

ICAR-National Agricultural Higher Education Project

Project Report (up to March 31, 2023)

Component 1b: Centres for Advanced Agricultural Science and Technology (CAAST)

<Navsari Agricultural University, Navsari>

<Establishment of Secondary Agriculture Unit for Skill Development in Students and Farmers at NAU, Navsari>



<< Centre for Advanced Agricultural Science and Technology >>

and Navsari Agricultural University, Navsari >>

Executive summary

Name of the AU: Navsari Agricultural University, Navsari

Project Title: Establishment of Secondary Agriculture Unit for Skill Development in Students and Farmers at NAU, Navsari

Executive Summary:

<<<<Highlight the broad activities undertaken by your AU under CAAST (in sentence form) with emphasis on achievements for entire project tenure (restrict the highlights to 2-3 paragraphs)>>>>

The Project Implementing Unit, ICAR, New Delhi had sanctioned an Advanced Agricultural Science & Technology Sub-project entitled “Establishment of Secondary Agriculture Unit for Skill Development in Students and Farmers at NAU, Navsari” through National Agricultural Higher Education Project (NAHEP) in 2018.

Under the project, university purchased advanced Equipment’s, Plant & Machineries for strengthening of existing units of the project and created state of art facilities at Post Harvest Technology, Forest Products Utilization, Forest Biology and Tree Improvement, Banana Pseudostem unit, Forest Quality Test Laboratory and Livestock Production Management.

So far three existing units of CAAST are ISO certified with food safety management & quality management. At present eleven entrepreneurs, more than **150** contemporary bamboo & wood products, 14 products from fruits & vegetables and two organic banana liquid nutrients from banana, **Nine** mobile applications, two web-applications developed under the aegis of NAHEP-CAAST sub-project.

Introduction

<<<<**Background, introduction of the project, title and key objectives, intended benefits (restrict the highlights to 2-3 paragraphs-maximum 2-3 pages)**>>>>

Background: Collaborations with national institutes and private industries under the umbrella of CAAST project would bridge the existing knowledge gaps at various levels and it would expand the relevance of research besides foster the commercialization of R&D outcome as well as enhance research innovations. Last but not the least facilities created under the project can capture the market needs and acclimatize to the changing environments. The CASST project would encourage expansion and diversification of product base, innovate protocols, development of minimally altered and functional food products and identification of healthier alternatives to sugar and fats in processed products. The emphasis would be on mixing traditional Indian knowledge with innovative new technologies for developing products which promotes health and are appealing in taste.

Introduction of the project: Secondary agriculture includes all practices and processes which add value to primary agricultural commodities by using efficient technologies, market information and consumer preference. The potential of secondary agriculture has not yet been fully tapped. Higher purchase capacity, a vibrant retail sector, increased access to internet and online vendors has fuelled the demand for value added products be they ready to eat, ready to serve, convenience food, functional food and nutritive food. India has also witnessed rapid industrialization in the past few decades which is a vital link between primary and secondary agriculture. This has generated the need for product development, diversification and skilled workers to handle these automated units. This is an era of specialization in agriculture and there is an urgent need to sharpen the skills of our graduates and postgraduates to enhance their employability prospects. The students also need to be sensitized and empowered so that they can deal with climate change, surplus production and price volatility. Hands on training to students, unemployed youth and farmers would foster entrepreneurship among them and transform them into job providers.

The Government of India has launched several schemes such as “Make in India Initiative” to promote investment in the manufacturing and processing sector. This is an excellent opportunity for post graduates and aspiring entrepreneurs to improve their skills and set-up small scale automated units in different fields of secondary agriculture like preparation of value added products from horticultural crops, medicinal and aromatic plants, non-timber forest products etc. Establishment of small scale climate resilient dairy unit can provide some respite to farmers from climate change, enhance their profitability from diversification and make them self-reliant in inputs. For the export of fresh produce as well processed products, farmers and processors have to comply with stringent set of standards. The production of quality and safe food products can be an impetus to enhance agri-export and farmers income in short duration. In order to double the farmer’s income and Secondary Agriculture would play a pivotal role in it.

The best way to ensure sustainable economic growth is by investing in education and skill development. The envisaged project shall impart quality education and employable skills to students in different fields of secondary agriculture. It shall also impart vocational skills to PG students and budding entrepreneurs so that they can take up self-employment ventures. Equal opportunity with transparency to various classes of society for skill development in secondary sector and establishment of Small Scale Industries at cluster level shall definitely lead to inclusive growth. Looking to the scope in secondary agriculture and its impact on our economy in the coming years, it is proposed to sanction a CAAST on “Establishment of Secondary Agriculture Unit for skill development at NAU, Navsari”. In this regards, thrust areas will be value addition of horticultural and NTFPs, Establishment of small scale climate resilient dairy unit and food quality testing laboratory.

TITLE OF THE PROJECT: “Establishment of Secondary Agriculture Unit for Skill Development in Students and Farmers at NAU, Navsari”

OBJECTIVE:

1. To acquaint PG students with latest technologies in different spheres of secondary agriculture utilizing national and international expertise
2. Strengthening of existing facilities and building competence of NAU faculties based produce
3. Capacity building in PG students and faculties of other SAUs
4. Development of technology for processing and waste utilization in agriculture and allied fields and its commercialization to private companies, budding entrepreneurs and agro-industries

Intended benefits: The CASST project helped to expansion and diversification of product base, innovate protocols, development of minimally altered and functional food products and identification of healthier alternatives to sugar and fats in processed products. In the project we brought mixing traditional Indian knowledge with innovative new technologies for developing products which promotes health and are appealing in taste.

1. Key activities carried out under the project during the entire period


1.1. Interventions carried out by AU which helped to improved research effectiveness

Please provide the details about the interventions carried out to make AU reform ready and led to ICAR accreditation. Please write one paragraph for each interventions and/or activities.

Key interventions	Remarks/Photographs
Strengthening existing facilities with quality equipment's, plant & machineries and facilities	Since 2018 CAAST-NAU- Navsari created path to 164 PG students of NAU-Navsari to avail SHODH Award for pursuing Ph.D. with fellowship assistance of about Rs. 15,000 per month for two years and Rs. 20,000 per annum for contingency on competitive basis by Knowledge Consortium of Gujarat, Education department, Ahmedabad, Gujarat
Accreditation	All Eight Colleges of NAU, Navsari have been accredited by ICAR for a period of five years from 01/04/2021 to 31/03/2026 to offer 05 Undergraduate, 27 Masters and 21 Doctoral degree programmes as on 31 st Meeting of the National Agricultural Education Accreditation Board.
External funded Projects	Presently (2023) at NAU- Navsari 95 External funded Projects operational against 47 during the year (2018)
ISO certifications	Three existing units of CAAST bestowed with ISO certifications namely Quality Management System ISO 9001:2015 & Safety Management System ISO 22000:2018 related PHT, Banana Processing Units and Scientific Utilization of Non-Timber Forest Products and Medicinal and Aromatic Plants
Internal revenue generation	A revenue of Rs 41.52 lakh generated in last five year (2018-19 to 2023-24) through sale of products developed after the intervention of NAHEP-CAAST sub-project.
H index	At present (2023) about 30 is the average H index of NAU- Navsari faculties against 08 during the year (2018)

1.2. How the facilitative units helped to enhance learning outcomes

Please provide the details of the facilitative units which helped in enhancing learning outcomes of the students and/or faculties. Please note that we may not need to mention all facilitative units created in the AU here, but focus on those which are open for the students/faculties and other stakeholders.

Facilitative unit	Activity/achievement	Remarks/Photographs
<p>Modernization B2B Meeting Hall at Unit-1a i.e. Processing and waste utilization in Horticultural Produce</p>	<p>So far total of 24 ToTs inked at B2B Meeting Hall for Commercialization of Novel + & Novel Prime Transfer of Technology at national (22) & international (2) level developed under NAHEP-CAAST to Industries and other Institutions since 2018-19.</p>	
<p>Refurbishing of Museum at Unit-2 i.e. Scientific utilization of non-timber forest products and Medicinal Aromatic plants</p>	<p>State of Art facility Museum on “Non-Timber Forest Produce & Medicinal Aromatic Plants” established under the aegis of NAHEP-CAAST sub-project for the benefit Students, farmers & faculties. The main motto of NTFPs & MAPs museum is to showcase How NTFPs & MAPs provide sustainable income to the farmers/tribals/ dwellers living in forest fringe villages to visitor. This museum was created and strengthened with various kinds of major and minor NTFPs & MAPs collections during short visits, exposure visits by the faculty of CAAST across the country.</p>	

<p>Refurbishing of PHT laboratory</p>	<p>Strengthening Post Harvest Laboratories with state art equipment and machineries. Dedicated for the use of faculties and PG Students.</p>	
<p>Smart class room</p>	<p>Smart classroom prepared under NAHEP CAAST Sub-Project of ICAR at Centre of Excellence on PHT, Dept. of PHT, ACoH, Navsari. Now the PG students able to study in the smart classroom equipped with LED, interactive board, and plugs for the individual students on the benches for Laptops.</p>	
<p>Repair and Renovation of Pesticide Residue analysis Laboratory</p>	<p>Repair and Renovation of Pesticide Residue analysis Laboratory developed under aegis of NAHEP CAAST Sub-Project at FQTL, NMCA, Navsari. Dedicated for the use of faculties and PG Students.</p>	
<p>Renovation of Nodal office (Part-1): Products Gallery of NAHEP-CAAST</p>	<p><i>To show case products developed under aegis of NAHEP-CAAST at University Bhavan to visiting VVIPs, dignitaries, students and farmers</i></p>	

<p>Workshop on Bamboo and Wooden Decorates</p>	<p>This wooden & bamboo workshop is established under the NAHEP-CAAST project and this unit is well equipped with preliminary machines and tools for development/designing various kinds of articles as well as production of value added products from NTFPs. This workshop is also ISO 9001:2015 certified for Quality Management Systems.</p>	
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1.3. Out-of-box initiatives undertaken by the AU

Please provide the details on out-of-box initiatives undertaken by the AU in one-two paragraph.

<i>Out-of-box initiative</i>	<i>Activity/achievement</i>	<i>Remarks/Photographs</i>
<p>Exhibitions of Products developed</p>	<p>About 25 Exhibitions of Products made during various National level Seminars/ Conferences / Regional Meets etc., to the Visitors, Dignitaries & Delegates across pan India</p>	 <p><i>Special farmer's session in the National Conference on "Utilization and Conservation of Non-Timber Forest</i></p>

		<p><i>Genetic Resources” and exhibition of products under the aegis of NAHEP-CAAST sub-project</i></p>
<p>Organized National Level Training on “Agripreneurship Bootcamp”</p>	<p>About 27 successful Start UP company representatives and CEOs, Founders narrated their stories and highlighted Agripreneurship Bootcamp thoughts. About 60 Students benefited from the Agripreneurship Bootcamp.</p> <ol style="list-style-type: none"> 1. Mr. Chetan Mendapara successfully kick started Mango Mart Start- Up. 2. Mr. Ojefkhan Pathan successfully kick started J.J. Agro-clinic Start- Up 	
<p>Organized National Level “Hackathon”</p>	<p>A total of 76 teams with 182 students and faculty members from different SAUs /ICAR institutes participated in the Hackathon. Cash prizes worth ₹. 2.00 lakh with citation were awarded to the 12 winners in four thematic areas.</p>	 
<p>Organized National Level “Ideathon”</p>	<p>The event was Organized in collaboration with Indian Veterinary Research Institute (IVRI) and National Institute of Agricultural Extension Management (MANAGE). Total of 12 teams were participated in ideation. Out of that 20 PG scholars from different SAUs /ICAR institutes</p>	

<p>Two Agripreneurs meets Organized</p>	<p>In all 726 stakeholders (UG/PG students/faculties/ farmers) benefited from these meet. About 21 successful entrepreneurs who imparted knowledge and shared their experiences on different aspects of Secondary Agriculture.</p>	 
<p>Organized HoTs/ Trainings</p>	<p><i>Organized Ten HoTs on Spawn Production & Mushroom Cultivation Techniques, Beekeeping, Preparation of Wooden Decorates, Dairy farming, Collection & Processing of NTFPs, Processing Horticultural Produce for the Farmers & PG Students & officers of GoG</i> <i>About three tribal artisans started producing contemporary wooden & bamboo decorates & one women farmer started mushroom cultivation & its value addition owing NAHEP-CAAST interventions. Four farmers successfully kick started beekeeping entrepreneurship. Three PG Students successfully kick started Agri-Startup.</i></p>	

<p>Published Booklet of “State of Art facilities Developed under aegis of NAHEP-CAAST” at NAU, Navsari</p>	<p><i>Published Booklet of “State of Art facilities Developed under aegis of NAHEP-CAAST” at NAU, Navsari</i></p>	
<p>Organized Training cum Workshop on “Academic and Scientific Writing for PG Students & Faculty of NAU Navsari”</p>	<p><i>Organized Training cum Workshop on “Academic and Scientific Writing for PG Students & Faculty of NAU Navsari”</i></p>	
<p>Interactive Session cum Workshop on "International Fellowships for Higher Studies in Agricultural Sciences" for PG Students & Faculty of NAU Navsari</p>	<p><i>Organized interactive Session cum Workshop on "International Fellowships for Higher Studies in Agricultural Sciences" held on November 02, 2023</i></p>	

<p>National Level Training programme on “Entrepreneurship Opportunities in Exports and Imports of Agricultural Commodities”</p>	<p>National Level Training programme on “Entrepreneurship Opportunities in Exports and Imports of Agricultural Commodities” held on December 18-20, 2023. This pivotal initiative aims to nurture entrepreneurial spirit within the realm of agricultural export and import. transformative impact of such programs on fostering entrepreneurship in the agricultural import-export domain. This programme emphasized the role of agricultural exports in creating jobs, income opportunities and value-added products, thereby benefiting farmers and rural communities.</p>	
<p>ideaMill-2023 held on December 06, 2023</p>	<p><i>Organized</i> ideaMill-2023 held on December 06, 2023. This ideaMill-2023 was undertaken as a part of the Agricultural Innovation & Entrepreneurship Conclave (AIEC) at Navsari Agricultural University (NAU) to tap the ideas, innovations on the agricultural sector that boost the students to take up start-ups. The conclave brought together experts and aspirants to explore novel solutions. Twelve student teams from agriculture, horticulture, forestry, agri-business management and veterinary sciences, presented their ideas and addressed about emerging challenges at local and national levels through efficient, sustainable technological and managerial interventions. A panel of nine judges from reputed institutions across the country including in-house experts meticulously evaluated these idea</p>	






presentations on the SARAL web-portal, which is developed by NAHEP-CAAST project operated at NAU-Navsari. About 14 teams presented innovative idea presentations and 422 participants attended in the ideaMill. The winners will receive cash prizes for their outstanding innovative idea presentation in the valedictory programme of this event.







Agricultural Innovation & Entrepreneurship Conclave - (AIEC)

Organized Agricultural Innovation & Entrepreneurship Conclave - (AIEC) 2023 during December 04 - 08, 2023 at NAU, Navsari





1.4. Collaborations with industry and other HEIs for bringing relevancy

Sr. No.	Collaborations	Activity / Purpose	Photographs
1	Indian Institute of Natural Resins and Gums, Ranchi		
2	ICAR Directorate of Medicinal and Aromatic Plants Research, Boriavi, Gujarat		
3	Indian Institute of Technology, Kharagpur	Training and Research	
4	ICAR-National Research Centre for Banana, Trichy, Kerala		
5	Institute of Wood Science & Technology, Bangalore, Karnataka		

6	Pollucon Laboratories Pvt. Ltd. Surat	
7	Crafts Melon, Mysuru, Karnataka	
8	Thermo Fisher Scientific India Pvt. Ltd., Powai, Mumbai	
9	Unifab India Solutions Ltd., Nashik, Maharashtra	
10	Paperdom, Surat, Gujarat	
11	SUMUL Dairy, Surat, Gujarat	

1.5. Please provide the details on relevant collaboration with industry for bringing relevancy and improving research effectiveness in the AU in one-two paragraph.

Collaborations	Activity/achievement/purpose	Remarks/Photographs
Indian Institute of Natural Resins and Gums, Ranchi	<ol style="list-style-type: none"> 1. Exposure visit for PG students CAAST faculty members and trainees 2. Hands-on training to Faculty/PG students 3. Guest Lectures in training programme 4. Curricula Development 5. Standardization of technology 	 ICAR-IINRG hosted 10 Days National training on NRGs
ICAR Directorate of Medicinal and Aromatic Plants Research, Boriavi, Gujarat	<ol style="list-style-type: none"> 6. Sharing of expertise for holding of skill development trainings/workshops 7. Sharing of expertise for holding of National level trainings 	 Exposure visit to ICAR-DMAPR

<p>Indian Institute of Technology, Kharagpur</p>		 <p><i>Expert of IIT, Kharagpur delivered lecture Novel Methods of Food Product and Process Development by Dr. H. N Mishra., Professor (Food Technology) Agricultural and Food Engineering Dept., IIT, Kharagpur, WB</i></p>
<p>Institute of Wood Science & Technology, Bengaluru, Karnataka</p>		 <p><i>Expert of IWST, Bengaluru delivered lecture Wood based industries by Dr. Pankaj Agarwal, Scientist-G and Head Extension Division.</i></p>
<p>Pollucon Laboratories Pvt. Ltd. Surat</p>		 <p><i>Pollucon Laboratories Pvt. Ltd. Surat hosted sensitization workshop on food safety</i></p>
<p>Crafts Melon, Mysuru, Karnataka</p>		 <p><i>Short visit to Crafts Melon, Mysuru, Karnataka to learn about the wooden decorates</i></p>

<p>Thermo Fisher Scientific India Pvt. Ltd., Mumbai</p>		  <p><i>MoU partner hosted training on “The Collective Power of Chromatography”</i></p>
<p>Unifab India Solutions Ltd., Nashik, Maharashtra</p>		 <p><i>Exposure visit to Unifab India Solutions Ltd., Nashik to acquaint with machineries used in vauled addition of banana pseedostem</i></p> 
<p>Paperdom, Surat, Gujarat</p>		 <p><i>MoU partner shared status their of product development</i></p>

2. Achievements made through CAAST under NAHEP

2.1. Output-outcome monitoring

S. N.	Particulars	Apr'2018 to Mar'2023						
		Target			Achievement			
1.	% increase in number of technologies commercialized	0 % (0)			30 % (30)			
2.	% increase in faculty research effectiveness	7 % (7)			30 % (30%)			
3.	Number of direct beneficiaries of the project	10000			24,949			
4.	Number of female beneficiaries	5000			10,825			
5.	% increase in JRF / SRF / ARS / NET	500			979			
	Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Total
	Qualified ICAR-PG Scholarship (JRF)	71	45	44	56	45	77	338
	Qualified ICAR-JRF/SRF Scholarship (SRF)	15	34	33	36	18	23	159
	ARS	0	01	00	02	00	00	03
	Qualified ASRB-NET	84	90	Exam not conducted	86	109	110	479
							Total	979
6.	% increase in number of students who were admitted in foreign universities	02			22			
		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Total
		04	07	07	00	02	02	22
7.	% increase in PG student placements	05 %			10%			
		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Total
		216	181	183	166	192	186	1124
8.	Number of industry- sponsored projects and positions in cutting-edge areas of agri-science	47			50			
		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Total
		47	52	53	63	66	50	331
9.	Number of faculty training programmes (national) undertaken by AU	15			24			
		2019-20	2020-21	2021-22	2022-23	2023-24	Total	
		12	01	01	00	10	24	

S. N.	Particulars	Apr'2018 to Mar'2023					
		Target	Achievement				
10.	Number of faculty training programmes (international) undertaken by AU	13	03				
11.	Number of student training programmes beneficiaries (national) undertaken by AU	500	1413				
		2019-20	2020-21	2021-22	2022-23	2023-24	Total
		33	00	124	370	886	1413
12.	Number of student training programmes (international) undertaken by AU	60	29				

Observation

<<Please provide the explanation on the progress made against the output-outcome monitoring indicator and highlight the key initiatives which attributed to the overall outcome/potential impact of the project-Maximum 2-3 paragraphs>>

1. There is an increase awareness and up skill of techniques and technologies related to secondary agriculture among PG Students and faculties of NAU in particular and other SAUs in general.
2. Students and faculties showing interest in the project and been exposed to various small to medium scale industries and reputed ICAR institutes
3. So far **Twelve** agri- entrepreneurs natured through the NAHEP-CAAST sub-project
4. Faculties brought nine training manuals and eight proceedings of seminar/conferences
5. There is increase in the number of students qualifying JRF / SRF / ARS / NET & other competitive exams
6. In last five years (2018-19 to 2023-24) a total of 22 students of NAU-Navsari in admitted in foreign universities
7. *Since 2018 CAAST-NAU- Navsari created path to 164 PG students of NAU-Navsari to avail SHODH Award for pursuing Ph.D. with fellowship assistance of about Rs. 15,000 per month for two years and Rs. 20,000 per annum for contingency on competitive basis by Knowledge Consortium of Gujarat, Education department, Ahmedabad, Gujarat*
8. Currently (2023) at NAU- Navsari 95 external funded projects are operational against 47 during the year (2018)
9. *In the university setup only three existing units of CAAST bestowed with ISO certifications owing interventions of NAHEP-CAAST sub-project at NAU-Navsari namely Quality Management System ISO 9001:2015 & Safety Management System ISO 22000:2018 related PHT, Banana Processing Units and Scientific Utilization of Non-Timber Forest Products and Medicinal and Aromatic Plants*

2.2. Knowledge Management Collaterals

I. Knowledge Collaterals		Apr'2018 to Mar'2023
1. Publications		27
2. Research Articles		45
3. Annual Reports		04
4. Books/Booklets		08
5. Success Stories		09
6. Newsletter		30
7. Magazines		03
8. Blogs/Social media		24
9. Other (informative brochures & Folders)		06
< Annexure-1-details of the Knowledge Management Collaterals with detailed list of authors, title, publication period, URL links etc >		

II. Mobile and Web Applications		Apr'2018 to Mar'2023
1. Mobile Applications Developed		09
2. Web Applications Developed		02
< Annexure-2 - Details of the applications (along with URL links) with List of documents, authors, publication period >		

III. Number of IPR (Intellectual Property Rights) Registered/Obtained		Apr'2018 to Mar'2023
1. Copyrights		00
2. Patents		00
3. Others		00
Very soon 09 Copyrights will filed		
< Details of the Knowledge Management Collaterals with List of documents, authors, publication period >		

IV. Dissemination and Outreach		Apr'2018 to Mar'2023
1. No. of Posts on Social Media		31
2. No. of Posts on Newspaper		30
3. No. of Posts on Magazines		06
4. No. of Unique Promotional or Outreach Collaterals		13
< Annexure-3- Details of the Knowledge Management Collaterals with List of documents, authors, publication period >		

2.3. Capacity building programs to improve the research effectiveness

1. International trainings for students and faculties

<i>Subject areas</i>		<i>Host institutes, period of training</i>		<i>Output of the training</i>
Students				
Sr. No.	Name of the students	Subject areas /Topic of training	Host institutes, period of training	Output of the training
1.	Ms. Mandviwala Munira Shabbirbhai M.Sc. scholar (2010121047), Agriculture, (Agronomy), NMCA, NAU, Navsari 396 450, Gujarat, India	Advanced techniques and tools for post-harvest crop residue and weed management	AIT, Bangkok, Thailand Period of Training – 02 Months	The technical knowledge and practical experience the gained by these very twenty PG Scholars from AIT, Bangkok, Thailand through NAHEP-CAAST Sub-project operated at NAU- Navsari will be highly useful for further nurturing their professional career, and will greatly contribute to sustainable agriculture development in South Gujarat, India.
2.	Mr. Yalla Yernaidu Ph.D. scholar (1010121043), Agriculture, (Agronomy), NMCA, NAU, Navsari 396 450, Gujarat, India			
3.	Mr. Tamminaina Sunil Kumar Ph.D. scholar (1010120032), Agriculture, (Agronomy), NMCA, NAU, Navsari 396 450, Gujarat, India			
4.	Ms. Neha Singh M.Sc. scholar (2010121053), Agriculture, (Plant Pathology), NMCA, NAU, Navsari 396 450, Gujarat, India	Novel biocontrol agents	AIT, Bangkok, Thailand Period of Training – 02 Months	
5.	Ms. Saranya S. Ph.D. scholar (1010120028), Agriculture (Plant Pathology), NMCA, NAU, Navsari 396 450, Gujarat, India			
6.	Ms. M Ramya Krishna M.Sc. scholar (2010121043),			

	Agriculture, (Plant Pathology), NMCA, NAU, Navsari 396 450, Gujarat, India			The technical knowledge and practical experience the gained by these very twenty PG Scholars from AIT, Bangkok, Thailand through NAHEP-CAAST Sub-project operated at NAU-Navsari will be highly useful for further nurturing their professional career, and will greatly contribute to sustainable agriculture development in South Gujarat, India.
7.	Mr. Sherasiya Mahmadjuber Mahmadhanif M.Sc. scholar (2010121090), Agriculture, (Plant Pathology), NMCA, NAU, Navsari 396 450, Gujarat, India	Advances in antimicrobial and antibiofilm activity of plant extracts	AIT, Bangkok, Thailand Period of Training – 02 Months	
8.	Mr. Vaniya Ravikumar Ganpatbhai Ph.D. scholar (1010120038), Agriculture (Plant Pathology), NMCA, NAU, Navsari 396 450, Gujarat, India			
9.	Mr. Gaudani Yash Shaileshbhai M.Sc. scholar (2020221010), Horticulture (Post Harvest Technology), ACoH, NAU, Navsari 396 450, Gujarat, India	Technology options for extended shelf life of fruits and fruit blended beverages	AIT, Bangkok, Thailand Period of Training – 02 Months	
10.	Shrilatha K. A. Ph.D. scholar (1020221018), Horticulture (Vegetable Science), ACoH, NAU, Navsari 396 450, Gujarat, India			
11.	Ms. Nithya G R M.Sc. scholar (2020221024), Horticulture (Fruit Science), ACoH, NAU, Navsari 396 450, Gujarat, India	Recent advances in bunch management in banana	AIT, Bangkok, Thailand Period of Training – 02 Months	
12.	Ms. Silpa R M.Sc. scholar (2020221035),			

	Horticulture (Fruit Science), ACoH, NAU, Navsari 396 450, Gujarat, India			
13.	Ms. Roja H S M.Sc. scholar (2020221033), Horticulture (Fruit Science), ACoH, NAU, Navsari 396 450, Gujarat, India	Hi-tech practices for Guava farming	AIT, Bangkok, Thailand Period of Training – 02 Months	The technical knowledge and practical experience the gained by these very twenty PG Scholars from AIT, Bangkok, Thailand through NAHEP-CAAST Sub-project operated at NAU-Navsari will be highly useful for further nurturing their professional career, and will greatly contribute to sustainable agriculture development in South Gujarat, India.
14.	Mr. Yashkumar Desai Ph.D. scholar (1020221005), Horticulture (Fruit Science), ACoH, NAU, Navsari 396 450, Gujarat, India			
15.	Ms. Patel Arpitaben Maheshbhai Ph.D. scholar (1020220009), Horticulture (Fruit Science), ACoH, NAU, Navsari 396 450, Gujarat, India	Recent advances in Mango canopy, pest & postharvest management	AIT, Bangkok, Thailand Period of Training – 02 Months	
16.	Ms. Patel Jollyben Ph.D. scholar (1020220010), Horticulture (Fruit Science), ACoH, NAU, Navsari 396 450, Gujarat, India			
17.	Mr. Chaudhari Jigar Sureshbhai M.Sc. scholar (2020221005), Horticulture (Fruit Science), ACoH, NAU, Navsari 396 450, Gujarat, India	Mulching and organic strawberry farming	AIT, Bangkok, Thailand Period of Training – 02 Months	
18.	Mr. Akshay Kumar M.Sc. scholar (2010121004), Agriculture, (Entomology), NMCA, NAU,	Advances in biological control of fruit flies	AIT, Bangkok, Thailand Period of Training – 02 Months	

	Navsari 396 450, Gujarat, India			
19.	Ms. Sweta Rawat M.Sc. scholar (2010121100), Agriculture, (Entomology), NMCA, NAU, Navsari 396 450, Gujarat, India			
20.	Mr. Jaliya Rakeshkumar Manubhai Ph.D. scholar (1030321001), Forestry, (Forest Biology And Tree Improvement), CoF, NAU, Navsari 396 450, Gujarat, India	Novel avenues in NTFPs, MAPs and forest product utilization	AIT, Bangkok, Thailand Period of Training – 02 Months	
21.	Ms. Aditi Dwivedi	Silver nano-particles from Agri-food waste	IRRI, Manila, Philippines Period of Training – 01 Month	International training at IRRI shaped PG students professional career and will greatly contribute to agriculture development in South Gujarat, India & also provided exposure of PG students to technical expertise and practical skills in the agriculture sector developed at IRRI, Manila, Philippines
22.	Ms. Sree lakshmi			
23.	Ms. Patel Jolly Jagdishbhai	Advances in Post- Harvest Management of rice		
24.	Ms. Dalsaniya Nirali Savjibhai	Recent advances in IPM		
25.	Ms. Chaudhry Madhvi A.			
26.	Mr. Surpura Rahemanali Mohmadali	Advances in microbial product design for plant growth promotion		
27.	Mr. Rahul Dewada			
28.	Mr. Vaja Rajdip Punjabhai	Post-Harvest crop residue management		
29.	Mr. Satishbhai Dhanabhai	Post-Harvest Management of rice stubbles for sustain soil and environment health		

Faculty : 03

Sr. No.	Name of the faculties	Subject areas /Topic of training	Host institutes, period of training	Output of the training
1.	Dr. T. R. Ahlawat	Artificial Intelligence and Computer Vision in Agriculture and Allied Sector	Universiti Putra Malaysia Period of Training – 02 Months	During the international training at Universiti Putra Malaysia, Serdang, Malaysia, from June 22 to August 21,

		especially domain of Horticulture Science		<p>2023. The training shaped knowledge about the applicability of artificial intelligence and computer vision especially in the domain of Horticulture Science. The use of artificial intelligence and computer vision technologies are increasingly used in Horticulture sectors as they are quick, powerful, and flexible tools for classification and prediction applications for making various farm decisions. This training, enhanced knowledge about image processing, machine learning, and deep learning ideas.</p> <p>Besides this, also visited some of the farms maintained by UPM, Malaysia, which facilitated the exchange of ideas, and we are going to sign an MoU for future collaborative works, which will be beneficial to the agriculture sector, Gujarat state and India.</p>
2.	Dr. Rana Ranjeet Singh	Artificial Intelligence and Computer Vision in Agriculture and Allied Sector especially domain of Veterinary Science	Universiti Putra Malaysia Period of Training – 03 Months	<p>During the international training at Universiti Putra Malaysia, Serdang, Malaysia, from June 22 to September 21, 2023. The training moulded knowledge about the applicability of artificial intelligence and computer vision in domain of Veterinary Science sector. The use of artificial intelligence and computer vision technologies are</p>

				<p>increasingly used in Veterinary Science as they are quick, powerful, and flexible tools for classification and prediction applications for making various farm decisions. This training, emphasized about image processing, machine learning, and deep learning concepts. I also learned about various types of neural networks and transfer learning. Further, analyzed the learned concepts on our own data sets, which resulted in the classification of Surti buffaloes from the images of their muzzle dermatoglyphics with an accuracy of about 98 percent. Besides this, also learned to classify goats from their facial images.</p> <p>All these learnings will help to devise a suitable model for predicting and classifying various pertinent issues in agriculture and allied sectors. This will increase the economic efficiency of the farms in an eco-friendly and cost-effective manner.</p>
3.	Dr. MahantappaSngappa Sankanur	Artificial Intelligence and Computer Vision in Agriculture and Allied Sector especially domain of Forestry Science	Universiti Putra Malaysia Period of Training – 02 Months	During the international training at Universiti Putra Malaysia, Serdang, Malaysia, from June 22 to August 21, 2023. The training shaped knowledge about the applicability of artificial intelligence and computer vision in the Forestry sector. The

				<p>use of artificial intelligence and computer vision technologies are increasingly used in the Forestry as they are rapid, influential, and flexible tools for organization and forecast applications for making various forestry decisions. This training, emphasized image processing, machine learning & deep learning concepts in forestry. Besides this, also visited some of the farms maintained by UPM, Malaysia, which facilitated the exchange of ideas, and we are going to sign an MoU for future collaborative works, which will be beneficial to the agriculture sector, Gujarat state and India.</p>
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< Annexure-4- The list of beneficiaries along with training details >

2. National trainings for students and faculties

<i>Subject areas</i>	<i>Period of training, total beneficiaries</i>	<i>Output of the training</i>
Students		
Faculty		
	-	-
< Annexure-5- The list of national trainings >		

2.4. Input and activity monitoring

Particulars	Capital	Revenue
Total funds sanctioned during 2018-2023 by PIU (INR Lakhs)	679.46	1245.54
Total funds received till March 31, 2023 (Cumulative) (INR Lakhs)	679.46	1245.54
Total expenditure up to March 31, 2023 (INR Lakhs)	679.29	1195.77

Input / Activity indicator	Sub- head / category	Apr'2018 to Mar'2023 Expenditure / input in INR lakhs		Activity elaboration
		Utilization (Expenditure)	Planned (Allocation)	
Goods and equipment	Equipment, Plant & Machinery	268.31	268.31	Refunded Rs. 17,024/- to PIU, ICAR, New Delhi owing completion of physical targets in goods and equipment head & Civil works
	Office equipment	8.00	8.02	
	Laboratory equipment	270.93	271.01	
	Furniture & fixtures	14.20	14.20	
	Computers and Peripherals	18.35	18.42	
	Books and Journals	15.91	15.91	
Civil works	Minor repair and renovation work	83.58	83.58	
Human capacity building	National level training	8.33*	10.33	Conduct national training in the reputed institutes viz., UAS Dharwad, PDKV Dapoli, and UHAS, Shivamogga
	International level training	103.03*	103.71	Conduct international training in the global reputed institutes viz., UPM, Malaysia, AIT, Bangkok,

Input / Activity indicator	Sub- head / category	Apr'2018 to Mar'2023 Expenditure / input in INR lakhs		Activity elaboration
		Utilization (Expenditure)	Planned (Allocation)	
				Thailand and IRRI, Philippines.
	Short visit/ seminars	6.86*	8.03	Participation & presentation of work done in the project in the seminars/ conferences
	Meetings and workshops	2.08*	3.40	Conducted farmers trainings on Scientific farm management practices and value addition of dairy product and by products, Deworming to calf, Clean milk production & organization of Brain storming workshops for Students/ faculties
Consultancy	National level consultancies	5.10*	5.10	-
Recurrent cost / Miscellaneous	Travel	4.48*	9.03	Conducted exposure/ short visits to small, medium scale processing industries related to secondary agriculture viz., Mushroom industries, Wood/bamboo based industries, fruit process industries, Honey processing industries. Participation & presentation of work done in the project in various seminars / conference
	Contractual services	284.02*	290.23	Reserved for salary of SRFs
	Operational costs	952.76*	968.61	Product development
	Institutional charges	80.52	80.52	-
Total		2126.48*	2158.41	

Note* = Planning to refund of unspent from Revenue head Rs. 31,77,243/- (In words: Thirty One Lakhs Seventy Seven Thousand Two Hundred Forty Three Only) to PIU, ICAR, New Delhi

Observation

<<Please provide the explanation on the progress made against the input and activity monitoring parameters>>

1. Nine Mobile Applications & Two Portal developed
2. Total beneficiaries (% Female/SC/ST): 45% (41.40%, 16.19% & 26.30)
3. Number of technologies developed: 30
4. Increase in H-Index (faculty effectiveness): 30.00% (2023-24)
5. Increase in PG placement rate: 10 % (A total of **1012** students got placement till 2023-24)
6. Increase in number of scientific entrepreneurship established/developed : **12** (till 2023-24)
7. Number of external funded project implemented after NAHEP intervention : 95 (till 2023-24)
8. Number of technologies transferred to industry/other institutions : 26 (till 2023-24)
9. Increased rank of AU/institution in ICAR/NIRF/QS ranking: 42nd (2020-2021) to 31st (2021-22) ICAR Rank
10. A total of **164** Students secured SHODH Award for pursuing Ph.D. degree programme (Scheme-Developing-High-Quality-Research)
11. Generated internal revenue through NAHEP interventions : **Rs. 40.52 Lakhs** (till 2023)
12. Three existing units of CAAST bestowed with ISO certifications namely Quality Management System ISO 9001:2015 & Safety Management System ISO 22000:2018 related PHT, Banana Processing Units and Scientific Utilization of Non-Timber Forest Products and Medicinal and Aromatic Plants

2.5. NAHEP outreach and other unique initiatives undertaken

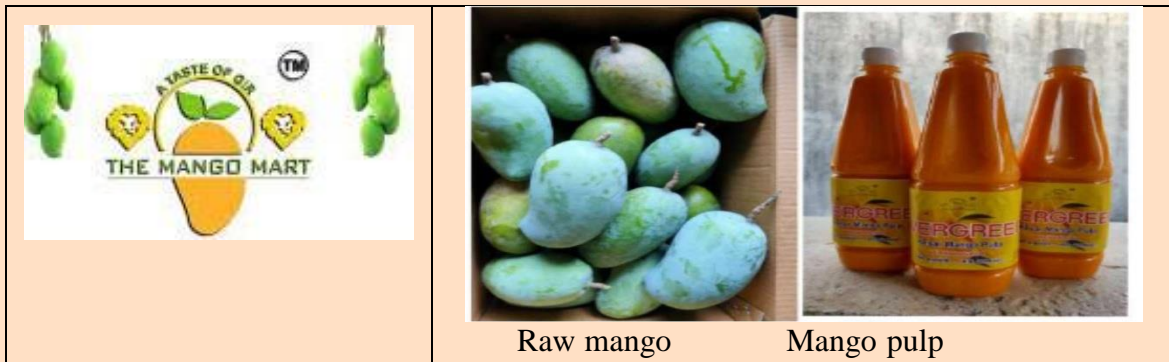
Please provide the brief progress undertaken against the different categories placed below along with the suitable photographs/links/documents etc. Please note that only significant activities/initiatives are to be incorporated in this document.

a) Case studies/success stories developed under NAHEP

(establishment of own enterprise by beneficiary student/high-impact research carried-out by AU under NAHEP/enhanced students learning outcomes due to establishment of modern facilities under NAHEP etc.)

Illustrative: Success story

1) Venturing into **The Mango Mart** Direct to Consumer (D2C) e-commerce model of the Mango Mart: Turning Crisis into opportunity through NAHEP learnings



Raw mango

Mango pulp



Freeze Dry Mango Cubes



Earned FSSAI licence
Mango Nectar



Mango Papad and

Mr. Mendapara Chetan Kanjibhai from Jashapur Gir village, Gir Somnath District is one of the NAHEP-CAAST M.Sc. Scholar of NAU, Navsari since 2020-21. Currently he is pursuing the Master’s Degree in Horticulture in the discipline of Post-Harvest Technology under at Navsari Agricultural University, Navsari, Gujarat.

Today Mr. Mendapara Chetan Kanjibhai has become a successful entrepreneur after interventions of NAHEP-CAAST sub-project. He has started producing producing ripe mango powder, mango nectar, mango juice, mango syrup and freeze-dried mango cubes, mango seed kernel powder and Aam churan. Moreover, he is beneficiary of various capacity building activities viz., exposure visits, participated in the Agritech Industries start-ups for innovation in agriculture with career prospectus for students of agricultural universities at AAU, Jorhat, Assam, national level training on “production of fruits and vegetables powders” at IIHR, Bengaluru including residential Agripreneurship Bootcamp and Ideathon at NAU, Navsari sponsored by NAHEP-CAAST. **Besides this, he also earned FSSAI licence and his farm registered sell/export GI tagged Gir Mangos.** Mr. Mendapara Chetan Kanjibhai also bestowed with BEST PERFORMING STARUP AWARD-2023, SOCIAL CHANGE MAKER AWARD-2023 as well as BEST ORAL PRESENTATION to Mr. Mendapara Chetan Kanjibhai during International Conference on Agricultural Science, Technologies, Innovations and Entrepreneurship – 2023” held at the American College, Madurai, Tamil Nadu during February 18, 2023.

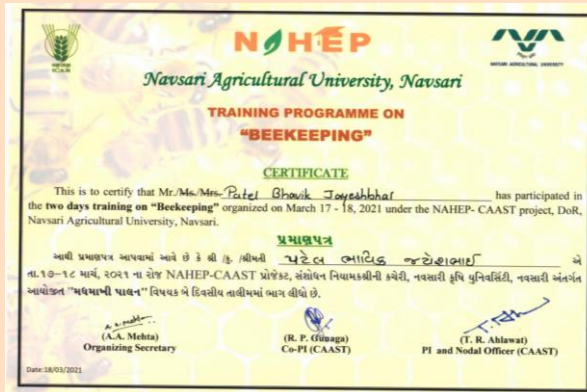
About Rs. 8,00,000 to 10,00,000/- per annum turn over obtained owing to the interventions under NAHEP-CAAST sub-project through various capacity building & hands on trainings imparted to him during under the banner of NAHEP-CAAST sub-project.

2) Venturing into Bee Keeping: through NAHEP learnings



Mr. Viral Jitubhai Patel, based Village: Bilimora Devsar, District: Navsari, Gujarat was one of the beneficiaries of Beekeeping Training Programme under NAHEP-CAAST sub-project during March 17-18, 2021. Now Mr. Viral Jitubhai Patel becomes successful beekeeper and he has about 20 bee colonies of Italian bees (*Apis mellifera ligustica*). Impact: About Rs. 3,20,000/- per annum earning obtained as an additional income through this venture due to capacity building interventions under NAHEP-CAAST sub-project.

3) Venturing into Bee Keeping: through NAHEP learnings



Mr. Bhavik Jayeshbhai Patel, Village: Ghej Taluka: Chikhli District: Navsari, He has about 25 colonies of stingless bees (*Melipona irridipennis*) Mr. Bhavik Jayeshbhai Patel, one of the beneficiaries of Beekeeping Training Programme under NAHEP-CAAST sub-project during March 17-18, 2021. Now Mr. Bhavik Jayeshbhai Patel, become successful beekeeper and has about 25 colonies of stingless bees (*Melipona irridipennis*). Impact: About Rs. 20,000/- per annum additionally earning by him through this venture due to capacity building interventions under NAHEP-CAAST sub-project.

4) Venturing into Bee Keeping: through NAHEP learnings



Ms. Dahiben Pankajbhai Patel, Village: Bilimora Devsar, District: Navsari, Gujarat was one of the beneficiary of Beekeeping Training Programme under NAHEP-CAAST sub-project during March 17-18, 2021. Now she has about 15 bee colonies of Italian bees (*Apis mellifera ligustica*).

Impact: About Rs. 1,70,000/- per annum earning obtained as an additional income through this venture due to Capacity building interventions under NAHEP-CAAST sub-project.

5) Venturing into Bee Keeping: through NAHEP learnings



Ms. Dahiben Pankajbhai Patel, Village: Ghej, Ta. Chickhli, District: Navsari, Gujarat was one of the beneficiary of Beekeeping Training Programme under NAHEP-CAAST sub-project during March 17-18, 2021. **Output:** Now she has about 12 colonies of Indian bees and 6 colonies of stingless bees. **Impact:** About Rs. 3,00,000/- per annum earning obtained as an additional income through this venture due to Capacity building interventions under NAHEP-CAAST sub-project.

6) Venturing into producing contemporary bamboo decorates: : through NAHEP learnings



Mrs. Manubhai Maganbhai Jogarya from Waghai started producing contemporary bamboo decorates through interventions of NAHEP-CAAST sub-project. He was one of the beneficiary of Two Hands on Trainings on Preparation of Contemporary Bamboo & Wooden decorates under the aegis NAHEP-CAAST sub-project during March 21, 2021 and March 22, 2022.

Output: At present Mr. Manubhai Maganbhai Jogarya from Village: Ambapada, Taluk: Valsad, District: Waghai, Gujarat have become successful Bamboo handicrafts artisan and has started producing contemporary Bamboo decorates viz. various designs of Ganesh sculptures, trays, fancy frames, hanging lamps, Bamboo clocks, Key chains, Rakhis, Bamboo candles, fancy mirrors etc.

Impact: About Rs. 20,000/- per annum additionally income obtained owing the interventions under NAHEP-CAAST sub-project viz., capacity buildings & hands on trainings.

7) Venturing into producing contemporary bamboo decorates: : through NAHEP learnings



Mrs. Seetaben Sunilbhai Ghatal from Village: Ambapada, Taluk: Valsad, District: Waghai started producing contemporary bamboo decorates through interventions of NAHEP-CAAST sub-project. She was one of the beneficiary of Two Hands on Trainings on Preparation of Contemporary Bamboo & Wooden decorates under the aegis NAHEP-CAAST sub-project during March 21, 2021 and March 22, 2022.

Output: Now Mrs. Seetaben Sunilbhai Ghatal have become successful Bamboo handicrafts artisan and she has started producing contemporary Bamboo decorates viz. various designs of Bird play gym, Tree Sculptures, Bed lamps, Table lamps and hanging lamps, Bamboo clocks, Key chains, Rakhis, Bamboo candles, Garden chairs, fancy mirrors etc.

Impact: About Rs. 35,000/- per annum additional income obtained owing to the interventions under aegis NAHEP-CAAST sub-project through capacity building & hands on trainings imparted.

8) Venturing into producing contemporary bamboo decorates: : through NAHEP learnings



Mrs. Bharatiben from Surat, Gujarat was one of in-house beneficiary Wooden & Bamboo workshop created under banner of NAHEP-CAAST sub-project.

Output: Nowadays Mrs. Bharatiben from Surat, Gujarat have become successful Bamboo handicrafts entrepreneur and she has started producing contemporary Bamboo decorates viz. various designs of Bed lamps, Table lamps and hanging lamps, Bamboo candles, Bamboo flower vase, etc. and marketing in various exhibitions across the State.

Impact: About Rs. 40,000/- per annum additional income obtained owing to the interventions under NAHEP-CAAST sub-project through various capacity building & hands on trainings imparted.

9) Venturing into production of freeze dried food, fruit and vegetable : Turning Crisis into opportunity through NAHEP learnings

Dr. Paresh Zinzala from Surat is one of the post graduate Ph.D. Scholar in Horticulture in the discipline of Post-Harvest Technology under at Navsari Agricultural University, Navsari, Gujarat. Moreover, he is beneficiary of various capacity building activities viz., exposure visits, short visits,

guest lectures, international lectures & trainings and participated in the including residential “Agripreneurship Meet” at NAU, Navsari sponsored by NAHEP-CAAST.

Dr. Paresh Zinzala
Address: 34, Kirtidham Society, Punagam to Bombay
market road, Magob, Surat-395 010
Mobile no: +91 95375 83109
Date of Birth: 26th January 1992
Email: pzinzala369@gmail.com

Freezest Food supplies freeze dried ingredients as well as products to customers domestically and globally. They produce freeze dried food, fruits and vegetables.



Output: Nowadays Dr. Paresh Zinzala from Surat, Gujarat have become successful entrepreneur. He has started producing freeze dried food, fruit and vegetable. He started suppling freeze dried ingredients as well as products to customers domestically and globally.

Impact: About Rs. 18,00,000 to 20,00,000/- per annum turn over obtained owing to the interventions under NAHEP-CAAST sub-project through various capacity building & hands on trainings imparted to him during his SRF tenure under the banner of NAHEP-CAAST sub-project.

10) Venturing into J. J. Agro-clinic Distt. Kheda, Gujarat: through NAHEP learnings

Mr. Ojefkhan Pathan, is a Post graduate of M.Sc. (Agri), Dept of Soil Science & Agril Chem, N.M. College of Agriculture, Navsari Agricultural University, Navsari

Moreover, he is beneficiary of various capacity building activities viz., guest lectures, international lectures & trainings and participated in the residential 15 days Skill development vocational training on secondary agriculture at NAU, Navsari sponsored by NAHEP-CAAST.



J.J. Agro-clinic, Distt. Kheda, Gujarat

Impact: Presently Mr. Ojefkhan Pathan from Kheda, Gujarat was one of successfully entrepreneur under banner of NAHEP-CAAST sub-project after interventions of NAHEP-CAAST sub-project. He has started his own laboratory for the analysis of food, and environmental samples for different chemical testing parameters.

11) Oyster Mushroom Cultivation

Ms. Jagrutiben Patel, from Surat Participated in the Training cum Workshop “Spawn Production & Mushroom Cultivation Techniques for Farmers” Got Hands-on-Training on “Spawn Production & Mushroom Cultivation Techniques” under aegis of NAHEP-CAAST Sub-Project at NAU Navsari, Farmers have not only been trained to excel in farming but also encouraged to inculcate the entrepreneurial skill. One of our trainee, Ms. Jagrutiben Patel, from Surat has started own small



Glimpses of Oyster Mushroom Cultivation by Ms. Jagrutiben Patel, from Surat

Mushroom Cultivation unit in her household. About 4 Kg paddy straw bags maintained by Ms. Jagrutiben Patel each yielded 3.0 kg Oyster Mushroom per bag * 4 bags i.e. Total = 12.00 kg mushroom with 4 harvests at the interval of 30 days (4kg), 45 days (3.6 kg), 60 days (2.4 kg) and 75 days (2.0 kg). Earning about Rs. 1,500 per month additional income by maintaining just 4 bags (Rs. 3,000 for 12 kg @ Rs 250/kg).

12) Ozat (Taste and Trust Always) Traditional Blend of Spices

(Lunagariya Ajay M., Msc. Horti. in Post Harvest Technology and Training under NAHEP, CAAST, NAU, Navsari)

Today Mr. Ajay M. Lunagariya has become a successful entrepreneur after interventions of NAHEP-CAAST sub-project. He is a co-founder of Ozat Traditional Masala. He has started producing traditional blended of spices, that offers a wide range of whole spices and blends. He also maintains the best standards of purity, freshness and authenticity in every pack. His great taste of purity is backed by research, innovation and technology. Ozat Masala gained recognition and success, capturing the hearts and taste buds of Indian households by his Iconic spices like Pavbhaji masala, Panipuri masala, Garam masala, Kitchen king masala, Tea masala, Ginger powder, Red chili powder, Turmeric powder, and Chaat masala, *etc.* became household names, elevating his brand to new heights. The production volume amounted to over 18 tons per year. He also gain net profit upto 05-10%. He is the best seller of the Red chili powder, turmeric powder as well as cumin-coriander powder masala.

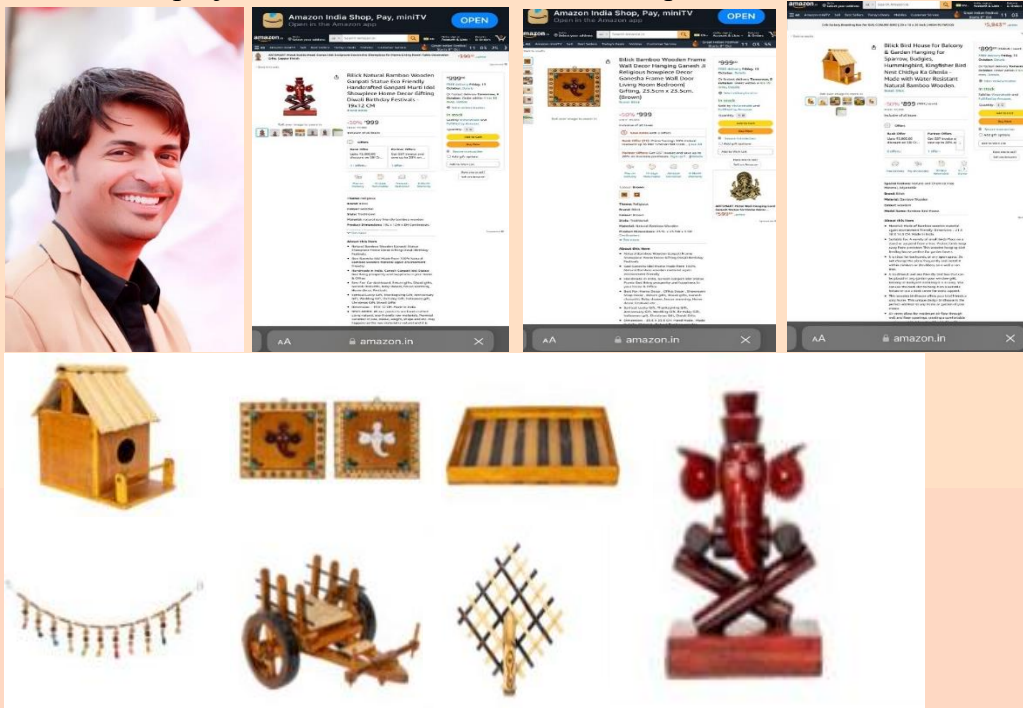


Moreover, he is beneficiary of various capacity building activities *viz.*, exposure visits, participated in the International workshop on Agritech industries and start up for innovation in agriculture with career prospects for students of agricultural University, Jorhat, Assam during Dec.2022; also visited International conference and innovation start up conclave at IAC, Radhapuram, Tamil Nadu during Aug. 2023; he also took part in the National level training on “Production of Fruits and Vegetables Powders” at IIHR, Bengaluru during Dec. 2022; he also participated residential Agripreneurship Bootcamp, Ideathon-2022, Agricultural Innovation & Entrepreneurship Conclave – 2023, National training programme on “Entrepreneurship Opportunities in Exports and Imports of Agricultural Commodities”-2023 at NAU, Navsari sponsored by NAHEP-CAAST. Being an Entrepreneur he has also participated in Ahar Arogya Mela, Rajkot; Business Fair 2024, Rajkot, *etc.* Besides this, he also earned FSSAI licence.

13) SUCCESS STORY OF MR. ANISH SINDHI

Mr. Anish Sindhi (B.Com) from Dangiya village, Dantiwada Taluk, Banaskantha District has become a successful entrepreneur after interventions of NAHEP-CAAST sub-project. He has

started selling of seven products of bamboo/wooden decorates developed under aegis of NAHEP-CAAST sub-project at NAU, Navsari on “Amazon platform” as an online Amazon seller.



He is earning about Rs. 6,0000 to 10,000/- per month additional profit owing to the sale bamboo/wooden decorates developed under aegis of NAHEP-CAAST sub-project at NAU, Navsari in addition to other handicrafts items.

Email: anishsindhi77@gmail.com

Mobile: +91 94297 16518

b) Knowledge management and outreach initiatives (development of collaterals, newsletter, social media outreach activities, creation of website, experiential learning workshop, exposure visits

(provide the details of the documents/articles/reports/modules/social media outreach/ website creation/experiential learning workshop/exposure visits etc. developed under NAHEP along with the suitable photograph of the cover-page and web-link (if available) – brief summary, cover page,

S.N	Category of the collateral	Brief summary	Snapshot/cover page	Weblink (if any)
1				

< Annexure-5- The list exposure visits made under NAHEP along with the suitable photograph >

c) Unique initiatives undertaken

1. Digital infrastructure

(Development of digital/smart classroom, virtual reality facility, digital library system, other digital education and administrative infrastructure, Agri Diksha, AMS implementation etc.)

Virtual Reality Facility (NAHEP-2A): The Navsari Agricultural University has Received 6 Kits AR/VR kits at Navsari Agricultural University, Navsari. The SPOC (Special Point of Contact) Person for AR/VR at NAU along with 2 Assistant Professors have undergone training provided by the IASRI, ICAR New Delhi. The Hands on the AR/VR kits is going on with selected faculties of NAU.

Agri Diksha & Virtual Classroom (NAHEP-2A): A Virtual Class has been setup at Navsari Agricultural University funded by ICAR. The class room has seating capacity of 100 students. The Virtual class room has been connected with high-speed fiber optic connectivity with LAN and wi-fi connectivity.

Smart classroom (NAHEP-CAAST): Smart classroom prepared under NAHEP CAAST Sub-Project of ICAR at Centre of Excellence on PHT, Dept. of PHT, ACoH, Navsari. Now the PG students able to study in the smart classroom equipped with LED, interactive board, and plugs for the individual students on the benches for Laptops.

2. Digital initiatives:

(Organizing trainings through online, conducting online examinations, administering attendance, developing of web applications, e-learning modules etc.

S.N	Category of the collateral	Digital initiative	Practice before introduction of the initiative	Practice after introduction of the initiative
1	Created SAMPOORNA: Web Based Application	Created online classroom at under http://nahep.nau.in/ website for holding online certificate course. Useful to hold online certificate courses of various duration like vocational certificates course viz., 15 days, 30 days, three months certificate course/ Six months PG Diploma Course. This unique system will reduce work load for other party and in return will generate revenue for our institution. All these events may be organized in paperless and automated manner from registration, intermittent evaluation to generation of final result sheet. Participants can access and register themselves as a user and course/quiz offered	Earlier there was no such facility created first time such facility created.	Three Months Online Certificate Course organized on “Smart Farming Technologies and Secondary Agriculture Key to Making Indian Agriculture Remunerative” from January 08 - April 07, 2021.

		on the portal and user can learn themselves 24*7 along with intermittent evaluation to generation of final result sheet/course completion certificate		
2	Smart Classroom	Created smart classroom at Deptt. of PHT, ACoH, NAU, Navsari	Earlier only backboard classroom facility was there	Now the PG students able to study in the smart classroom equipped with LED, interactive board, and plugs for the individual students on the benches for Laptops.
3	Created SARAL: Web Based Application	Useful to hold online virtual poster competition, quiz competitions or competitions like Low-Cost High-Comfort Cow Housing Competition for Dairy Farmers of Gujarat and to conduct Virtual National Seminar/Symposium/Conference, Hackathon & Ideathon. This unique system will reduce work load for other party and in return will generate revenue for our institution. All these events may be organized in paperless and automated manner from registration to generation of final result sheet.	Earlier there was no such facility created first time such facility created.	On this portal till date have successfully conducted three events viz: 1. Poster presentation session of Virtual National Seminar Advances in sustainable management of natural resources for food and nutritional security from August 26-27, 2021, 2. A multilayered evaluation event “Low-Cost-High on Comfort Loose Housing Competition for Dairy Animal Farmers of Gujarat’ was organized during January 15, 2022 to February 13, 2022. We evaluated 220 dairy farmers and finally 12 were selected as winners. 3. Again a multilayered evaluation event National Level Hackathon on “smart and remunerative farming” on 05 March, 2022. This event was done in paperless and almost automated manner from registration to generation of final result sheet. Now, this web portal is ready for renting out other interested institutions/organizations/professional bodies. This

				unique system will lower the work load for other party and in return will generate revenue for our institution.
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Please provide up to 15 photographs with high quality (minimum 1-2MB) and label with suitable caption. Attach the photographs separately in the mail.

3. Potential impact of the intervention:

Observation

<<Please provide the explanation on potential impact of the intervention in short and long term while illustrating the key initiative/activity. Also, relate how input turned into output → outcome → impact in brief sentence or graphical way. Consider one or two examples/cases etc, >>

Salient Achievements of CAAST-NAU, Navsari

The Project Implementing Unit, ICAR, New Delhi had sanctioned an Advanced Agricultural Science & Technology Sub-project entitled “Establishment of Secondary Agriculture Unit for Skill Development in Students and Farmers at NAU, Navsari” through National Agricultural Higher Education Project (NAHEP) in 2018.

1. Under the project, university purchased advanced Equipment’s, Plant & Machineries for strengthening of existing units of the project and created state of art facilities at Post Harvest Technology, Banana Pseudostem unit, Forest Biology and Tree Improvement, Forest Products Utilization and Food Quality Test Laboratory.
2. State of Art facility Workshop on “Wooden & Bamboo Decorates” established at College of Forestry under the aegis of NAHEP-CAAST sub-project.
3. Under this project a Museum of “Non-Timber Forest Produce & Medicinal Aromatic Plants” was established at College of Forestry, Smart classroom at ASPEE College of Horticulture and a “Business to Business Hall” was erected at the Banana Pseudostem Complex.
4. Inked about ten MoUs under aegis of NAHEP-CAAST sub-project which includes five with private firm 1) Unifab India Solutions Ltd., Nashik, Maharashtra; 2) Paperdom Surat, Gujarat; 3) Thermo Fischer Scientific, Ahmedabad, Gujarat & 4) Pollucon laboratories Pvt. Ltd., Surat, Gujarat; 5) Crafts Melon, Mysuru, Karnataka; one with public co-operative firm 6) Surat Milk Union Limited (SUMUL) Dairy, Surat, Gujarat; four with national level reputed institutes viz., 7) National Regional Center on Banana, Tiruchirappalli, Tamil Nadu; 8) ICAR-Directorate of Medicinal and Aromatic Plants Research (DMAPR), Boriavi, Anand, Gujarat; 9) ICFRE-Indian Institute of Wood Science & Technology (IWST) and 10) ICAR-Indian Institute of Natural Gums & Resins (IINGR), Ranchi, Jharkhand.
5. The National Director (NAHEP) PIU & DDG (Agril. Education), ICAR, New Delhi Dr. R. C. Agrawal visited the facilities created at various CAAST units of NAU-Navsari and appreciated the products developed as well as the activities undertaken. Former NC (CAAST) Dr. P. K. Ghosh & Former NC (M&E) Dr. Prabhat Kumar had also visited various CAAST units and reviewed the progress made in the project. Dr. Anuradha Agrawal, NC (CAAST & NAHEP Component-2) & Dr. Hema Tripathi, NC-NAHEP- M&E and ESS visited the CAAST-NAU stall during ICBLE-2023 and appreciated the impressive progress made by the CAAST-NAU, Navsari in the past few years.
6. So far, a total of 26 Transfer of Technology agreements (ToTs) inked at national (24) & international (2) level for Commercialization of Organic Liquid Nutrients (OLN) developed from banana under NAHEP-CAAST to Industries and other Institutions since 2018-19.
7. At present Thirteen Entrepreneurs were nurtured under the aegis of NAHEP-CAAST sub-project which include 1) One each PG student ventured into the Mango Mart Direct to Consumer (D2C) e-commerce model of the Mango Mart & Ozat (Taste and Trust Always) Traditional Blend of Spices & one M.Sc. graduate ventured into J. J. Agro-clinic in the Kheda District, Gujarat; one Ph.D. graduate ventured into production of freeze dried food, fruit and vegetable; 2) Four Farmers ventured into Bee Keeping; 3) Three tribal artisans successfully kick started producing contemporary bamboo decorates (*viz.* various designs of Bird play

- gym, Tree Sculptures, Bed lamps, Table lamps and hanging lamps, Bamboo clocks, Key chains, Rakhis, Bamboo candles, Garden chairs, fancy mirrors etc.); 4) One women Ms. Jagrutiben Patel, from Surat has started small scale Mushroom Cultivation unit in her household and one graduate working as an online Amazon seller and selling of bamboo/wooden decorates developed under the aegis of NAHEP-CAAST sub-project at NAU, Navsari on the Amazon platform.
8. More than 150+ contemporary bamboo & wood products developed and brought products catalogue for the same for consumers to place an order in offline mode. Moreover, kick started online marketing on Titodi platform which is MNC startup firm for online marketing.
 9. Sixteen different products developed in the project from fruits & vegetables viz., Sapota Dry Powder, Sapota Milk-Based Ice-cream, Sapota Jam, Sapota Cookies, Sapota Dip, Sapota Flavored Butter, Tuti Fruity, Dragon Fruit Nectar, Dragon Fruit based Ice-cream, Tricolor Pasta, Umbadiyu, Mango Leather, Mango Kernal Mukhwas, Mixed Herb Spread, Fermented Beverages *i.e.* Wax Apple Wine (Red & White) and Sapota Wine. Apart from this also developed technology for Extraction of Anthocyanin from Dragon Fruit Pulp.
 10. Two Organic Liquid Nutrients (OLN) were developed from banana *viz.*, Novel + (A botanical organic pesticide) & Novel Prime A botanical organic fungicides) under the aegis of NAHEP-CAAST sub-project.
 11. Nine mobile applications (NAU-Bolt, Butting Forestry Sciences, Butting Veterinary Sciences, Butting wood identification, Butting Agricultural Sciences, Butting Animal Sciences, Butting Agricultural Sciences & Technology, Butting Horticulture Science, and AI wood identification model. These apps are feature loaded App can be used by UG/PG students in Formative or Mock test modes and will be available for both Android and iOS platform. This app will be available to all users free of cost so that maximum students can benefit from this initiative, whereas, AI wood identification model designed for identification of three woody species *viz.*, Teak, Malabar Neem and Ardu are available in the xylorix inspector mobile app.
 12. Two web-applications developed under the aegis of NAHEP-CAAST sub-project *viz.*,
 - i. SARAL: Web Based Application: Useful to hold online virtual poster competition in the National Seminars/ symposia / Conferences, quiz competitions or to conduct online competitions like Hackathon & Ideathon. Impact: All these events may be organized in paperless and automated manner from registration to generation of final result sheet.
 - ii. SAMPOORNA: Web Based Application- Useful to hold online certificate courses of various duration like vocational certificates course *viz.*, 15 days, 30 days, three months certificate course/ Six months PG Diploma Course. Participants can access and register themselves as a user and course/quiz offered on the portal and user can be learn themselves 24*7 along with intermittent evaluation to generation of final result sheet/course completion certificate. All these events may be organized in paperless and automated manner from registration, intermittent evaluation to generation of final result sheet.
 13. About 29 CAAST students completed international trainings at AIT, Bangkok, Thailand and at IRRI, Philippines, Singapore and three faculties at UPM, Malaysia.
 14. This project has benefitted about **24,949** PG students, faculty members, farmers *etc* from 249 different capacity building programmes organized using national and international expertise.
 15. Out of Eight one selected CAAST students about **fifty three** PG students completed their degree under the CAAST sub-project and are working in different capacities across the country and remaining are either preparing for competitive exams or pursuing higher degree programmes;
 16. Since 2018 CAAST-NAU- Navsari motivated and facilitated 164 PG students of NAU-Navsari to avail SHODH Award owing to the strengthening of existing units of the project for pursuing Ph.D. with fellowship assistance of about Rs. 15,000/- per month for two years and

- Rs. 20,000 per annum for contingency on competitive basis by Knowledge Consortium of Gujarat, Education department, Ahmedabad, Gujarat
17. Three existing units of CAAST have ISO certifications namely Quality Management System ISO 9001:2015 & Safety Management System ISO 22000:2018 related to PHT, Banana Processing Units and Scientific Utilization of NTFPs and MAPs.
 18. A revenue of Rs 41.52 lakh was generated in last five years (2018-19 to 2022-23) through sale of products developed after the intervention of NAHEP-CAAST sub-project
 19. Now (2023) about 28 is the average H index of NAU- Navsari faculties against 08 during the year (2018)
 20. Presently (2023) at NAU- Navsari, 75 External funded Projects are operational against 46 during the year (2018).
 21. All Eight Colleges of NAU, Navsari have been accredited by ICAR for a period of five years from 01/04/2021 to 31/03/2026 to offer 05 Undergraduate, 20 Masters and 17 Doctoral degree programmes as on 31st Meeting of the National Agricultural Education Accreditation Board.

The NAHEP-CAAST project has strengthened the existing infrastructure and created State of Art facilities in various departments across faculties which in turn facilitated cutting edge research in Secondary Agriculture. The project instilled a competitive edge in PG students through Hands-On training, national trainings, coaching classes and international exposure which improved their performance significantly in different competitive exams. The various entrepreneurship programmes fostered the spirit of entrepreneurship among students and farmers. In summation, this project imparted visibility and brought great laurels to the Navsari Agricultural University by facilitating accreditation of each and every college of the university, improving its rating/ranking and winning awards.

We are highly grateful to the funding agencies the ICAR (GoI), New Delhi and World Bank for sponsoring NAHEP-CAAST sub-project at NAU, Navsari.

4. Challenges faced and lessons learned while implementing the project at AU:

Challenges	
1	Covid-19 pandemic
2	Taking initiatives to Organization of out of box activities like Ideathon and Hackathon
3	Taking initiatives to Organization of out of box activities like Bootcamp and Agripreneurship meets
Lessons learned	
1	Usage of Online classroom platform due to Covid-19 disruption
2	Conducting Guest lectures/Online lecture trainings/Workshops in virtual mode due to Covid-19 disruption
3	Successfully Organized of out of box activities like Ideathon and Hackathon for the benefit of students and faculties and exposed to eminent experts and Cash prizes with citation were awarded to the 15 winners in the field of Secondary Agriculture.
4	Successfully Organized of out of box activities like Bootcamp and Agripreneurship meets for the benefit of students and faculties and exposed to eminent experts and Cash prizes with citation were awarded to the 3 winners in the field of Secondary Agriculture.
5	

5. Sustainability Plan

5.1. Sustainability plan of the AU

- Does the AU have any sustainability plan for to make AU future ready and globally recognized? (Yes / No): Yes
- If yes, details thereof?

1	All the existing units are awarded other agency projects from different funding agencies viz., NMPB, GSRF, ICFRE and RKVY which helps to run the developed centers
2	All the existing units are awarded Government of Gujarat projects as state sponsored plan & non-plan projects which helps to run the developed centers
3	Moreover all the existing units are having revolving fund each of Rs. 3.79 lakh for running the routine activities developed so far
4	Few more projects are under discussion with Government of Gujarat/other Agencies too.
5	It is also planned to offer few trainings related to secondary agriculture for different stakeholders on virtual and physical mode to generate internal revenue.

5.2. Sustainability plan for improving internal revenue generation through facilities and infrastructure created under the project

1	Moreover all the existing units are having revolving fund each of Rs. 3.79 lakh for running the routine activities developed so far
2	This seed money is used to publish manuals, books, folders, booklets, successes stories and pamphlets etc., related to secondary agriculture and up hold the units activities like product development, sale and capacity building trainings/ workshops/ organization of lectures/interactive meets/ any out of box activities for the benefit of students, faculties and farmers after the closure of project at each units with acknowledgement of NAHEP-CAAST and World Bank for financial Assistance.
3	Moreover, it emphasized to utilize the grant sustainably in long run and generated income may be credited in the respective budget head.
4	Additionally, half yearly meeting in this regard may be held for the review of activities & grant available in the respective units by PI & Nodal officer (CAAST), CAAST Secretariat.
5	It is also planned to offer few trainings related to secondary agriculture for different stakeholders on virtual and physical mode to generate internal revenue.

6. Contribution of each individual in project

6.1. Name of Vice Chancellors(s) during project duration and contributions each PI, Co-PI and team along with their photographs

Name	Gender	Designation in AU and contact details (email, mobile)	Role in project (PI/Co-PI/RA/SRF etc.)	Major contribution/output
Dr. C. J. Dangaria	Male	Hon'ble Vice Chancellor vc@nau.in	Hon. Vice Chancellor, NAU, Navsari	According necessary approvals , Monitoring and facilitating smooth implementation of NAHEP CAAST project activities
Dr. Z. P. Patel	Male	vc@nau.in	Hon. Vice Chancellor, NAU, Navsari	
Dr. T. R. Ahlawat	Male	dr@nau.in	<ul style="list-style-type: none"> Project Investigator and Nodal officer, NAHEP- CAAST, NAU 	<ul style="list-style-type: none"> According necessary approvals, Supervising and facilitating smooth execution of NAHEP CAAST project activities Guidance for product development and waste utilization.
Dr. Dev Raj	Male	drpandir_phtc@nau.in	<ul style="list-style-type: none"> Co-PI, Unit 1 	<ul style="list-style-type: none"> Product Development Technology development and create novel techniques value added products from Horticultural Produces
Dr. Jilen M Mayani	Male	jmpphtc@nau.in	<ul style="list-style-type: none"> Co-PI, Unit 1 	<ul style="list-style-type: none"> Product Development and Technology development and create novel techniques value added products from Horticultural Produces Arrangements and planning of national as well as international training / Other CAAST events, and exposure visits for PG CAAST students and Farmers (Unit -1) Selling and Marketing of food Products prepared under the CAAST project (Pasta, Jam, Cookies, etc) Planning and purchasing of dead stock & consumable utilized for research work Exploration of different sectors for MoU signing to benefits the PG CAAST students for research and Development etc
Dr. Chirag Desai	Male	chiragdesai@nau.in	<ul style="list-style-type: none"> Co-PI, Unit 1a 	<ul style="list-style-type: none"> Product Development and Technology development for prevent waste utilization of horticultural produces. Developed Organic Pesticides and Fungicides from banana pseudostem SAP which is helpful for farmers to prevents insect pest infestation and nutrients providence to the other agricultural growing crops

				<ul style="list-style-type: none"> • Technology transfer and marketing of the products , which is help to generate revenue in Unit 1A • Planning and purchasing of dead stock & consumable utilized for research work • Exploration of different consultancies for MoU signing to benefits the PG CAAST students for research and Development etc
Dr. R. P. Gunaga	Male	rpgunaga@nau.in	<ul style="list-style-type: none"> • Co-PI Unit - 2 	<ul style="list-style-type: none"> • Arrangements and planning of training / Other CAAST events related to Unit -2 • Assisting in organization of Guest Lectures (from Indian faculty), Online lectures (from foreign faculty members), National Seminars/ Workshops/ Conferences any others events pertaining to the CAAST • Assisting in all purchases of respective units as per the procurement manual provided by PIU, New Delhi • Follow up of purchase related activities at Unit level and CAAST secretariat office • CAAST activities Monitoring, documentation, Media Coverage and Success Stories reporting • Assisting in compiling specifications, preparing quotations and purchase proposals and its purchase at Unit level and CAAST secretariat office. • Planning and purchasing of consumable and dead stock items for research work at Unit level • Assisting in all purchases of respective units as per the procurement manual provided by PIU, New Delhi • Follow up of purchase related activities at Unit level and CAAST secretariat office • Any other work related to purchase, billing and financial reporting at Unit level and CAAST secretariat office. • Product developments using waste wood, bamboo, other forest waste as well raw material (wood/ bamboo) • Any works assigned by competent Authority from time to time • Selling of products and its account keeping. • Assisting in product development from NTFPs

				<ul style="list-style-type: none"> • Assisting in development of NTFPs & MAPs museum • Assisting in development of Mobile Applications at Unit level • Planning and purchasing of consumable and dead stock items for research work at Unit level and CAAST secretariat office • Arranging Trainings to farmers and PG CAAST students. • Working as a drawing and disbursing officer of CAAST since March 2019 to till 10/10/2022
Dr. M. S. Sankanur	Male	sankanuems@nau.in	<ul style="list-style-type: none"> • Co-PI Unit - 2 	<ul style="list-style-type: none"> • Assisting in sanctions of Guest Lectures (from Indian faculty), Online lectures (from foreign faculty members), MoUs (National and International), Training Programmes, National Seminars/ Workshops/ Conferences any others events pertaining to the CAAST • Assisting in sanctions of National and International Training of CAAST core faculties and CAAST PG students. • Compiling Reporting (Annual/Quarterly/Weekly reporting/) at Unit level and CAAST secretariat office. • NAHEP-CAAST-NAU website information uploading & maintenance, Media Coverage and Success Stories reporting to PIU, ICAR, New Delhi • Assisting in compiling specifications, preparing quotations and purchase proposals and its purchase at Unit level and CAAST secretariat office. • Assisting in all purchases of respective units as per the procurement manual provided by PIU, New Delhi • Follow up of purchase related activities at Unit level and CAAST secretariat office • Any other work related to purchase, billing and financial reporting at Unit level and CAAST secretariat office. • Any other reporting asked by the PIU-NAHEP, New Delhi from time to time. • Product developments using waste wood, bamboo, other forest waste as well raw material (wood/ bamboo) • Any works assigned by competent Authority from time to time • Selling of products and its account keeping.

				<ul style="list-style-type: none"> Assisting in product development from NTFPs Assisting in development of NTFPs & MAPs museum Assisting in development of Mobile Applications at Unit level and CAAST secretariat office Planning and purchasing of consumable and dead stock items for research work at Unit level and CAAST secretariat office Arranging Trainings to farmers and PG CAAST students. Record keeping, maintenance and documentation of the CAAST project activities Assisting in PFMS and consultancy works. Uploading necessary documents on the STEP portal and its related work Working as a drawing and disbursing officer of CAAST since 11/10/2022
Dr. S. K. Sinha	Male	sksinha@nau.in	<ul style="list-style-type: none"> Co-PI Unit - 2 	<ul style="list-style-type: none">
Dr. Rana Ranjeet Singh	Male	drexplicit@gmail.com	<ul style="list-style-type: none"> Co-PI, Unit 3 	<ul style="list-style-type: none"> Arrangements and planning of training / Other CAAST events, and exposure visits for Unit -3, Planning and purchasing for research work, Exploration of different sectors for MoU signing to benefits the PG CAAST students for research and Development etc
Dr. Swati Gupta	Female	swatigupta@nau.in	<ul style="list-style-type: none"> Co-PI Unit - 3 	<ul style="list-style-type: none"> Dairy product development and build out technology for production and innovation in Unit 3
Dr. Navin B.Patel	Male	nbpatel@nau.in	<ul style="list-style-type: none"> Co-PI Unit - 3 	<ul style="list-style-type: none"> Survey , field visits for Livestock Managements and advance dairy technology Maintain and keep record of cow and buffalo Milk production
Dr. K. G. Patel	Male	kgpatel@nau.in	<ul style="list-style-type: none"> Co-PI Unit -4 	<ul style="list-style-type: none"> Technology development and Apprehension regarding pesticide residue to the PG students and Farmers
Dr. Susheel Singh	Male	susheelsingh@nau.in	<ul style="list-style-type: none"> Co-PI Unit -4 	<ul style="list-style-type: none"> Technology development and Apprehension regarding pesticide residue to the PG students and Farmers Provide guidance regarding Research and experiments to detect residue in food products
Dr. Vipul Parekh	Male	vipulbiotech@nau.in	<ul style="list-style-type: none"> Co-PI Unit -4 	<ul style="list-style-type: none"> Technology development and Apprehension regarding pesticide residue to the PG students and Farmers Working on MoUs, short visits and conduct the trainings.

Dr. Abhijit Chaudhary	Male	acabhijitchaudhary7@gmail.com	Senior Research Fellows	<ul style="list-style-type: none"> Track on Accounts keeping & Financial documentation
Dr. Pooja Naik	Female	prnaik1995@gmail.com		<ul style="list-style-type: none"> Purchasing and event organizing in CAAST project Participated in short visits and national level trainings and seminars
Dr. Unnati Ahir	Female	unnatiahir0@gmail.com		<ul style="list-style-type: none"> PMTS & KMP data uploading related to NAHEP CAAST project
Miss. Riddhi Desai	Female	riddhidesai193@gmail.com		<ul style="list-style-type: none"> Doing research work on novel techniques to prepared innovative products and waste utilization of horticultural produces. (e.g; cookies, canned umbadiyu, fruit based ice creams, Novel organic liquid nutrients etc.) Involved in writing of literatures and training manuals Participated in short visits and national level trainings Selling of food products
Mr. Balvant Ahir	Male	z11balvant@gmail.com		<ul style="list-style-type: none"> MoUs, training arrangements and purchasing data records
Mr. Jay Modi	Male	modijay24@gmail.com		<ul style="list-style-type: none"> Research and developments in NTFP unit 2
Mr. Harpal Patel	Male	harpalpatel007@gmail.com		<ul style="list-style-type: none"> Research work, forest visits, seed collection etc MoUs, training arrangements and purchasing data records Preparation of bamboo based products
Dr. Dhaval Prajapati	Male	prajapatidhaval909@gmail.com		<ul style="list-style-type: none"> MoUs, training arrangements and purchasing data records Research and Product development Unit 2
Mr. Bhuresh Chaudhari	Male	bhureshchaudharipintu07@gmail.com		<ul style="list-style-type: none"> Research work, forest visits, seed collection etc Preparation and trained the workers for making innovative bamboo based products (Unit 2)
Mr. Udit Nakrani	Male	uditnakrani@gmail.com		<ul style="list-style-type: none"> Pesticides residue analysis from agricultural crops Event managements Training and exposure visits to gain knowledge regarding advance technology for Food quality testing Purchasing and maintain data registers
Ms. Varsha Chaudhari	Female	c.varsha.1993@gmail.com		<ul style="list-style-type: none"> Event organizing, Training and short visits planning Data record maintaining
Ms. Archana Mahida	Female	mahidaarchana24@gmail.com		<ul style="list-style-type: none"> PFMS, PMTS Research work, Product development Training and short visits planning Data record maintaining
Dr. Vrutti Patel	Female	vrutti Patel.horti@gmail.com		<ul style="list-style-type: none"> PMTS, KMP portal management

				<ul style="list-style-type: none"> • Literature writing
Dr. Krupa Hirapara	Female	krupahirpara@yahoo.in		<ul style="list-style-type: none"> • Dairy Product development and research work • National training and other CAAST events managements • Trained the lady farmers to improve milk
Dr. Palak Kachhadiya	Female	pakachhadia@gmail.com		<ul style="list-style-type: none"> • Product development and research work • Writing literature
Ms. Bijal Solanki	Female	bijisolanki@gmail.com		<ul style="list-style-type: none"> • Development of value added products from horticultural produces. • Writing literature and manuals, • Organizing of farmers and PG students trainings and exposure visits in food sectors • Organizing guest lectures and webinars • Purchasing of consumables utilized in product developments • Prepared data sheets and reports of the unit 1
Dr. Paresh Zinzala	Male	pzinzala369@gmail.com		<ul style="list-style-type: none"> • Event organizing, • Training and short visits planning • Data record maintaining
Mr. Kalsariya Lalji	Male	laljikalsariya501@gmail.com		<ul style="list-style-type: none"> • Dairy Product development • Event, training, guest lecture managements, • Survey, field visits for Livestock Managements and advance dairy technology
Er. Ankur Shekhada	Male	ankurshekhada123@gmail.com		<ul style="list-style-type: none"> • Purchasing of consumables • Research and developments • Survey , field visits for Livestock Managements and advance dairy technology
Dr. Ashish Patel	Male	ashish239190@yahoo.in		<ul style="list-style-type: none"> • PFMS, MoUs, keep data records
Dr. Nimita Umretia	Female	nimiumretiya12@gmail.com		<ul style="list-style-type: none"> • Pesticides residue analysis from agricultural crops • Event managements • Training and exposure visits to gain knowledge regarding advance technology for Food quality testing • Purchasing and maintain data registers
Dr. Chaitanya Mogal	Male	Chaitanya.mogal29@gmail.com		<ul style="list-style-type: none"> • Pesticides residue analysis from agricultural crops • Training and exposure visits • Purchasing and maintain data registers

6.2. Details of visits of PIU-NAHEP officials at your AU along with photographs (provide list)

Glimpses of National Co-coordinator's Visit to CAAST Center of Navsari Agricultural University Navsari (Gujarat) during 11th & 12th July 2019



First Day: 11.00 AM - Visit to Pesticide Residue Analysis Unit-4; NAU's NABL Accredited Food Quality Testing Laboratory



First Day: 11.30 AM- National Co-ordinators Dr. P.K. Ghosh Sir and Dr. Prabhat Kumar interacting with CAAST-NAU Students and Associated Staff of Unit-4



First Day: 12.00 AM - National Co-ordinator's visit to Unit-1 Center of Excellence on Post Harvest Technology



First Day: 12.30 PM - Dr. P.K. Ghosh and Dr. Prabhat Kumar interacting with CAAST Students and Associated Staff of Unit-1



First Day: 1.00 PM – Visit of National Co-ordinators to different Labs of Unit-1.



Second Day: 3.00 PM - Visit of National Co-ordinators to Waste Utilization Unit (Unit 1a) of NAHEP-CAAST Sub-project at NAU, Navsari



Second Day: 3.30 PM: Demonstration of Banana Fiber Extratction Unit before NC- Dr. P.K. Ghosh and Dr. Prabhat Kumar at Pseudostem Processing Plant



Second Day: 4.15 PM: Visit by NC (CAAST) Dr. P.K. Ghosh & NC (M & E) Dr. Prabhat Kumar to Unit-2 :: Scientific Utilization of Non Timber Forest Products and Medicinal Aromatic Plants



Second Day: 10.00 AM: National Co-ordinator Dr. P.K. Ghosh & Dr. Prabhat Kumar reviewing the progress made in CAAST project in the presence of Hon'ble Vice Chancellor and DR, NAU, Navsari



Second Day: 11.15AM: Dr. T. R. Ahlawat, PI, CAAST sub-project presenting the progress made in different activities of the project before the National Co-ordinators



Second Day: 4.30 PM: National Co-ordinator's and University Officials Interacting with MoU partners of NAHEP-CAAST Sub Project at NAU, Navsari



Second Day: 4.30 PM: Dr. P.K. Ghosh & Dr. Prabhat Kumar evaluated the products prepared from banana fibre by Paperdom, Surat – MoU partner of CAAST sub-project



Second Day: 5.00 PM: Dr. P.K. Ghosh, NC- CAAST interacting with students selected under CAAST-Subproject at NAU, Navsari



Second Day: 5.00 PM: A group photograph of students and SRFs selected in CAAST-Subproject with National Co-ordinator, Dr. P.K. Ghosh

Glimpses of National Director's Visit to CAAST Center of Navsari Agricultural University Navsari (Gujarat) on March 03, 2023



The National Director (NAHEP) PIU & DDG (Agril. Education), ICAR, ICAR New Delhi Dr. R. C. Agrawal along with Hon'ble Vice Chancellor, NAU, Navsari Dr. Z. P. Patel visited facilities created and products exhibition at Banana Pseudostem Processing Unit





Dr. R. C. Agrawal along with Hon'ble Vice Chancellor, NAU, Navsari Dr. Z. P. Patel also visited facilities created and products exhibition at wooden and bamboo decorates workshop including NTFPs & MAPs





Dignitaries also visited facilities created and products exhibition at Post Harvest Technology.



Dignitaries went through the training manuals, extension pamphlets, folders, success stories and proceedings of seminar and conferences developed under the aegis NAHEP-CAAST



Dr. R. C. Agrawal along with Hon'ble Vice Chancellor, NAU, Navsari Dr. Z. P. Patel also launched mobile application named “Butting Forestry Science” under NAHEP-CAAST project on March 03, 2023. This feature loaded App can be used by Forestry students/faculties in Formative or Mock test modes and will be available for both Android and iOS platform.



During the interactive meet Dr. T. R. Ahlawat, DR & Dean PGS and PI & Nodal thanked the World Bank and ICAR, New Delhi for providing this unique opportunity to the students & faculties of NAU, Navsari through the NAHEP-CAAST Sub-project. He also placed on record the encouragement and support received by respected Dr. R. C. Agrawal, the National Director of NAHEP at ICAR, New Delhi and Dr. Anuradha Agrawal, the National Co-ordinator for CAAST sub-component.

Glimpses of National Co-coordinator's Visit to CAAST Center of Navsari Agricultural University Navsari (Gujarat) on December 04, 2023



Dr. Anuradha Agrawal , NC –NAHEP CAAST, PIU, ICAR, New Delhi visited museum of NTFPs & MAPs (CAAST-Unit-02) at College of Forestry on December 04, 2023



Dr. Anuradha Agrawal , NC –NAHEP CAAST, PIU, ICAR, New Delhi visited facilities created and products exhibition at wooden and bamboo decorates workshop (CAAST-Unit-02) on December 04, 2023



Dr. Anuradha Agrawal , NC –NAHEP CAAST, PIU, ICAR, New Delhi visited facilities created and products prepared at Department Forest Products (CAAST-Unit-02) on December 04, 2023



Dr. Anuradha Agrawal , NC –NAHEP CAAST, PIU, ICAR, New Delhi visited facilities created and publications of CAAST-Unit-04 *i.e.* Food Quality Testing Laboratory on December 04, 2023



Dr. Anuradha Agrawal , NC –NAHEP CAAST, PIU, ICAR, New Delhi visited facilities created and products exhibition at Post Harvest Technology (CAAST Unit-01), ACoH, NAU, Navsari





Dr. Anuradha Agrawal , NC –NAHEP CAAST, PIU, ICAR, New Delhi visited exhibition of Products developed under the aegis of NAHEP-CAAST sub-project at NAU, Navsari during AIEC-2023 on December04, 2023





Dr. Anuradha Agrawal , NC –NAHEP CAAST, PIU, ICAR, New Delhi visited Banana Pseudostem Processing Unit (CAASt Unit-01a),at NAU, Navsari on December 04, 2023



Glimpses of Agricultural Innovation & Entrepreneurship Conclave - (AIEC) 2023 held during December 04 - 08, 2023 at NAU, Navsari