurs. Participants visited CITD, NIRD-RTP & Khadi vidyalaya industrial units. These visits helped the participants to understand the process of establishment of enterprise, manufacturing process, marketing strategies, packing, branding and quality management.

Third Week Programme (26.04.2022– 01.05.2021)

During third and fourth week online sessions were conducted. Due to COVID-19 pandemic, exposure visits were also restricted. During the third week, technical sessions on setting up of agro based enterprises and detailing on technical, marketing, financial and legal aspects including Intellectual Property Rights (IPR), export & import formalities of agri-products, FPOs & Agri MSME development.

Fourth Week Programme (03.05.2022-07.05.2021)

During the fourth week, participants were given hands on training on project report preparation. In the process of unit establishment, they have to prepare a project report for getting bank loan. Hence, the topics like project report preparation, financial management topics like costing, working capital management, break even analysis *etc,*. Programme feedback forms were also filled by the participants for analyzing the programme quality and usefulness.

Skill development programme on 'Agro based Entrepreneurship' at ni-MSME

Student Feed back

I am R. Pravallika, studying Final year B.Sc (Hons) Ag in Agricultural College, Naira. I have attended the training programme on Agro-based Entrepreneurship Skill Development Programme from 12.04.2021 to 07.05.2021 at ni-msme, Hyderabad. I would like to share my views on the Institute. Learned a lot of information regarding entrepreneur and self employment. The faculty were much more knowledgeable and tends to motivate towards becoming an entrepreneur every minute in this 4-week journey. Learned many new concepts like various loans supporting small and medium enterprises and I came to know about various schemes and their part of subsidy for establishment of an enterprise. I have learnt about GST, process of taxing, renewable energy sources, FPCs and FPOs and many other. These 4 weeks are very precious to me in many aspects whether it may be the interaction or it may be knowledge. The facilities provided by the Institute were irreplaceable and the care taken by them made us to stay much safer during this pandemic. Finally, I would like to express my sincere gratitude to Director General, Glory Swaroopa Madam, and Program Co-ordinators Sreekanth Sharma Sir and Rajendra Prasad Sir, Sudarshan Sir and Vivek Sir and all other faculty members who have given their valuable time in motivating us throughout this memorable journey. I am very thankful to each and every person in ni-imsme.

5.2.2 . Effective water management

The online skill development programme on “Effective water management” was conducted from 25.08.2021 to 14.09.2021 for 40 students. Sri V Prakash Rao, Chairman, Telangana State Water Resources Development Corporation; Sri Z Srinivasa Rao, Director General, WALAMTARI; Dr. B Krishna Rao, Director (A&R); Sri M SachinDutt, ADA & Course coordinator and Dr. A Pratap Kumar Reddy, Dean of Agriculture & Principal Investigator, IDP participated in the inaugural session and addressed the student participants. The participants are all undergraduate final year B.Sc (Ag) and B.Tech Agri. Enggstudents of five accredited colleges.

The course content was divided into 3 modules *viz,*

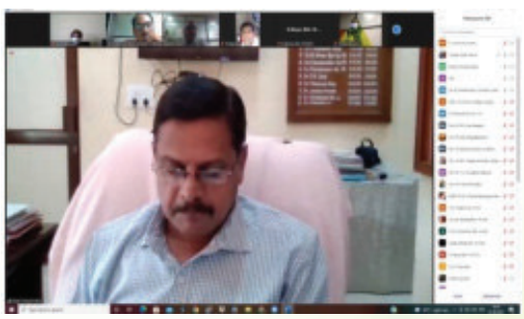
1. On-farm water management
2. Micro irrigation systems & IoT tools
3. Soil and water conservation & watershed management

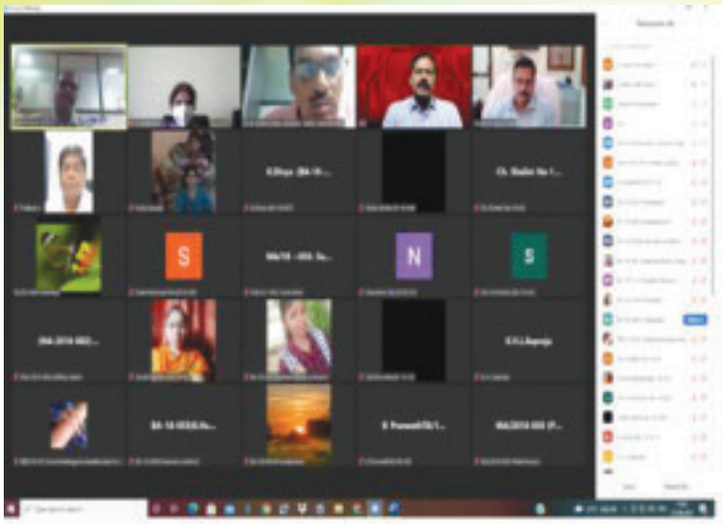
Internal faculty of WALAMTARI, external faculty from ICAR institutes, University and Agricultural Department were involved in taking sessions on the designed modules on specific topics useful to the students besides assignments given for hands on experience.

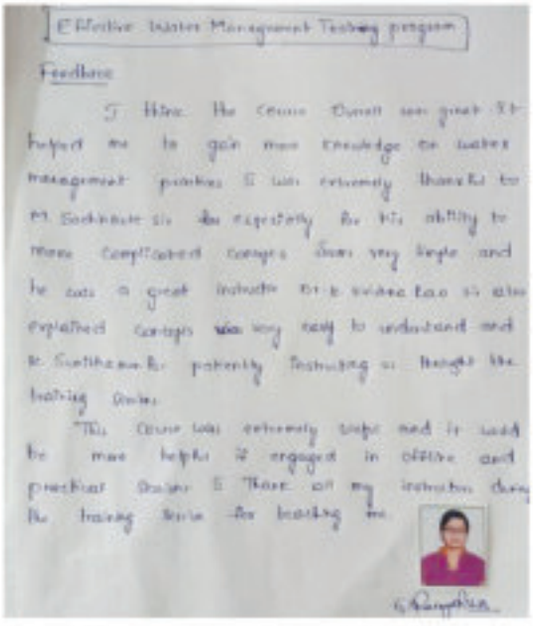
The students had hands on experience on the following topics

1. Water requirement of crops & CROPWAT software
2. Hands on practice – GPS and Google earth
3. Exercises on measurement of college campuses and farms with google earth
4. Watershed concept, ridge-valley approach, watershed delineation and watershed management techniques

Eminent guest faculty from NITI Aayog, CRIDA, IISWC, MANAGE, CTRI, ANGRAU, CGWB and WTC-PJTSAU taken technical sessions to the students online. They learned various methods of soil and water conservation, watershed concept, MI systems, O&M of MI systems, IOT tools in water management and On-farm water management. The valedictory of the training was held on 14.9.2021 and the Director General expressed that the students must practice the learned topics in the field and help the farming community to the extent possible.







I, G. Sai Mounika (BE-18-36) pursuing final year B. Tech(Ag) in Dr. NTR College of Agricultural Engineering, Bapatla had attended a 21 day online skill development training programme (2021-22) on "EFFECTIVE WATER MANAGEMENT" conducted by Water And Land Management Training And Research Institute(WALAMTARI), Hyderabad. During this program I have been trained on importance of water management, water conservation, efficient use of water available, use of remote sensing, building of check dams in appropriate areas in order to conserve water, aquifer classification, recharge of ground water, ground water usage of less amount of water for rice crop, drip irrigation, sprinkler irrigation, fertigation Classification, working, principles and efficiency etc. I'm very thankful to our trainers in letting me know about all the above concepts. In this training session I also clarified my doubts and learned something new. It's been a great fun attending this training session for 21 days and gained different knowledge too.

G. Sai Mounika

Glimpses of 'Skill development programme on Effective water mangement'

5.2. Agro-Based Entrepreneurship

A Skill development programme on "Agro-Based Entrepreneurship" was conducted from 10.01.2022 to 04.02.2022 at Entrepreneurship Development Institute of India (EDII), Gandhinagar, Gujarat for 40 second year undergraduate students of five accredited colleges.

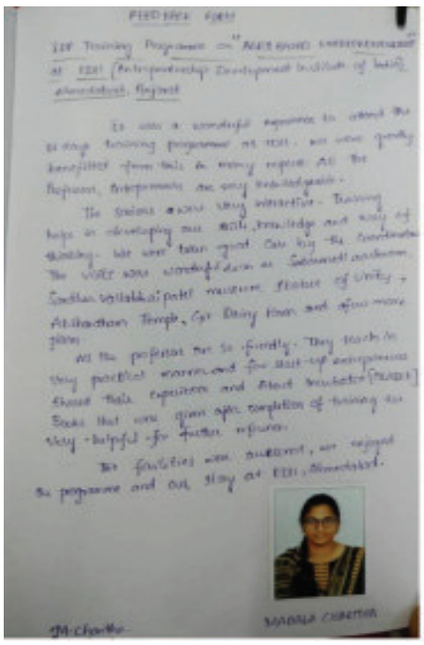
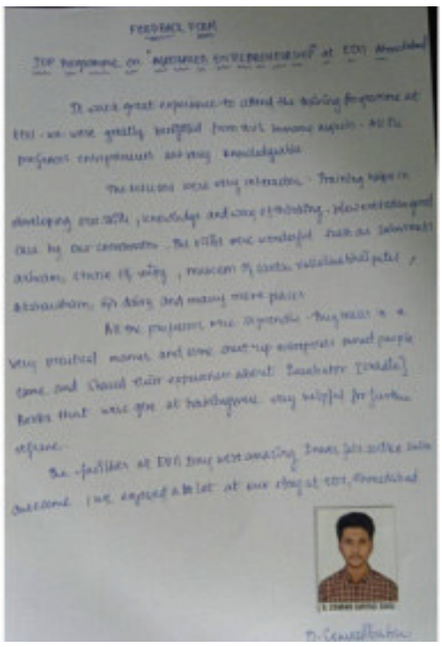
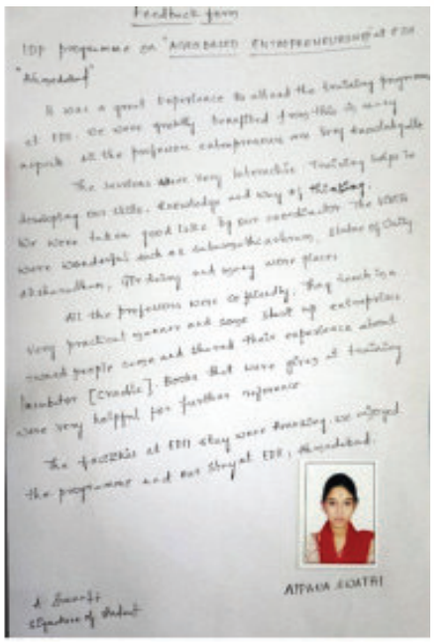
Topics covered broadly are as follows

S.No	Particulars
1.	Agri entrepreneurship
2.	Understanding entrepreneurial mind-sets
3.	Business opportunities identification
4.	Soft skills for interpersonal communication
5.	Creativity, Innovations and Ideation
6.	Social entrepreneurship
7.	Business model canvas
8.	Agri business plan
9.	Team building and leadership
10.	Agri logistics & value chain for collateral management
11.	Intellectual Property Rights (IPR) for agro based enterprises
13.	Opportunities in dairy and milk based businesses
14.	Opportunities in agri biotechnology
15.	Opportunities in poultry sector- broiler business
16.	Green house and international agricultural operations
17.	Opportunities in refrigerated /frozen food products and cold chain infrastructure
18.	Introduction to agri retailing & SCM
19.	Opportunities in cow based entrepreneurship
20.	Opportunities in poultry sector- broiler business
21.	Opportunities in poultry sector- layering business

Industry Visits

- Statue of Unity
- Technology Business Incubator (TBI) – CrAdLE
- Bansi Gir Gaushala – a mission to regain the past
- Gandhi Ashram
- Sardar Vallabhbhai Patel National Museum
- Adalaj Stepwell

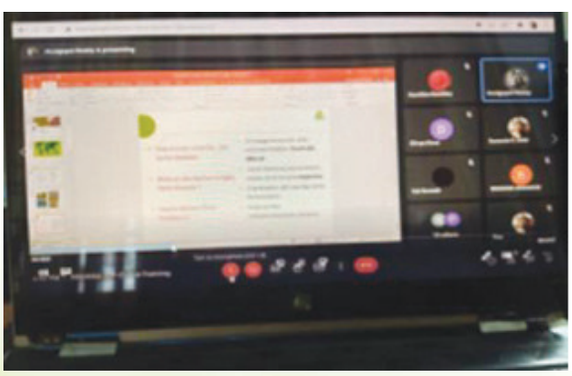
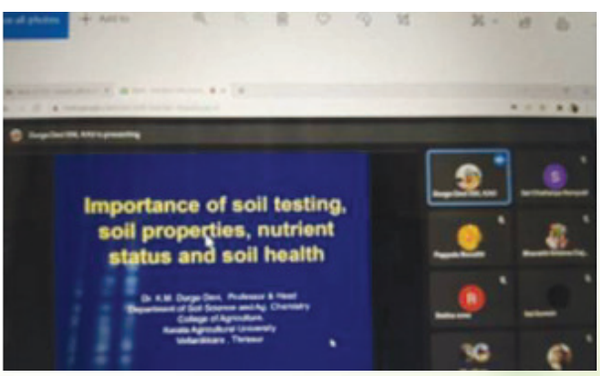


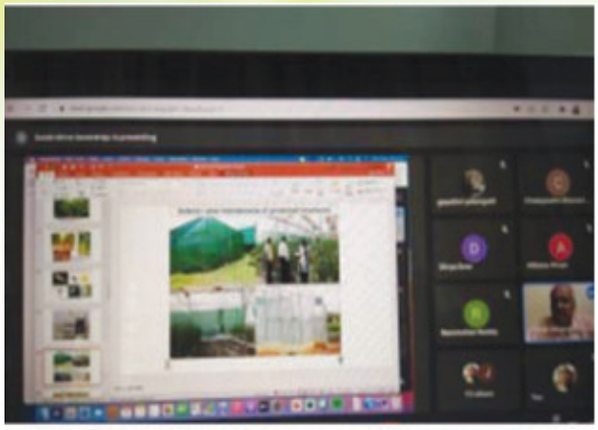




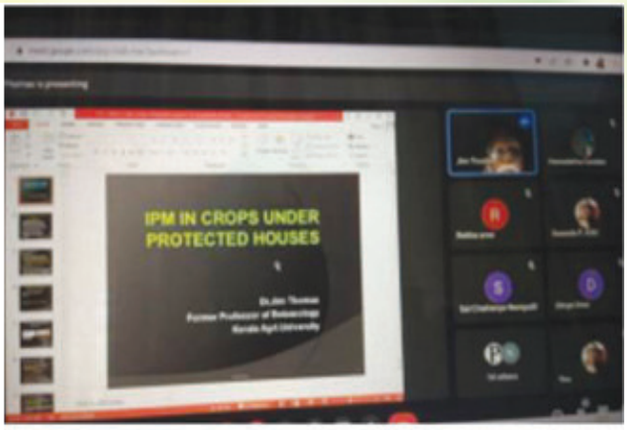
Glimpses of Skill development programme on 'Agro-Based Entrepreneurship' at EDII, Gujarat

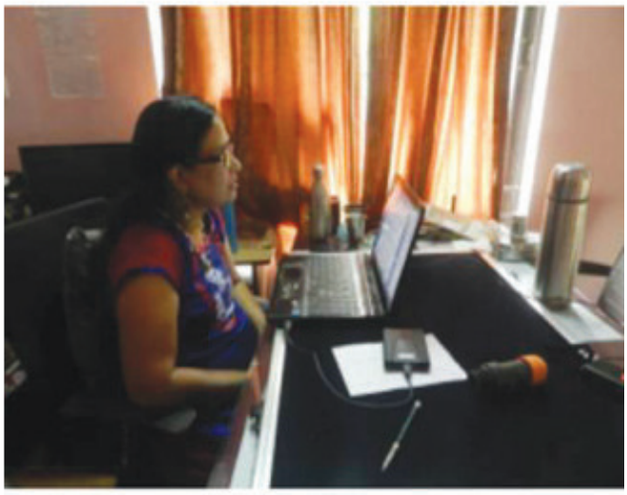
5.2.4 Hi-tech Agriculture

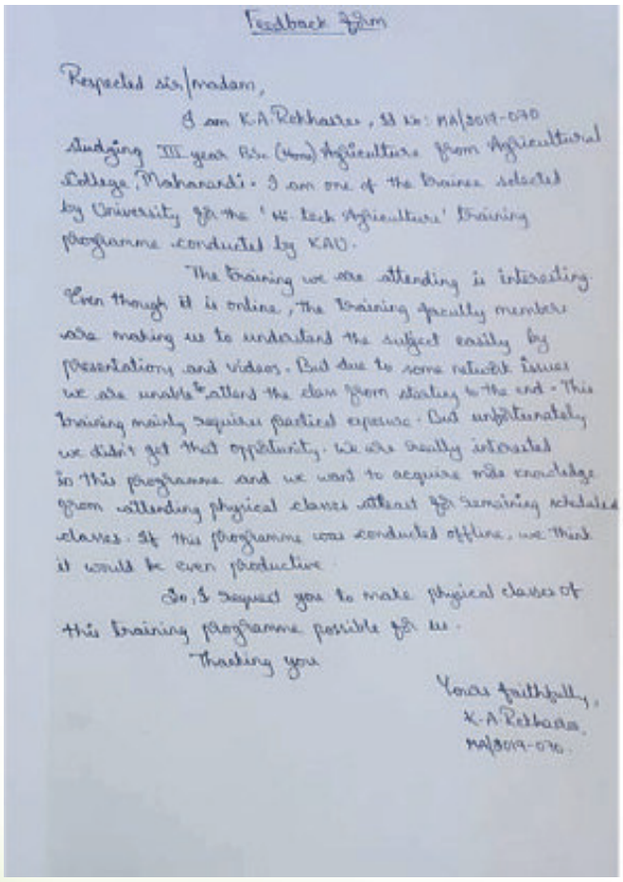
An online skill development programme on "Hi-tech Agriculture" was conducted on 21.02.2022 for 60 third year undergraduate students of ANGRAU in collaboration with Kerala Agricultural University, Kerala. The main objective of the programme is to provide technical knowledge in the field of Hi-tech farming, especially in micro irrigation and fertigation, open precision farming, polyhouse farming, aquaponics, hydroponics, construction of protected structures, setting and installation of hi-tech poly kitchen garden, vertical farming methods, fabrication of multi-tier grow bag & multi-tier grow bag with composting facility, hi-tech seedling production, vegetable seedling grafting and to technically equip them to develop self-confidence to guide the farmers and also to act as supervisors of government farms having poly house farming/aquaponics/hydroponics/ open precision farming/vertical farming for vegetable/flower cultivation as demonstration unit for guiding the farmers and also to help them to act as a guide to the educated youth for the generation of self-employment or they themselves can become entrepreneurs or can make start up groups.









Feedback form

Respected sir/madam,

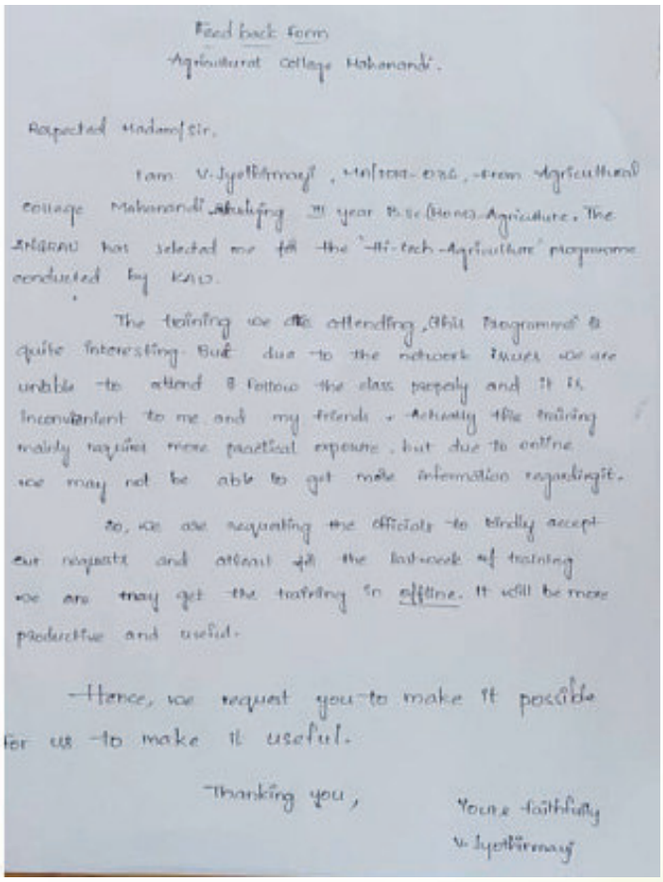
I am K.A Rekhasree, Id no: NA/2019-070 studying III year B.Sc (Hons) Agriculture from Agricultural College, Mahanandi. I am one of the trainee selected by University for the 'Hi-tech Agriculture' training programme conducted by KAU.

The training we are attending is interesting. Even though it is online, the training faculty members are making us to understand the subject easily by presentations and videos. But due to some network issues we are unable to attend the class from starting to the end. This training mainly requires practical exposure. But unfortunately we didn't get that opportunity. We are really interested in this programme and we want to acquire more knowledge from attending physical classes atleast for remaining scheduled classes. If this programme was conducted offline, we think it would be even productive.

So, I request you to make physical classes of this training programme possible for us.

Thanking you

Yours faithfully,
K.A Rekhasree
NA/2019-070.



Feed back form
Agricultural College Mahanandi.

Respected Madam/Sir,

I am V. Jyothirmayi, NA/2019-036, from Agricultural college Mahanandi studying III year B.Sc(Hons) Agriculture. The ANGRAU has selected me for the 'Hi-tech Agriculture' programme conducted by KAU.

The training we are attending 'this programme' is quite interesting. But due to the network issues we are unable to attend & follow the class properly and it is inconvenient to me and my friends. Actually the training mainly requires more practical exposure, but due to online we may not be able to get more information regarding it.

So, we are requesting the officials to kindly accept our requests and atleast for the last week of training we are may get the training in offline. It will be more productive and useful.

Hence, we request you to make it possible for us to make it useful.

Thanking you,

Yours faithfully
V. Jyothirmayi

Glimpses of online skill development programme on 'Hi-tech Agriculture'

5.2.5 Effective water management

A skill development programme on "Effective water management" for 40 no. of second year undergraduate students of five accredited colleges was successfully conducted from 16.02.2022 to 03.03.2022 at WALAMTARI, Hyderabad.

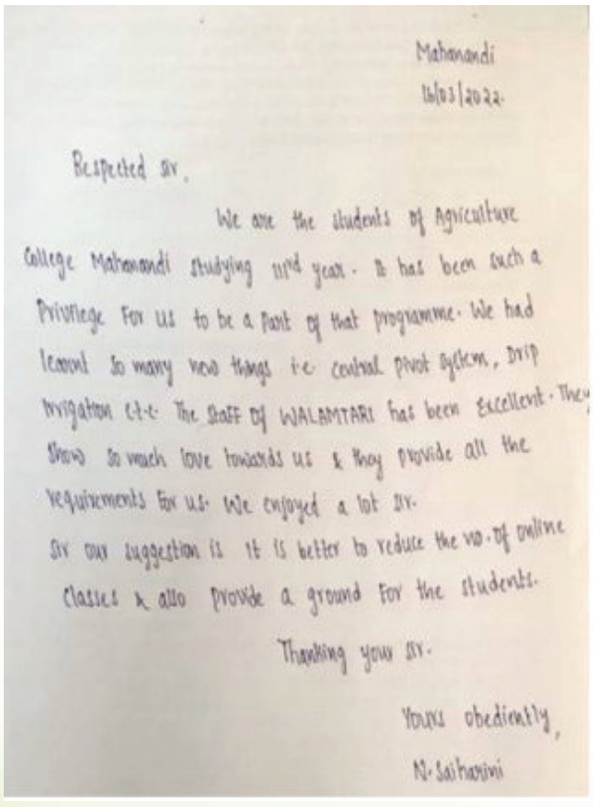
The course content was divided into 3 modules viz.,

- On-farm water management
- Micro Irrigation (MI) Systems & IOT tools in water management
- Soil and water conservation & watershed management.

The students learned many water management aspects on field besides hands-on experience of related software's (CROPWAT *etc.,*). Besides, field visits to some renowned institutes like ICRISAT and Water Technology Centre could increase their perceptions on water management and micro irrigation. All the theory knowledge was dovetailed with practical observations and interactions with the speakers. This helped students for gaining real field experience.

The students had hands on experience on the following topics

1. Water requirement of crops & CROPWAT software
2. Hands on practice - GPS, Google earth
3. Exercises on measurement of Area, Length and point features, measurement at farm with GPS and Google earth
4. Watershed concept, ridge-valley approach, watershed delineation
5. Design and estimation of soil and water conservation measures
6. Design and estimation of water harvesting structures
7. Selection of micro irrigation systems
8. Planning and design of MI Systems.



Mahanandi
16/03/2022.

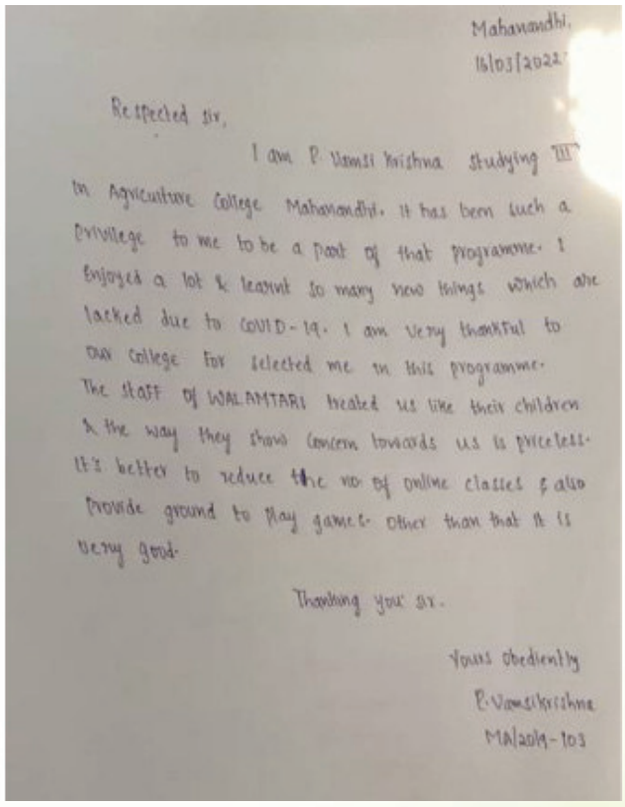
Respected sir,

We are the students of Agriculture College Mahanandi studying IInd year. It has been such a Privilege for us to be a part of that programme. We had learnt so many new things i.e. central pivot system, Drip irrigation etc. The staff of WALAMTARI has been excellent. They show so much love towards us & they provide all the requirements for us. We enjoyed a lot sir.

Sir our suggestion is it is better to reduce the no. of online classes & also provide a ground for the students.

Thanking you sir.

Yours obediently,
M. Saihasini



Mahanandhi.
16/03/2022

Respected sir,

I am P. Vamsi Krishna studying IIIrd in Agriculture College Mahanandhi. It has been such a Privilege to me to be a part of that programme. I Enjoyed a lot & learnt so many new things which are lacked due to COVID-19. I am very thankful to our college for selected me in this programme. The staff of WALAMTARI treated us like their children & the way they show concern towards us is priceless. It's better to reduce the no of online classes & also provide ground to play games. Other than that it is very good.

Thanking you sir.

Yours obediently
P. Vamsikrishna
MA/2019-103

Skill development programme on 'Effective water management' at WALAMTARI, Hyderabad

5.2.6 Agro-based Entrepreneurship

A Skill Development programme on "Agro-based Entrepreneurship" for 40 students for four (4) weeks from 21.03.2022 to 16.04.2022 was conducted at National Institute for Micro, Small and Medium Enterprises (ni-msme), Yousufguda, Hyderabad.

Objectives of the programme

- To motivate the participants to start agro based entrepreneurship by enabling them to internalize the concept and process of entrepreneurial motivation.
- To create learning space for understanding the entrepreneurship promotional activities in primary sector and enhance knowledge in entrepreneurial business opportunities in agriculture, animal husbandry, dairy, fisheries and other allied sectors.
- To arrange a practical session for gaining knowledge on preparation of project reports.
- To understand various government schemes and regulatory requirements for agro based ventures.

The training sessions were run in the following methodology

- Interactive & participative learning
- Lecture cum discussion
- Case studies, group discussions and group exercises

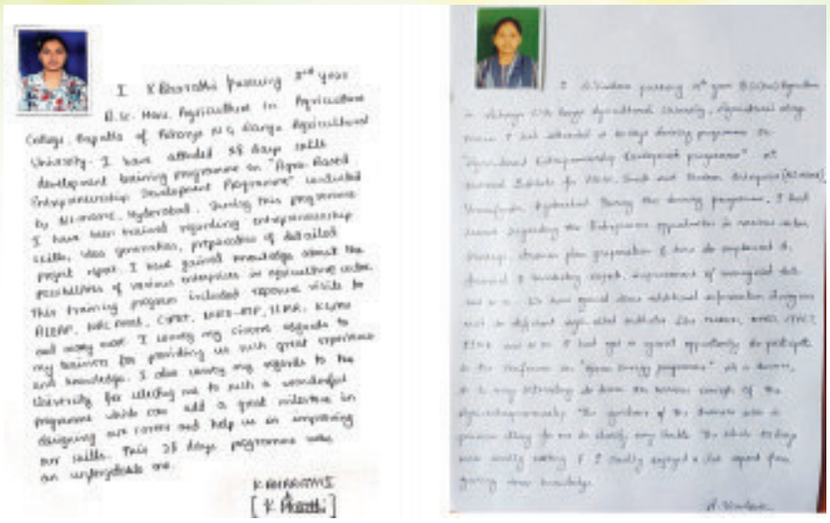
- Films & videos
- Industrial visits and interaction with the entrepreneurs.

About programme

The programme was inaugurated by Ms. S. Glory Swarupa, Director General of ni-msme. In her inaugural address, she said that their mission should be development of rural sector through Agribased Entrepreneurship.

- Agri-preneurship is very much needed for development of rural sector which can process the agri produce into food products. There is a need to create a pool of young people who are able to create jobs in rural areas. A large number of people are now opting to start their own ventures to attain economic independence specially Agri Business Ventures.
- Dr.Shreekant Sharma said the programme content fulfills the requirements of the agri graduates to start their own Enterprise.
- Participants presented their individual & group project reports and all reports were valued by the faculty committee of ni-msme.
- Dr. S. Glory Swarupa, Director General of ni-msme has participated in the valedictory section as a Chief Guest and addressed the participants. Participants expressed their gratitude to ni-msme for providing such knowledge sessions and exposure visits.
- Chief Guest Dr. S. Glory Swarupa, Director General has distributed the certificates to the participants. Vote of thanks was proposed by Mr. V.B. Rajendra Prasad.

Skill development programme on 'Agro-based Entrepreneurship' at ni-msme



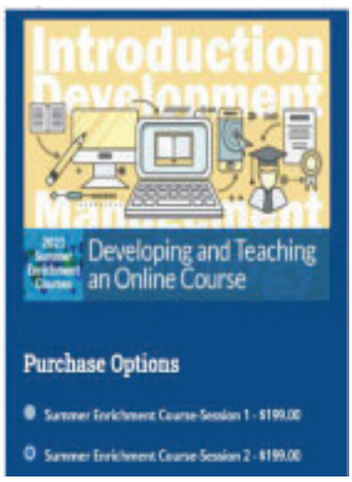
5.3 Online course for faculty members

S. No.	Name of the programme	No. of Participants	Duration & Period	Venue & Sponsored by	Expenditure Incurred (Rs.)
5.3.1	The Summer Enrichment Course on "Developing and Teaching an Online Course"	198	13.06.2021 to 31.07.2021	National Center for student life/Magna publications, Madison, Wisconsin, USA	3,07,308/-

5.3.1 Summer Enrichment Course on Developing and Teaching an online course

The Summer enrichment course on "Developing and Teaching an Online Course" was conducted from 13.06.2021 to 31.07.2021 in collaboration with National Center for student life/ Magna publications, Madison, Wisconsin, USA. About 198 faculty from five accredited colleges and IDP head quarters enrolled and successfully completed the course.

Learning goals: 1. Articulate the differences between face-to-face and online teaching 2. Build and present online courses with confidence 3. Create syllabi, assessments, feedback methods and other classroom tools based on best practices 4. Use technology to enhance students classroom experience and learning outcomes. The course delivered all-new content from a single presenter, Dr. Brian Udermann, Director of online education at the University of Wisconsin-La Crosse and a 15-year veteran of the online classroom. The course include video programs, assessments, including a final exam, transcripts of all video programs, program slides, supplemental readings and activities and certificate of completion of the course.



The 20- to 25-hour Magna online course provided core principles and best practices in online teaching, without costly and frustrating false starts divided into four units.

a. Introduction to online teaching

Learning objectives: Describe the current state of online teaching, describe the difference between teaching online and face to face, identify strategies to create community in online courses and engage online learners and explain ways they can help their online learners succeed.

Topics: Current state of online teaching, fundamental difference between teaching online and teaching face to face. Transition from face to face to online teaching, create community and engaging online teachers and helping your students succeed.

b.Online course development

Learning objectives: Illustrate the major ideas in the backwards design process, recognize their best practices related to course structure and navigation, list the components of a comprehensive syllabus, develop a plan for designing and developing course content, describe best practices of online course

development, explain how to establish instructor presence, formulate strategies to effectively use online discussions, develop strategies to administer assessments, plan ways to provide meaningful feedback to students, identify ways to mange workload when teaching online.

Topics: Backward design to achieve course and module goals, course structure and navigation, creating a comprehensive syllabus, designing and developing content and best practices for quality.

c.Online course facilitation and management

Learning objectives: Explain how to establish instructor presence, formulate strategies to effectively use online discussions, plan ways to provide meaningful feedback to students and identify ways to manage workload when teaching online.

Topics: Establish instructor presence, using online discussions effectively, administration assessments, providing meaningful feedback and managing instructor workload.

d.Effective use of technology

Learning objectives: Recall strategies to effectively use technology in their course, identify common LMS features to simplify teching online, explain best practices related to creating and using video, formulate strategies to explore and adopt new technologies and state ways to make their course ADA compliant

Topics: Using technology with meaning and purpose, common LMS features to simplify instruction, creating and using videos when teaching online, exploring and adopting new technologies and an introduction to ADA compliance.

6.Meetings and Other Activities

6.1 Virtual meetings of SLTP 2021

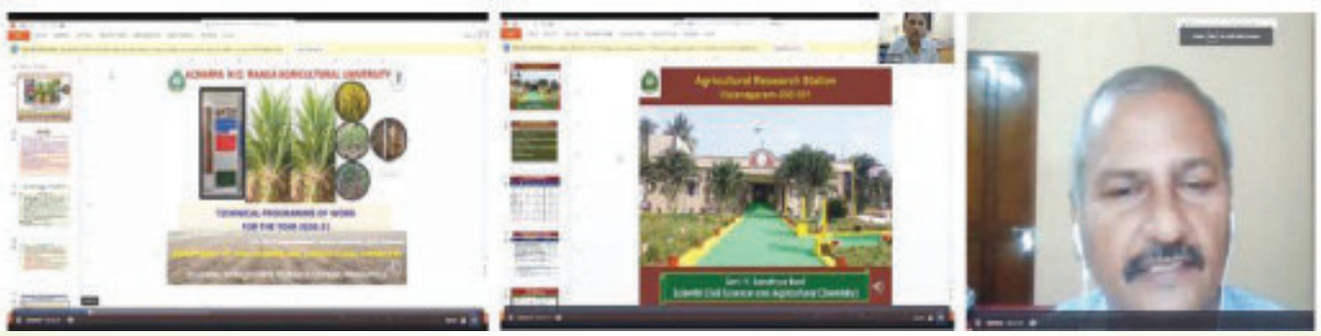
IDP team arranged virtual meetings of State Level Technical Programme (SLTP) 2021.

S.No.	Department	Duration
1.	Soil Science & Agril. Chemistry, Nanotechnology, Microbiology, Bio-chemistry and Environmental Science & Technology	18.05.2021 to 20.05.2021
2.	Plant Pathology	24.05.2021 to 26.05.2021
3.	Agronomy	31.05.2021to 03.06. 2021.

Dr. A. Pratap Kumar Reddy
Dean of Agriculture & Principal Investigator, NAHEP, IDP

Dr. D. Balaguravaiah
Dean of P.G. Studies

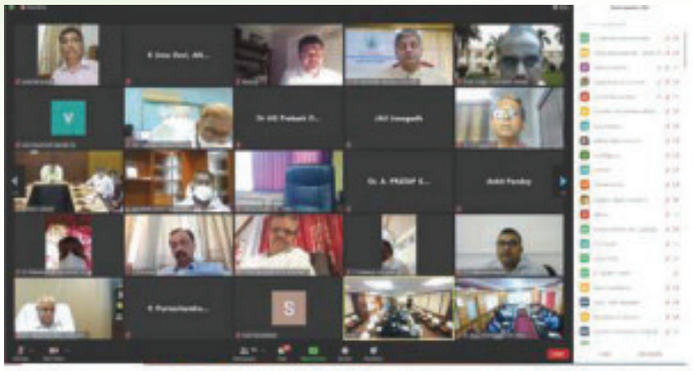
Dr.T.Giridhar Krishna
Registrar



Glimpses of SLTP Meeting

6.2 Technical review meeting

Participated in Technical Review meeting on 02.06.2021 and 03.06.2021 conducted by PIU-NAHEP



Technical review meeting of all IDP SAU's

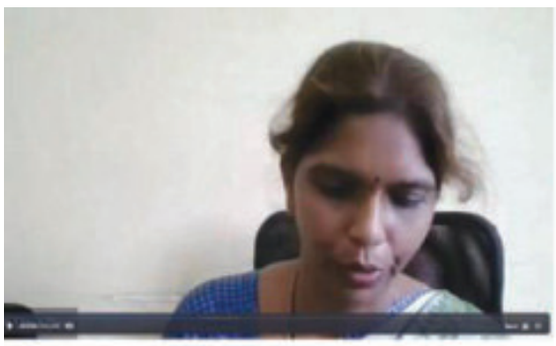
Dr. A. Pratap Kumar Reddy
Principal Investigator, NAHEP, IDP

Technical presentation

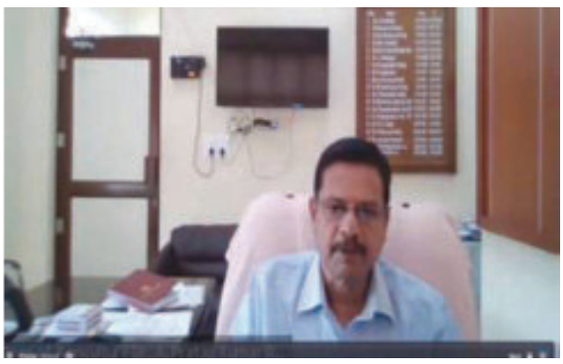
Address by Dr. P. Ramasundaram,
National Coordinator, NAHEP, IDP

6.3 Review meeting

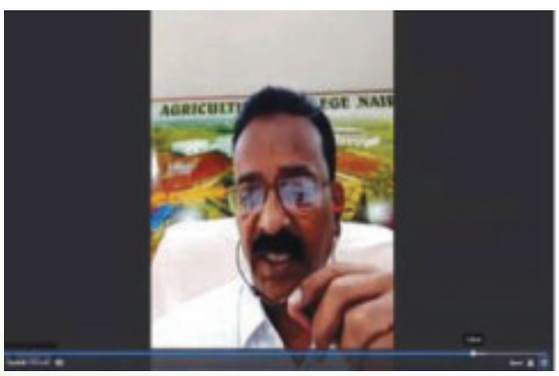
Review meeting on IDP activities (technical and financial progress) with all the nodal officers and IDP team members of five accredited colleges was conducted on 17.06.2021.



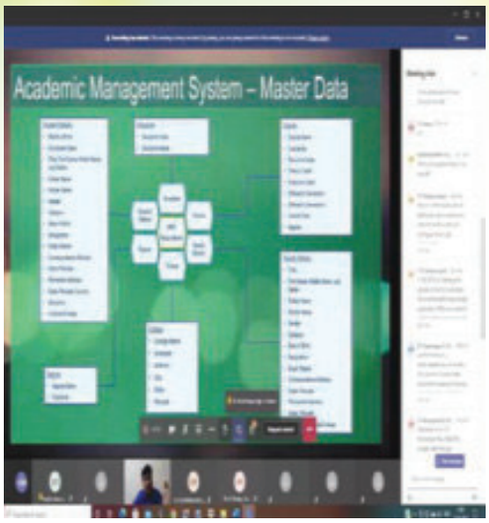
Welcome by Dr. K. Uma Devi,
Assistant Coordinator, NAHEP, IDP



Address by Dr. A. Pratap Kumar Reddy,
Principal Investigator, NAHEP, IDP



Associate Deans interacting with Principal Investigator, NAHEP, IDP



Virtual training on "Academic Management System"
ANGRAU AMS Master trainers attended virtual training on Academic Management System on 19.05.2021

6.4 Interaction meetings

Interaction meeting was conducted on 14.06.2021 with Dr. P.V. Vara Prasad, Director, Sustainable Intensification and Innovation lab, Kansas State University and Dr. Vijaya Gopal Kakani, Warth & Sarkeys Distinguished Professor, Oklahoma State University, USA. All the 17 faculty attended the interaction meeting and expressed their areas of interest for undertaking international training programme.

Address by
Dr. A. Pratap Kumar Reddy
Principal Investigator, NAHEP, IDP

Address by
Dr. P.V. Vara Prasad

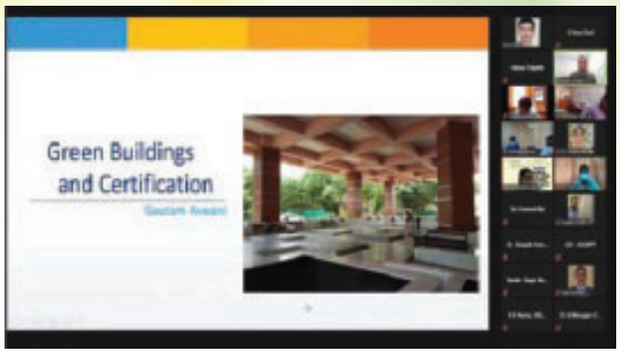
Address by
Dr. Vijaya Gopal Kakani

An interaction meeting with Dr. P. Ramasundaram, National Coordinator was conducted on 16.07.2021 at Board Meeting Hall, ANGRAU. The National Coordinator reviewed the IDP activities and stressed to utilize the leftover amount at the earlier. Further, he recommended the university and IDP team to work towards utilizing the state share for setting up of a state of the art agri-business incubation center along with language labs, alumni and placement cells that may generate resources for the university.

Address by Dr. P. Ramasundaram,
National Co-ordinator NAHEP-IDP

Dr. A. Vishnuvardhan Reddy, Felicitating
Dr. P. Ramasundaram, National
Co-ordinator NAHEP-IDP

IDP team and Nodal officer, Environmental safeguards attended virtual workshop on Green Building/ Campus certification on 18.08.2021. Mr. Gautam Aswani, Deputy Manager, Disha council was the guest speaker. He introduced the concept of green building, types of rating certification, fees and related structure.



Cognitive evaluation examination

The ANGRAU IDP invited applications from the students for nominating eligible candidates to international programmes. The IDP team at college level scrutinized the applications based on NAHEP guidelines and shortlisted the candidates for writing the cognitive examination. The committee nominated for setting the question paper submitted three sets, out of which one is selected by the PI, IDP. The cognitive evaluation examination was conducted on 25.08.2021 and further, the cognitive papers were evaluated in the five colleges. The merit list of students was prepared based on their academic performance, cognitive examination, character, conduct, and personality and sports activities.

6.5 Other Activities

Celebrated Rythu Dinotsavam on 08.07.2021 on the occasion of former Andhra Pradesh Chief Minister late YS Rajasekhar Reddy's birth anniversary, rededicating itself to the development of agriculture sector in the state.

Dr. A. Vishnuvardhan Reddy, Hon'ble Vice-Chancellor, IDP Leader Celebrating Rithu Dinotsavam

6.5.1 Workshop

The principal investigator, NAHEP, IDP; Nodeal officers (Environmental Safeguard Consultant) and IDP team attended the workshop on "Experience Sharing – Environmentally Sustainable Plan (ESP) implementation process" on 06.12.2021

6.5.2 Post Procurement Review

Dr. Sk. Jaffar Basha, T.O. to Dean of Agriculture & Point Person Procurement (IDP) and Dr. K. Uma Devi, Assistant Professor (IDP) participated in the Post Procurement Review (PPR) Phase-2 meeting of ICAR, NAHEP on 02.03.2022 at UAS, Bengaluru.

6.5.3 Vsit to CCSHAU, Hisar and GBPUAT, Pantnagar

A team of six faculty of ANGRAU visited Agri-Business Incubation Centre and other IDP lab facilities established at Chaudhary Charan Singh Haryana Agricultural University (CCSHAU), Hisar and G.B. Pant University of Agriculture and Technology (GBPUAT), Pantnagar from 04.10.2021 to 08.10.2021.

S.No.	Name of the team member	Designation
1	Dr. A. Pratap Kumar Reddy	Dean of Agriculture & Principal Investigator, IDP, ANGRAU
2	Dr. S. Joseph Reddy	Associate Dean, Dr. NTR College of Agricultural Engineering, Bapatla
3	Dr. N. C. Venkateswarlu	Associate Director of Research, RARS, Nandyal
4	Dr. V. Sreenivasa Rao	Professor & Univ. Head, Dept. of Statistics and Computer Applications, Agril. College, Bapatla
5	Dr. V. Sailaja	Principal Scientist (Soil Science), RARS, Lam, Guntur
6	Dr. K. Uma Devi	Assistant Professor, IDP, Guntur

The team members visited the Chaudary Charan Singh Haryana Agricultural University (CCSHAR), Hisar and G.B. Pant University of Agriculture & Technology (GBPUAT), Pantnagar to gain knowledge and information on Agri-Business Incubation Centre and other laboratory facilities established like experiential learning labs, language labs, mini audio and video recording cell, mini theatre with 3D visual facility, virtual labs *etc.,* in these universities. The six team faculty interacted with University Officers, IDP team members and other faculty to understand the activities carried out in IDP Programme at CCSHAU, Hisar and GBPUAT, Pantnagar. If space provided, the labs can be replicated either at Annex building, Agricultural Bapatla or in the new building being constructed at Lam, Guntur.

6.6 Environmentally Sustainable Plan (ESP)

Completed actions under ESP

i. Waste generated from kitchens in the colleges and also from the hostels are utilized for vermicomposting and supply to the gardens available in the college campus.

ii. Establishment of attractive dustbins at each classroom, hostels and also at some identified locations in the campus and waste collection bins for paper, glass, plastic, organic waste and hazardous waste separately.

iii. Installation of solar energy plant using space available on the building

iv. Students and staff are advised to buy bicycles to use in the campus.

v. Solar lighting systems along the college roads throughout the campus

Waste disposal through production of vermicompost

Agrico green programme

Solar panels

6.7 Equity Action Plan

Progress of the EAP implementation

a. Skill development of students

- Academic weak students are identified for remedial classes (desegregated by caste & gender),
- Students selected for overseas, zonal and regional level training (desegregated by caste & gender)

b. Special efforts for training/ internship/ placement of weak students

- The economically and socially weaker section students selected on the basis of merit
- Linkage and collaborations with industries for work based placements and workshops conducted
- Awareness programmes and trainings conducted to promote placements.

c. International training of faculty in subject matter particularly for capacity building

- Faculty selected for international and national training (desegregated by caste & gender) participated in international and national trainings,
- Training Needs Analysis (TNA) of faculties was completed.

d. Grievance redress mechanism (GRM)

- Awareness program on GRM conducted

e. Making campuses physically and socially gender friendly

- Provided adequate and suitable facilities for women students and faculty
- Escalators established, ramps and washrooms builded, sanitary napkin vending machines and incinerators established, street lights installed, sign and alarms fixed and mockdrill arranged.

f. Labour Management Plan

- Civil work completed, LMP* prepared & signed, IR & H check list prepared, labour satisfaction survey conducted and social screening report prepared.

ANGRAU

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