

## Annual Report 2023-24

### Research

#### 2.5 Research Station (with Phone no., email ID & website)

#### 3.9 Meritorious service awards, etc. (from National/International agencies or Govt.)

Department	Cadre	Honour	Remarks
Department of Genetics and Plant Breeding	Dr Beena Thomas	Best Teacher Award for the outstanding contribution in the field of Genetics & Plant Breeding in 1 <sup>st</sup> International Agriculture Conference on "Natural VS organic farming: in context to Bharatiya agriculture; 24-26 December 2023 organised by Gujarat Natural farming and Science University, Anand and Hindustan Agricultural Research Welfare Society and IIMTU, Meerut (Hybrid mode)	
	<b>Ms. Ninitha Nath C.</b>	Best oral presentation award titled - "Kaipad- A unique indigenous rice ecosystem of Kerala".. in technical session XIth of the VIIth International conference on GRISAAS during 21-23 November 2023 held at Birsa Agricultural University, Ranchi, Jharkand	
	<b>Ms. Adheena Ram</b>	Best Oral Presentation Award in National Conference on 'Tribal Horticulture' organized by Dr. YSR Horticultural University, Andhra Pradesh from 17-18 October, 2022	
	Arya S Nair (2021-21-051)	Best Poster Presentation Prize for the poster entitled Identification of Dual-purpose Fodder Cowpea [ <i>Vigna unguiculata</i> (L.) Walp] through Induced Mutagenesis in the International Conference on Feeding the Future through Sustainable Eco-friendly Innovations in Rangeland, Forages and Animal Sciences. Jointly Organised by Range Management Society of India, Jhansi, India, ICAR-Indian Grassland and Fodder Research Institute Jhansi, UP, India & University of Agricultural Sciences, Bangalore on 2-4 December, 2023 at University of	

		Agricultural Sciences, Bangalore.	
	Visakh R.L (2021-21-025)	Best Poster Presentation Award for the poster entitled Horse gram: Cultivating the Future of Sustainable Agriculture in the 1 st International Agriculture Conference on “Natural VS organic farming: in context to Bharatiya agriculture; 24-26 December 2023 organised by Gujarat Natural farming and Science University, Anand and Hindustan Agricultural Research Welfare Society and IIMTU, Meerut (Hybrid mode)	
	Visakh R.L (2021-21-025)	Second prize in quiz competition in AICSA 2024 KAU - Corteva International Plant Science symposium	
Agronomy	Professor	Best Poster Award	Dr.Ameena M received Best Poster Award in the Biennial National Symposium on “Climate Smart Agronomy for Resilient Production Systems and Livelihood Security” 22- 24 November, 2023 held at ICAR-CCARI, Goa
	Assistant Professor	Best paper award	<ul style="list-style-type: none"> <li>Dr. Sheeja K.Raj- Received the best paper award under the theme “High throughput crop improvement” in the KAU-Corteva International Plant Science Symposium 2024, held at College of Agriculture, Vellayani, Thiruvananthapuram, Kerala, India 18-19 January 2024.</li> </ul>

## 5.1 Major developments, incidents, etc.

## 5.2 Major research achievements (Including Varieties released, patents, ToT etc.)

### ❖ **Department of Postharvest Management**

- Technology of fruit and vegetable Jam Preparation was transferred to Smt. Subhashini, P., Flat No G 9, Vijaya Galaxy Apartment, 8<sup>th</sup> Cross Road, Maruthi Nagar, Kamakshipalaya, Bangalore as per DOR/621/ 2023 -RES.B1 dt. 31.10.23 of Directorate of Research, KAU on 20-11-2023
- Technology of spray dried cashew apple juice powder was transferred to Maharashtra State Agricultural Marketing Board, Pune as per KAU DOR/930/2023-RES B1 (ii) dt. 20.03.2024 of Directorate of Research, KAU.
- Technology of osmodehydrated fruits was transferred to Maharashtra State Agricultural Marketing Board, Pune as per KAU DOR/930/2023-RES B1 (iii) dt. 20.03.2024 of Directorate of Research, KAU.

### ❖ **Department of Agronomy**

- Innovation Patent for Crop Protective Herbicide Applicator granted by the Patent Office, Government of India (Patent No. 506746) for 20 years from 25-03-2021.

Innovators: Dr. Sheeja K. Raj, Dr. Jacob D., Dr. Shalini Pillai P., Mr. Dhanu Unnikrishnan, Ms. Anitrosa Innazent, Krishnasree R. K., Seethal Rose Chacko

- Best Poster Award the International Seminar on Sustainable Urban Agricultural Systems and Community resilient Cities held from 22-03-2024 to 23-03-2024 at Kerala Agricultural University, College of Agriculture, Vellayani : Ms. Namitha V. V for the research paper entitled "Fostering Urban Growth: Nurturing Community Gardens with Coconut based Cropping System" authored by Dr, Namitha V.V., Dr. Sheeja K Raj, Dr. Shalini Pillai P and Dr. Jacob D in the International Seminar on Sustainable Urban Agricultural Systems and Community resilient Cities held from 22-03-2024 to 23-03-2024 at Kerala Agricultural University, College of Agriculture, Vellayani

## 5.3 Research collaborations

### ❖ **Department of plant physiology**

1. We initiated a research collaboration with Indian Institute of Space Science and Technology for project-HOPE-WIN : Human-in loop-in Orbit Plant Experiment – With ISRO-NASA.
2. We initiated research collaboration with VSSC.
3. ICAR-NRRI

## 5.4 AICRPs and AINPS

(Include list and a brief note)

Sl. No.	Project	Station

## 5.5 Major Projects (A brief note on each item)

1. CAAST
2. PRRAL
3. KAU Cadbury Cocoa Research Project
4. KSAMM
5. Centre for Excellence on Vegetables & Cutflowers
6. Others if any

### **Department of Postharvest Management**

Sl.No.	Title of project	Funding agency	Budget out lay	PI
1	Strengthening FPOs and SHGs through value chain management of major fruits and vegetables	Plan project	6.00	Dr.P.R.Geethalekshmi
2	Byproduct utilization of kudampuli ( <i>Garcinia gummigutta</i> ) through valorisation	Plan project	2.00	Dr.P.R.Geethalekshmi
3	Women empowerment through post harvest management and value addition of vegetables	Plan project	2.00	Athulya S. Kumar
4	Techno incubation centre for the commercialization of value added products from fruits and vegetables	RF scheme	3.00	Dr. Mini C.

### ❖ **Department of plant physiology**

1. Kerala State Biodiversity Board on “Ecological restoration and agro-biodiversity conservation of Vellayani lake ecosystem at College of Agriculture, Vellayani”
2. Directorate of Environment and Climate change, Gov. of Kerala on “Development of drought tolerant cardamom hybrids through pollen selection and selective fertilization”  
Sanction order: Lr. No. RARS/SZ (3)/2516/19 Dated 16/01/2021 of the ADR, Regional Agricultural Research Station (South Zone) College of Agriculture, Vellayani.

Objective of the work that started in 2021 was to standardize proper media for pollen germination of cardamom and to identify the critical stress level for pollen selection and selective fertilization. The evaluation process of the project is in progress.

### **Plan projects:**

1. Identification of molecular markers and QTLs linked to nutritional and functional properties of specialty land races of rice (*Oryza sativa* L.) from Kerala using association genetic analysis.
2. Dr. Beena R, Assistant Professor, Department of Plant Physiology
3. BBP-02-00-01-2022-ACV(09)- KAU Plan
4. 50 rice landraces were analyzed for Fe, Zn, Ca, Mn, Mg, K, Na and P, total phenolics, Flavonoids, Antioxidant capacity, Grain protein content and yield and yield components. Genotyping of these landraces were done by 50 SSR markers. Marker trait analysis is in progress.

- II 1. Network project on “Development of high yielding short duration rice varieties tolerant to abiotic stress through marker assisted breeding and mutagenesis.
2. Dr. Beena R, Assistant Professor, Department of Plant Physiology
3. R-02-00-05-2021-ACV(01)-KAU Plan
4. BC<sub>2</sub>F<sub>2</sub> populations of Uma and CR-Dhan 801; Uma and Nagina-22 were developed. These line should be evaluated for field level tolerance.

III 1. In vitro stimulation and production of biomolecules and Allele mining for identification of biosynthetic gene clusters encoding potential anticancer and other novel biomolecules in selected medicinal yams

2. Dr.Viji.M.M, Professor, Department of Plant Physiology

3. Research Highlights:

- Existing tissue culture lab has been upgraded by getting an air conditioner, a refrigerator, a laminar airflow chamber and by providing more culture room light and temperature control facilities.
- Callus induction and liquid culture protocols for selected six medicinal yams have been standardized. Elicitation studies in callus cultures and liquid cultures and analysis have been carried out.
- Studies regarding allele mining for identification of biosynthetic gene clusters encoding potential anticancer and other novel biomolecules in selected medicinal yams is in progress.

3.

#### 5.6 Research articles published in major international journals

Sl. No.	Department	Faculty	No. of Articles
1	Postharvest Management	Agriculture	2
2	Department of plant physiology	Agriculture	30
3	Genetics and plant breeding	Agriculture	10
4	Agronomy	Agriculture	1

(Journals published in articles indexed in Scopus or Web of Science only be included)

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#### 5.7 Journal of Tropical Agriculture

#### 5.8 Major research projects completed during the report year

Sl.No.	Department	Project	Funding Agency	Expenditure (Rs.)
1	Post harvest Management	Establishment of Centre for formulation of convenient food	RKVY	105.00

2		Women empowerment through postharvest management and value addition of vegetables	State Plan	2.00
3	Department of plant physiology	Identification of molecular markers and QTLs linked to nutritional and functional properties of specialty land races of rice ( <i>Oryza sativa</i> L.) from Kerala using association genetic analysis.	Plan	4.00 Lakhs
4	Genetics and plant breeding	Annual Plan projectStandardization of TissueCulture Media for theMicropropagation ofTraditional and Dwarf RedBananas	State plan	1 lakh
		Network project onDevelopment of novel hybrids of orchids andrapid multiplication through micropropagation	State plan	1 lakh

#### 5.9 Research Seminars/Conferences/Workshops conducted

Department	Item	State level	National	International
Post harvest Management	Others Training programmes	7		
Department of plant physiology	Workshop			1
Genetics and plant breeding	Workshop	1		
Agronomy	Others	1		

(Please indicate number only)

#### 8.4 Equipment, machineries and other assets purchased during the report year

Sl. No.	Department	Item	Value (in Rs.)
1	Post harvest Management	A 9 KWp solar power plant was installed and made functional	6,49,787/-

(Only items with value greater Rs.5 lakhs need to be mentioned)