TAMIL NADU AGRICULTURAL UNIVERSITY

PROCEEDINGS

11TH SOCIAL SCIENCES SCIENTISTS MEET
(12th May, 2023)

Lead Centre
Centre for Agricultural and Rural Development Studies
Tamil Nadu Agricultural University
Coimbatore-641003

Directorate of Research
Tamil Nadu Agricultural University
Coimbatore - 641 003

2023

PROCEEDINGS

11th SOCIAL SCIENCES SCIENTISTS MEET
(12th May, 2023)

The 11th Social Sciences Scientists Meet was held on 12th May, 2023 at TNAU, Coimbatore. The Director of Research reviewed the progress of research and offered comments and suggestions. The Director CARDS, Director, ODL, Dean (Agri) and all other University Officers, Heads and Scientists of the Departments of Social Sciences of TNAU have attended the meeting. Social Scientists working in other campuses, KVKs and research stations have participated in person.

The Director of Research, indicated that the ratio of number of Scientists *versus* no. of projects is very less and suggested to propose more number of URPs/EFPs involving multi-disciplinary Scientists. He insisted that social scientists should involve in research projects of biological sciences. He had suggested to analyse the precision of predicted market information provided by DEMIC over actual. It was suggested to formulate Action plans prioritizing and addressing the location specific problems. The impact of TNAU released varieties/Technologies may be studied and top 10 varieties/technologies/implements may be identified and documented.

Dr. D. Suresh Kumar, Director, CARDS, presented the overview of Social Sciences research and salient findings of all the completed and ongoing projects of the Social Scientists.

The action taken report of the 10th SSSM, research highlights from the completed projects, progress of the ongoing projects and action plan for 2023-24 of the Department of Agricultural Economics, Dept of Agrl. Extension and Rural sociology and Department of Agricultural and Rural Management were presented.

The key findings and progress of 62 research projects (21 completed projects and 41 ongoing research projects) have been presented during the meet.

Formal vote of thanks was proposed by Dr. A. Vidhyavathi, Research Coordinator of the Directorate of CARDS.

The proceeding of the meet is furnished as below

I. CENTRE FOR AGRICULTURAL AND RURAL DEVELOPMENT STUDEIS (CARDS)
Key findings of completed projects
Action Plan (2023-2024)
Details of research projects and remarks of the ongoing projects

II. AGRICULTURAL ECONOMICS
Key findings of completed projects
Action Plan (2023-2024)
Details of research projects and remarks of the ongoing projects

III. AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY
Key findings of completed projects
Action Plan (2023-2024)
Details of research projects and remarks of the ongoing projects

IV. AGRICULTURAL AND RURAL MANAGEMENT
Key findings of completed projects
Action Plan (2023-2024)
Details of research projects and remarks of the ongoing projects

V. REMARKS

VI. LIST OF PARTICIPANTS

I. CENTRE FOR AGRICULTURAL AND RURAL DEVELOPMENT STUDIES (CARDS)

A. Key findings of completed projects

a. Externally funded projects

NDRI /CARDS / CBE / CAR/2020/R002 Estimation of Production and Utilization Pattern of Milk and Milk Products in India (Dr. M. Prahadeeswaran, Dr. S. Senthilnathan Dr. M. Thirunavukarasu)

Lead Centre (NDRI) allotted four states *viz.*, Tamil Nadu, Kerala, Telangana and Andhra Pradesh to TNAU to conduct the data collection. For the study Tiruvannamalai and Salem (TN), Palakkad (KL), Rangareddy and Khammam (TL), and Gundur and Chittoor (AP) were selected for data collection based on the secondary data on animal population and milk production. Primary data were collected from Producer, Consumer, Milk vendor, sweet makers, Commercial Dairy Farms, Industry samples in Tamil Nadu, Kerala, Telangana and Andhra Pradesh were collected. Primary data collected from the above states were computerized and submitted to the Lead Centre (NDRI, Karnal) along with the interview schedules. Final results will be released by the Lead Centre after finalizing the reports for all the states.

Indigenous Cow maintained by the farmers was Kangayam and the Cross breds were Jersey CB, Holstein Friesian. IDFC and Aavin provided the insurance service to the milk producers. Price of milk was determined by the fat content and the retail price of toned Milk: Rs. 46.00/lit and price of the Desi Ghee is up to Rs.750/kg. Salem District Cooperative Milk producer Union handles 4.97 Lakh Lit/day and sales is around 1.8 Lack Lit/day remaining milk is converted to powder spread was Rs. 20 per lt (Consumer price Rs. 46 and price received by the producer is Rs. 26 per lt. Marketed surplus ranged between 86 and 91 per cent in Tamil Nadu.

Indigenous Cows maintained by the producers was Vechur and the cross bred was Holstein Friesian. Vorion provided the insurance service to the milk producers. Retail price of tonned was Milk: Rs. 44-46/lit and price of Desi Ghee was up to Rs.750/kg. Constraints faced by the farmers were high cost of inputs and lack of quality control at village level. Marketed surplus of milk was estimated at 91 per cent in Kerala. Marketed surplus of the milk ranged between 86 and 93 per cent in Andhra Pradesh.

B. Action Plan (2023-2024)

S. No.	Centre/Scientists	Project Title	Project Period	2023-24	Deliverables/ expected output
Theme: Agricultural Marketing and price forecasting					
1.	Dr. K. M. Shivakumar Dr S. Selvam Dr. A. Rohini Dr. M. Prahadeeswaran Dr. D. Murugananthi Dr. R. Parimalarangan	DPC 241501120 PF 0934 Developing and Disseminating Market Intelligence for TN - IAM Project Basin Crops	2017 to 2024	The price forecasts for 14 major agricultural / horticultural crops grown will be carried out. Price data for these crops will be collected from the reference markets and subjected to data screening and	Provide price forecasts and market intelligence for select six commodities to basin farmers

				subsequent data analysis	
Theme II. Natural Resource Management					
1.	Dr. D. Suresh Kumar Dr. K.R. Ashok Dr. S. Paneerselvam Dr. S. Pazhanivelan Dr. A. Vidhyavathi Dr. V. Saravanakumar Dr. V. Karthick Dr. R. Kumaraperumal	NABARD/CARDS/CBE /AEC/2022/R001 Rainfall and Tank Storage: Relooking the Tank Performance with Time Tested Tank Storage Pattern using Tank Cascade Approach in Tamil Nadu	Mar 2022 to March 2023	Report preparation	Completion of report and publication of policy brief and policy document
Theme III Impact Evaluation of Watershed					
1.	Dr. D. Suresh Kumar Dr. S. Padma Rani Dr. A. Vidhyavathi Dr. V. Karthick	TAWDEVA/CARDS/C BE/AEC/2017/E001 Final Evaluation of Watershed Projects of Tamil Nadu, Completed under DPAP/ IWDP, preparatory phase IWMP and NWDPRA XI plan	July 2018 to March 2024	Data analysis and report preparation	Impacts of Watershed development programmes in the state
2.	Dr. D. Suresh Kumar Dr. A. Vidhyavathi	TAWDEVA/CARDS/C BE/AEC/2020/ R022 Impact Evaluation of Watershed Development Projects implemented under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) - (Erst while IWMP) during 2011-12	Sep 2020 August 2023	Data analysis and report preparation	Impacts of Watershed development programmes in the state
3.	Dr. D. Suresh Kumar Dr. A. Vidhyavathi Dr. V. Karthick Dr. S. Padma Rani Dr. S. Angles	NABARD/CARDS/CBE /AEC/2022/R002 Impact Evaluation of Watershed Development Projects implemented under WDF (Watershed and Climate Proofing) of NABARD in Tamil Nadu	December 2022 May 2023	Data analysis and report preparation	Impacts of Watershed development programmes in the state
4.	Dr. D. Suresh Kumar Dr. M. Prahadeeswaran	NADP/CARDS/CBE/A EC/2019/R019 Implementation and Evaluation of National Agricultural Development Programme at TNAU, Coimbatore	April 2022 to March 2023	Data analysis and report preparation	Compilation and evaluation of NADP projects at TNAU

C. Details of research projects

A total of 7 numbers of externally funded projects were reviewed. Out of which, one project was completed and six projects are ongoing.

Current Status of Research Projects

Externally funded projects		Core projects		University sub projects		Total	
Completed	Ongoing	Completed	Ongoing	Completed	Ongoing	Completed	Ongoing
1	6	..	..	..	..	1	6

D. Remarks of the ongoing projects

S. No.	Project Number	Project Title	Project Period	Project Leader (PI/Co-PI)	Remarks
1.	DPC 241501120 PF 0934	Developing and Disseminating Market Intelligence for TN - IAM Project Basin Crops	2017 to 2024	Dr. K.M. Shivakumar Dr S. Selvam Dr. A. Rohini Dr. M. Prahadeeswaran Dr. D. Murugananthi Dr. R. Parimalarangan	The project may be continued
2.	NABARD/CARDS/CBE/AEC/2022/R001	Rainfall and Tank Storage: Relooking the Tank Performance with Time Tested Tank Storage Pattern using Tank Cascade Approach in Tamil Nadu	Mar 2022 to March 2023	Dr. D. Suresh Kumar Dr. K.R. Ashok Dr. S. Paneerselvam Dr. S. Pazhanivelan Dr. A. Vidhyavathi Dr. V. Saravanakumar Dr. V. Karthick Dr. R. Kumaraperumal	The project may be completed.
3.	TAWDEVA/CARDS/CBE/AEC/2017/E001	Final Evaluation of Watershed Projects of Tamil Nadu, Completed under DPAP/ IWDP, preparatory phase IWMP and NWDPRA XI plan	July 2018 to March 2024	Dr. D. Suresh Kumar Dr. S. Padma Rani Dr. A. Vidhyavathi Dr. V. Karthick	The project may be completed.
4.	TAWDEVA/CARDS/CBE/AEC/2020/ R022	Impact Evaluation of Watershed Development Projects implemented under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) - (Erst while IWMP) during 2011-12	Sep 2020 August 2023	Dr. D. Suresh Kumar Dr. A. Vidhyavathi	The project may be completed.
5.	NABARD/CARDS/CBE/AEC/2022/R002	Impact Evaluation of Watershed Development Projects implemented under WDF (Watershed and Climate Proofing) of NABARD in Tamil Nadu	December 2022 May 2023	Dr. D. Suresh Kumar Dr. A. Vidhyavathi Dr. V. Karthick Dr. S. Padma Rani Dr. S. Angles	The project may be completed.
6.	NADP/CARDS/CBE/AEC/2019/R019	Implementation and Evaluation of National Agricultural Development Programme at TNAU, Coimbatore	April 2022 to March 2023	Dr. D. Suresh Kumar Dr. M. Prahadeeswaran	The project may be completed.

II. AGRICULTURAL ECONOMICS

A. Key findings of completed projects
a. Externally Funded projects

SDPC/ CARDS/ CBE/AEC I2O21/ R002
Improving Livelihoods of Farm and Rural Households through Collective Management of Common Property Land Resources (CPLRs) in Madurai District (Dr. A. Vidhyavathi and Dr. N. Deepa)
Two trainings on value addition of basket making were given to fifty beneficiaries. Two trainings were conducted at T. Krishnapuram village of Thullukuttinayakanur R.village. Using bamboo, training was given to prepare different baskets used for different purposes namely flower baskets, pooja baskets, street broomstick, bamboo window screen etc.

NASF/CARDS/CBE/AEC/2020/R023

Causes and consequences of e-National Agriculture Market (e-NAM) on the Economic Development of Indian Agriculture – A Case Study (Dr. K.M. Shivakumar, Dr. M. Prahadeeswaran, Dr. N. Kiruthika, Dr. S. R. Padma)

In this project, e-NAM integrated markets (Phase I) have been analysed for the performance with respect to following five commodities;
1. Cotton-Annur (TN), Adoni (AP), Warangal & Khammam (TEL) and Sirsa and Ellenbad (HAR).
2. Maize – Udumalpet (TN) and Badepally & Warangal (TEL)
3. Groundnut – Tindivanam (TN) and Adoni & Kurnool (AP)
4. Turmeric – Erode (TN) and Guggirala and Kadappa (AP)
5. Chillies – Guntoor & Kurnool (AP) and Malakpet, Warangal & Khammam (TEL)

In addition to that Toamto, Onion, Potato and red gram reference markets were studied. The volume and value of trade for chillies, red gram, maize, paddy, onion and tomato increased after the introduction of e-NAM whereas for cotton, turmeric and groundnut volume and value of trade decreased due to preference of farmers in direct sale of produce to ginning and pressing mills. In case of turmeric and groundnut, after the introduction of e-NAM the volume and value of trade drastically decreased due to impact of COVID-19 especially in 2020 and 2021. Seasonal indices are high for commodities like chillies, cotton, groundnut and turmeric for the period from December to March as arrivals are high during this period whereas for perishable commodities like onion and tomato no particular pattern was observed. Cyclical and irregular variations results revealed in both pre and post e-NAM period that cycles are not clearly observed but random variations in prices are conspicuous for all the selected commodities. Prices are less volatile in post e-NAM period for cotton, groundnut, maize and red gram when compared to pre e-NAM period. This in turn implies that e-NAM has reduced the price volatility among these crops. Co-integration analysis has been carried out for all selected commodities and the results indicated that markets were integrated in post e-NAM period when compared to pre e-NAM period for almost all the commodities.

Policy implications:

- The findings of the research project highlighted the increase in market volume of the commodities traded under e-NAM platform in all the study States. So, adequate infrastructure for grading, storing should be ensured in the regulated markets
- If the commodities are traded in the futures platform, necessary arrangements should be made to trade them in the major commodity exchanges to ensure proper price discovery and price risk management to tide over the price volatility of farm commodities.
- The displaced intermediaries due to e-NAM process played a complementary role if the market volume and the presence of inter and intra-state market participants as registering themselves as traders. Hence, inter and intra State trading arrangements should be facilitated in all the e-NAM markets.
- Proper grading and marketing arrangements led to better price for the farm commodities. Hence, the role of aggregation is a must for which FPO (Farmer Producer Organization) can be imparted with the functioning of e-NAM operations for better utilization of the facilities.

The price convergence, volatility and price transmission results ensured that market integration happening for commodities traded under e-NAM. Hence, homogenization of commodities for aggregation and price conversion between spot and future prices would result in improving marketing efficiency.

b. University Research Projects

CARDS/ECK/AEC/2021/001 A Study on Varietal Adoption and Consumer's Preference of Rice Varieties in Cauvery Delta Region (Dr. V. Saravanakumar)

I Farmers' survey

In general, TNAU rice varieties (ADT 43, ADT 45, ADT 37, ADT 53, ASD 16, CO 51) dominated in area as well as production during both *Kuruvai* season (88%).

- The share of TNAU varieties in Samba (CO 50, CR 1009, ADT 51, ADT 42, ADT 46, ADT 38, TRY 3, TKM 13) or *Thaladi* are 53 %;
- Share of Non-TNAU varieties during *Samba*. *Thaladi* (BPT, CR1009 Sub1, NLR, Swarnasub) are 47%.
- Varieties such as CR1009 sub-1 in *Samba*, ASD 16, ADT 45 in *Kuruvai* are preferred to grow due to its marketability (DPCs of TNCSC), withstand against water stagnation, non-lodging and consumer preference in Kerala.
- BPT and private varieties are dominating in *Samba / Thaladi* seasons due to suitability of these varieties during water scarcity or delay in monsoon rainfall, higher yield, price, more consumer demand and other good cooking properties.
- Few TNAU varieties such as CR1009 sub-1, CO 51 were grown in *Samba / Thaladi* season but these varieties have very less consumer / trader's preference and it has to be sold through DPCs of TNCSC.
- Farmers' survey and focus group discussions indicate that the following three rice varieties such as BPT 5204, NLR 34449, MTU 7029 and Atchaya replaced the TNAU varieties. Whereas, the TNAU varieties like ADT 39, ADT 43 and MGR 100 have potential to compete or replace these varieties.
- Among the varietal attributes, yield got the highest preference for any rice variety followed by resistance to pest and disease, non-lodging and non-shattering of grains, marketability / market facilities, drought and water logging conditions, resistance to drought and good quality straw.

II. Consumers survey

- The majority of the consumers (56.87 percent) preferred to purchase branded rice (Varieties were not specifically known) from local grocery shops, departmental stores /super markets, wholesaler and millers, which includes TNAU and private rice varieties over farm grown rice varieties.
- There at least 40 different brands of rice available in the market such as Tajmahal, Five-star, Velu rice *etc*.
- Sembaruthi was the rice brand preferred by most of the respondents in the study area. Arasan, Kitchen King, Savithri, Velu rice were other brands that were popular in the market.
- Unnamed and Branded rice, BPT (Andhra Ponni), Ponni & IWP, Karnataka Ponni were preferred by majority of the consumers (68% of respondents) and remaining 32 percent respondents are consuming TNAU varieties viz., ADT 43 (9.44%), ADT 39 (7.78%), ADT 45 (4.44%), CO 51 (2.78%), CR 1009 (2.22%), ASD 16 (2.22%), IR 20 (1.67%) and ADT 53 (1.67%).
- Nearly 28.13 % respondents purchased the rice in the ration shops besides branded varieties due to its cheaper price, suitability for snacks and idly preparation and easily available at the ration shops.

III. Policy implications

- At farmers' point of view, besides high yield, marketability, duration, non-lodging and non-shattering of grains, drought resistance, withstand against water logging and resistance to pest and diseases and grain quality attributes are very important and likely to influence their preference for an improved rice variety.
- It was noted that 'MGR 100' is the rechristened nomenclature of CO 52, which is fabulous and potential to replace all the existing control (non-TNAU) varieties but miserably failed to perform in the farmers' field due to genetic impurities. It has to be purified and multiplied; and make availability for the farmers.
- Further, the TNAU varieties like CO 51, ADT 39, ADT 43, TKM 13 have a potential to compete or replace non-TNAU varieties; hence, seed multiplication and made available during season.
- Consumers considered the grain quality attributes particularly, white colored, long, slender and translucent grains and preferred cooking quality like taste, fluffier texture, high keeping quality and non-disfiguration of grains while purchasing rice.
- Hence, researchers should focus their breeding efforts to develop the suitable rice varieties by considering both farmers' and consumers preference besides the target of higher yield over existing varieties.

CARDS/CBE/AEC/2020/001
An Analysis of Higher Education, Placement, Employment and Earning Contours of TNAU Farm graduates during the Pre and Post COVID 19 Regimes (Dr. C. Sekar and Dr. Shibi Sebastian)

- Among the respondents 57 percent were girls and 43 percent were boys. Around 42 percent of the graduates were from rural background, 31% from urban and remaining from peri-urban areas. 72 percent of the respondents were from English medium and the rest from Tamil medium. 57 percent of graduates were preparing for competitive examinations, 27 percent were doing higher education and 15 percent were employed, Among the students doing higher education, 83

percent were doing the course of their own choice while the remaining were by chance.

- The reason for preference for course by chance was done 50 percent for fellowship purpose. All students were doing higher education in India.
- It was opined that the support of parents was mainly for arranging finances (50%). 56 percent of employed respondents felt that there is no change in the employment status due to COVID while 31 percent felt that the Covid had affected their job badly. Covid had delayed the completion of degree programme and joining in new places.
- The COVID has hit the student's higher education and employment in one way or the other. The general opinion was that the Covid had delayed the completion of degree programme in time which led to non-availability of preferred courses in the desired location and envisioned job/employment. About 59 per cent indicated that their jobs were not secured and 36 per cent expressed that they found it difficult to get admission in national and international institutions due to covid pandemic and 17.2 per cent indicated that they were not able to pursue education in National and International institutions even after getting admissions and fellowships.

CARDS/YTP/AEC/2020/001
Value Chain Analysis of Castor: A Study in Salem District (Dr. T. Rajendran)
- Total costs incurred on castor cultivation was around Rs. 34,910/- per hectare.
- The net income of farmers was realized Rs. 65,090/- per hectare. Farmers were able to secure a net benefit cost ratio of 1.86.
- The predominant marketing channel one is Producer to Trader to Oil Mill.
- The producer's share in consumer's rupee was Rs. 46/-
- Manufacturing of crude castor oil after meeting the expenses of raw material and other costs value addition worked out to Rs. 2,376/- per quintal
- The high cost of processing per unit of produce i.e., Rs. 4,803/- per quintal
- Cent per cent of the farmers were opined that regulated market yard is far away nearly 30 kms leading to high transportation costs

Suggestions
- Regulated market at Salem not used for the marketing of castor seed, revitalize existing market yards because it is far away from the production point.
- There is a need to promote castor oil extracting mills in Thalaivasal and Macheri blocks because at present Salem is the only place with oil extraction facility.
- Government's initiative is needed to create castor oil industrial park in Salem by encouraging the private partnership to setup other related industries to castor.

B. Action Plan (2023-2025)

S. No.	Centre/Scientists	Project Title	Project Period	Activities	Deliverables/ expected output
Theme:1 Economics of Agricultural Production and Planning					
1.	Coimbatore: Dr. S. Senthilnathan Dr. V. Karthick	Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in Tamil Nadu	2023-24	Collection and compilation of cost data on major crops Collection of Input and output price data for major crops	Data on inputs, output, costs, farm inventory and social dynamics Inputs for implementing

					price policies
2.	Thiruvannamalai Dr. S. Angles	Impact of Mechanization in Sugarcane Production in Cost Reduction and Income Enhancement	2022-2024	Conducted pilot survey for finalization of questionnaire and finalized the questionnaire. Data collection from the sample farmers is under progress	Impact of mechanization in sugarcane in terms of income increase

Theme II: Agricultural Marketing and Price Analysis

1.	Coimbatore Dr. K.N. Selvaraj, Dr. R. Parimalarangan, Dr. K. R. Karunakaran	Performance Evaluation of Primary Producers Societies of Tea in the Nilgiris District	2022-2023	Field survey was conducted using structured questionnaire to collect the data. The criteria for selection of PPSs as performing and non-performing were based on their current functioning. The PPSs which were functioning regularly were taken as performing PPSs and the PPSs which had stopped their operation and are not functioning were taken as non-performing PPSs.	Report preparation and policy brief preparation

Theme III: Natural Resources and Environmental Economics

1.	Madurai Dr. J.S. Amarnath Dr. B. Sivasankari	An Economic Analysis of Vulnerability, Resilience and Adaptation to Climate Change on Livelihood Security and Crop Planning of Dry Land Farms of Madurai District	2020-2023	Analysis for vulnerability, sustainability, resilience, adaptation strategies, livelihood security, farmer's perception on impact of climate change and constraints in adoption of climate resilient technologies	Documentation of famers perception about climate change and their constraints in adapting climate resilient technologies

Theme IV: Impact Evaluation of Development Projects

1.	Coimbatore Dr. S. Padma Rani Dr. A. Vidhyavathi Dr. V. Saravanakumar Dr. V. Karthik	Impact Evaluation Study of Arasur Watershed project in Chengalpattu district Implemented by National Agro Foundation, Chennai.	2022-23	Completed primary data collection from both beneficiaries and non-beneficiaries of the project (Sample Size: Farmers =165; SHG's= 40; Water committee members = 28; Non-beneficiary Farmers= 32) Data Analysis Completed Draft report submitted	Preparation of policy brief and final report

Theme V: Agricultural Finance and Crop Insurance

1.	Coimbatore Dr. A. Vidhyavathi Dr. S. Padma Rani Dr. P. Balaji	Ecosystem for Transition to Cashless Agrarian Economy in Tamil Nadu:	2022-2024	Data collected from three districts namely Coimbatore, Madurai and Ariyalur from highly developed, medium developed and low	Data analysis, report preparation and submission

		Challenges and Implications		developed districts groups respectively. The number of sample respondents covered during the period are ‣ Coimbatore (Farmers-120, Labours-30, Traders- 13, Input dealers-5) ‣ Madurai (Farmers-120, Labours-30, Traders- 30, Input dealers-10) Ariyalur (Farmers-50, Labours- 17, Traders- 20, Input dealers-10)	
Theme VI: Value chain analysis of Niche products					
1.	Coimbatore Dr. M. Prahadeeswaran Dr. R. Parimalarangan	Value Chain analysis of Niche crops	2023-2024	Identification of different marketing channels and marketing efficiency of the selected crops in Tamil Nadu	Documentation of value chain of major crops
Theme VI: Supply chain analysis of Niche products					
1.	Coimbatore Dr. M. Thilagavathi, Dr. C. Indu Rani	Supply Chain Management of Fruits and Vegetables Processing Industry in Tamil Nadu	2023-2024	Identification of different marketing channels and marketing efficiency of the selected processing industry in Tamil Nadu; Analysis of the volume, income and logistics of major processed fruits and vegetables from the selected processing industry in Tamil Nadu; analysis of the Supply Chain management practices followed by the processing industries in Tamil Nadu and identification of the constraint faced by the stakeholders involved in the processing of fruits and vegetables.	Documentation of supply chain of major fruits and vegetables in Tamil Nadu
Theme VIII: Artificial Intelligence and Big Data Analysis					
1.	Trichy: Dr. S. Selvam	A study on comparative performance of price forecasting of major vegetables through machine learning and statistical based models	2022-23	Time series data on Daily, State-wise, market-wise, variety-wise prices of Garlic, Tomato, Potato and Onion and Coconut. It has the daily maximum price, minimum price and modal price were collected compiled for analysis All the commodity, parameter tuning for machine learning models and ARIMA models completed	Assessing the performance eof deep Learning, Gradient Boosting Machine (GBM) and Extremely Randomized Trees (XRT) models over traditional ARIMA models for vegetable price forecasting
2.	Coimbatore Dr. M.	Design and conduct	2023-24	Trainings were given to final year students	Design and conduct

	Prahadeeswaran	courses in artificial intelligence, machine learning and Big Data Analytics			courses in artificial intelligence, machine learning and Big Data Analytics
Theme IX: Documentation of Intellectual Property Rights and Impact Studies					
1.	Coimbatore Dr. M. Anjugam Dr. N. Kiruthika Dr. D. Suresh Kumar Dr. K.R. Ashok	Documentation of Select Agricultural Commodities for GI Registration in Tamil Nadu	2021-24	GI application for Kumbakonam *Vettrilai* was done (Application No.817 dated 13.1.2022 Pollachi Coconut – Permission obtained from the University to file GI on Pollachi Coconut	Getting GI for Kumbakonam *Vettrilai* and Pollachi Coconut

C. Details of research projects

A total of 14 projects were reviewed. Out of which two externally funded projects, and three University Research projects were completed; four university research projects and five external funded projects are ongoing in the department of Agricultural economics.

II. CURRENT STATUS OF RESARCH PROJECTS

Campus	University sub projects		Externally funded projects		Total	
	Completed	Ongoing	Completed	Ongoing	Completed	Ongoing
Coimbatore	1		2	5	3	5
Madurai		2				2
Trichy		1				1
Killikulam	..	..	..	..	..	..
Periyakulam	1	..	..	..	1	
Eachangkottai	..	..	..	..	..	..
Mettupalayam	..	..	..	..	..	..
Vazhavachanur	..	1	..	..	..	.1
Kudumiyanmalai	..	..	..	..	..	..
Yethapur	1.		..	..	1	..
Chettinad	..	..	..	..	..	..
KVK, Ramnad	..	..	..	..	..	..
RRS, Tirur	...	..	..	..	..	..
TOTAL	**3**	**4**	**2**	**5**	**5**	**9**

New Projects Proposed During 2020-21

Campus	University sub projects		Externally funded projects		Total	
	Proposed	Obtained	Proposed	Obtained	Proposed	Obtained
Coimbatore	1	..	13	3	14	3
Madurai		..	4	..	4	..
Trichy	2	..		..	2	..
Killikulam	1	..	1	..	2	..
Periyakulam	..	..	1	..	1	..
Eachangkottai	1		..		1	
Mettupalayam	-	..	2	..	2	..

Vazhavachanur		..	2	..	2	..
Kudumiyanmalai	1.	..	3	..	4	
Yethapur			..			
Chettinad	..	..	..	..	..	..
KVK, Ramnad	..	..	..	..	..	..
RRS, Tirur	..	..	..	..	..	..
Total	6		26	3	32	3

D. Remarks of the ongoing projects

S. No.	Project Number	Project Title	Project Period	Project Leader (PI/Co-PI)	Remarks
		Externally funded Projects			
1.	GOI/CARDS/CBE/AEC/1970/ R001	Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in Tamil Nadu	Continuous Scheme Since 1970	Dr. S. Senthilnathan Dr. V. Karthick	The project may be continued
2.	CARDS-ICSSR/CBE/AEC/2022/R001	Ecosystem for Transition to Cashless Agrarian Economy in Tamil Nadu: Challenges and	March-2022 to February-2024	Dr. A. Vidhyavathi Dr. S. Padma Rani Dr. P. Balaji	The project may be continued
3.	STGS/CARDS/CBE/AEC/2021/R026	Performance Evaluation of Primary Producers Societies of Tea in the Nilgiris District	April 2022 to March 2023	Dr. K.N. Selvaraj Dr. R. Parimalarangan Dr. K. R.	The project may be continued
4.	NAF/CARDS/AEC/CBE/2022/R003	Impact Evaluation Study of Arasur Watershed Project in Chengalpattu District Implemented by National Agro Foundation, Chennai	October 2022-30.09.2023	Dr. S. Padma Rani Dr. A. Vidhyavathi Dr. V. Karthick Dr. V. Saravanakumar	The project may be continued
5.	APEDA / CARDS / CBE / AEC / 2023/ R002	Supply Chain Management of Fruits and Vegetable Processing Industry in Tamil Nadu	January,2023 – January,2024	Dr. M. Thilagavathi, Dr. C. Indu Rani, Prof. (Horticulture)	The project may be continued
6.	**University Research Project**				
1.	IPMC – FMC CARDS/CBE/AEC/2021/ R025	Documentation of Select Agricultural Commodities for GI Registration in Tamil Nadu	Dec- 2021 to Nov-2024	Dr. M. Anjugam Dr. N. Kiruthika Dr. D. Suresh Kumar Dr. K.R. Ashok	The project may be continued
2.	CARDS / MDU/ ECON / SS / 2022/001	A Study on Comparative performance of price forecasting of major vegetables through machine learning and statistical based models	1.04.2022 to 31.03.2023	Dr. S. Selvam	The project may be completed
3	CARDS/VAZ/ SUG/ 2022/001	Impact of Mechanization in Sugarcane production in cost reduction and income enhancement	April 2022 to March 2024	Dr. S. Angles	The project may be continued
4	CARDS/ MDU/ AEC/2020/002	An Economic Analysis of Vulnerability, Resilience and Adaptation to Climate Change on Livelihood Security and Crop Planning of Dry Land Farms of Madurai District	Oct-2020 to Sep-2022	Dr. J.S. Amarnath Dr. B. Sivasankari	The project may be completed

III. AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY

A. Key findings of Completed Projects

a. Externally Funded Projects

DEE- 1/KVK/ DPI/ ICAR- NBAIR/ Training Programme/ ASO/ 2021 dated.29.3.2021
Demonstration and training on bio intensive IPM and entrepreneurship development through bee keeping for the tribal farmers of Dharmapuri district, Tamil Nadu (Dr. M.A. Vennila, Dr. C. Sivakumar, Dr. S. Srividhya, Dr. M. Sangeetha)
Awareness level of tribal farmers on the bio control agents
Majority of the tribal farmers were aware about *Pseudomonas fluorescence* (28%) followed by *Trichoderma viridi* (20%) *and Bacillus subtilis* (16.67%) before attending the awareness programme as these bio inputs were supplied to the farmers on subsidy. A significant awareness was created due to the awareness programme among all the farmers with respect to *Trichoderma viridi and Pseudomonas fluorescence.*
Training and demonstration of Bio control technologies for farmers
Training and demonstration on IPM technologies *viz.*, type of bio inputs, bio inputs usage, method of application, neem-based bio inputs, its usage, use of solar insect light traps, yellow sticky traps, blue sticky traps etc. to the tribal farmers.
To develop entrepreneurship in Honey bee rearing
Among the tribal farmers attended the training about 75.00 per cent of the participants started enterprise on Honey bee rearing and continuing and about 25 per cent of the participants started and did not continuing the enterprise due to poor maintenance of bee hives.
Training Effectiveness on Bio control technologies
Majority (55%) of the beneficiary farmers expressed high level of effectiveness for the training programme while 21.70 per cent of the respondents reported medium level of training. Only 15 per cent of the farmers found low level of effectiveness.
The overall training Effectiveness Index was calculated based on Individual score and it was found to be 64.5 per cent which implies that training conducted was successful and rated as Good. This suggested that this type of training should be conducted for the benefit of farmers periodically.
Policy implications:
➢ The training also revealed that effectiveness was rated low in terms of 'immediate usefulness', relevancy of the course contents' and timeliness of the training.
➢ This suggests that this type of training should be conducted for the benefit of farmers periodically.
The result shows that although training increases knowledge and skills of large no. of farmers, only few of them are ready to star new enterprise or diversify their farming systems. This may be due to high risk involved in initiation of new enterprise. If further financial, technical and marketing support will be provided to tribal farmers definitely try new enterprises or go diversification of existing enterprise.

b. University Research Projects
CARDS/CBE/AEX/2020/004
Socio-economic impact of TNAU Millet varieties and technologies in Dharmapuri District (Dr. R. Premavathi, Dr. M. A. Vennila)
Salient findings:
- ➢ >50% farmers adopted TNAU released varieties viz., Sorghum (K 12), Ragi (CO 15), Samai (CO 4), Varagu (CO 3), Panivaragu (CO 5), and *Kudiraivali* (CO 2).
- ➢ Impact: Majority invested in deepening of wells (87%) and farm development (54%), better education (87%), spent on nutritious food (42%)
- ➢ Constraints: Lack of proper marketing channel (92%), non-availability of quality seeds in time (86%) and lack of knowledge on value addition (74%)

Policy recommendations:
- ➢ Production of quality seeds in millets by SDA & TNAU
- ➢ Government to fix procurement price for millets, construct storage godowns in potential areas
- ➢ KVKs to train farmers on millet value addition, nutrient and fertilizer management and seed treatment practices etc.
- ➢ Establish market linkage through *Pudu Vazhvu Thittam* and *Mahalair Thittam*

CARDS/CSCRI/MDU/AEX/2021/001
Analytical study on Multi-Dimensional Role of Women in vegetable cultivation and Marketing in Coimbatore District (Dr. A. Janaki Rani)

The participation index of women was worked out and ranging from 0.23 to 0.67 which indicates the involvement of women highest in weeding and harvesting and Post-Harvest Handling followed by sowing, planting and transplanting.

Disparity in wages (RBQ value of 83.67), financial dependency of women over husbands (81.63) long working hours in the field (84.35) lack of accessibility to agricultural inputs and advisories (80.95) were the major issues faced by the women.

Policy recommendations:
- ➢ To improve participation of women in vegetable cultivation they may be trained in grading, sorting, packaging and export procedures.
- ➢ Women entrepreneurs may be developed by training them in Protray nursery seedling production.
- ➢ Women FPOs may be formed to expand the Market linkages and value addition in vegetables

CARDS/MDU/AEX/2020/001
A study on underutilized kodo (*Paspalum scrobiculatum*) and barnyard (*Echinochloa esculenta*) small millets cultivation and its post-harvest Processing in Madurai District (Dr. J. Pushpa)
Salient findings:
- ➢ Four indigenous kodomillet varieties *viz.*, *Karuvargu*, *Seeruvaragu*, *Periyavaragu* and *Odumupukkalvaragu* and two indigenous Barnyard millet *viz*, *Nattukudhiravali* and *Sadaikudhiravali* were widely cultivated (66-83%).
- ➢ Improved Barnyard millet varieties (MDU 1 and CO 2) were cultivated by one third and improved Kodo millet varieties (CO 3) were cultivated by one fourth.
- ➢ Millet produces were sold to local merchants/ middlemen.
- ➢ Lack of awareness and knowledge on improved millet varieties.

- Among all the constraints, millet polish machines need to be included (69.6) which ranked first followed by lack of cooperation among members of processing unit (53.3) has got second rank

Policy recommendations:
- Minimum support price, supply though PDS and Govt. procurement centers were the need of the hour to increase the demand and to get better remunerative price.
- Training on secondary processing of millets, Promotional aspects, market intelligence and e-marketing are to be imparted.
- Popularization of improved varieties and technologies through OFT need to be increased in millet growing areas.

CARDS/APK/AEX/2021/001
Analysing the preference of farmers on training programmes in Virudhunagar district (Dr. L. Nirmala)
Preferred Training Technologies
- All the respondents (100%) preferred seed production technologies, mushroom spawn production.
- A vast majority of 92 % of the farmers were interested to study marketing and post-harvest practices of minor millets and 90 % were interested in organic farming practices.
- Majority of 84 % of the respondents preferred Disease management in Cotton, Processing techniques of minor millets, *Kudiraivali* cultivation and value addition, Fruit trees cultivation in Dryland and 81 % had shown interest on pest management in cotton.
- Majority of 68 % were interested in Goat rearing and feed preparation, 63 % on Beekeeping technologies and integrated farming system and 69 % were interested in rearing country chicken and poultry techniques.
- Among the Training components preferred 74 % of the respondents preferred peripatetic training, 35% of the respondents preferred village as venue of training and 37 % preferred training venue as Krishi Vigyan Kendra.
- A vast majority of 64 % of the respondents preferred training should be conducted during summer and 65 % preferred only one-day training.
- A vast majority of 60 % of the respondents preferred the trainer as scientists and 22 % preferred Extension officers.
- Among the different training methods studies a vast majority (86%) preferred demonstration followed by discussion 74%), Field visit (72%) Exhibitions (68%), Lecture method (65%), Lecture + video (54%), Lecture + power point slides (48%).

Policy recommendations:
- Farmers preferences, priorities and strategies to be given emphasis for organizing training programmes to farmers at district level by KVKs and development departments.

CARDS/PKM/AEX/2020/001

A study on adoption of recommended banana production technologies among banana growers in Theni District (Dr. K.P. Vanetha)

Salient findings:
- High level of knowledge observed on: Desuckering (92.50%), Pre-treatment of suckers (86.67%), Fertigation, (91.67%), Propping (84.16%) and Bunch cover (60.00%).
- High level of adoption in practices like Drip Irrigation (92.50%), Fertigation (87.50%), Pre-treatment of suckers (82.50%), Desuckering (78.33%), Intercropping at earlier stages (66.66%).
- Fluctuation in market price (80.83%), High labour wages (79.17%), non-availability of labour during cultivation (70.83%)

Policy recommendations:
- The government should come forward to fix MSP and procure banana directly from the farmers which can avoid contractors who play major role in trading of the produce.
- Fibre production from pseudostem has good value and market potential. Hence, it may be profitable to establish crude rope industries in the district

CARDS/KVK/TVM/AEX/2021/001

Impact of KVK interventions on Watermelon farmers in Villupuram district through TN-IAMWARM project (Dr. S. Sangeetha)

Salient findings:

After implementation of the IAMWARM project the adoption percentage of ICM practices in Watermelon cultivation was increased up to 73.64. Before implementation it was only 37.27 %.

The subsidy given through IAMWARM project for adopting the Precision Farming technologies, training conducted by agricultural scientist, success stories of fellow farmers and market preference for the produce cultivated under Precision Farming were the contributing factors for the increased adoption level.

Constraints
- High investment cost required for the implementation of drip irrigation system
- Non-availability of skilled workers for repairing drip irrigation system
- Lack of knowledge on maintenance of drip irrigation system
- High cost of water-soluble fertilizer, clogging of emitters and poor quality of drip material

Policy recommendations:
- Drip irrigation system has to be made available at low cost to increase the area under drip irrigation. Hence, need primary measures to reduce the fixed cost in drip irrigation by promoting R&D or to redesign low-cost drip irrigation systems to suit the needs of small and marginal farmers.
- Hands on training on drip maintenance to the farmers and development of skilled youth in villages

CARDS/ TKM / AEX/ RIC/2021/001

A study on Farmer's livelihood Analysis due to pandemic COVID-19 in Thiruvallur district (Dr. R. Agila)

Economic consequences due to COVID– 19
- Increased labour cost
- Decreased price of the agricultural & horticultural products
- Increased price of farm inputs

- Could not procure the farm inputs in time.
- Scarcity of farm inputs
- Lack of financial assistance for purchasing critical inputs.

Problems faced by the farmers in executing agricultural operations
- Labour shortage for planting paddy, weeding, fertilizer application, picking of flowers, harvesting of fruits and vegetables
- Engage labour from outside with higher price
- Rotting of harvested perishable fruits and vegetables.

Problems faced by the farmers in marketing of the produce
- Lower price for their produce.
- Difficulties in transport of the produce
- Lack of merchant for procuring the farmers produce
- Hiring charge of vehicle, loading and unloading charges are high
- Difficulty in selling their produces due to closure of the markets.
- Strict intervention of the police for the movement of farmers while selling their produce own.

Policy recommendations:
- Establishment of cold storage facilities with more provision for credit facilities are needed.
- Interest for crop loan and premium amount of crop insurance should be waived for at least two years.
- Local supply chain linking farmers directly with consumer without middlemen.

CARDS / CBE /AEX / 2020/ 006
Performance Evaluation of Mobile '*Uzhavan*' farmer app in information dissemination and services rendered among Farmers (Dr. S. Srivara Buddhi Bhuvaneswari)
Salient findings:
- 90 % got awareness about the existence of Uzhavan App from AO's and AAO's through ATMA training programmes and viewed once or twice in a week for 15 min and market price by everyday.
- Useful to know information on subsidy schemes, fertilizer stock position, seed stock, agriculture machinery for rental and market price helps to take decision on the sale price of their produce.

Services utilized by the farmers:
- 20% of the users used "Farmer officer contact programme" and ''ATMA Training and Demonstration" services.
- Only 10% of the users viewed the services like Crop insurance, Weather advisory, Reservoir levels followed by FPO products.
- Farm guide, Organic products, Agriculture news, Feedback, P&D monitoring / remedial, *Uzhavan* e Market, Department of sericulture, Agri budget, Kalaignar Agriculture Development Programme and Kalnadaimaruthuvar were not accessed by anyone.

Constraints:
- Much time to download different services when selected, often shows "Server Problem" in the dialogue box after long time of downloading
- Benefit registration procedure is highly tedious and requires lot of scanned documents to upload.

Needs to be updated with advanced information (Technical) and changes (non-technical – employee change, products available).

Policy recommendations:
- ➢ Benefit registration procedure to be made simple instead of uploading various documents by giving Kisan Card number alone
- ➢ Farmers to be made aware about the existence and usage of Uzhavan app through all traditional and modern communication methods. After creating awareness, they should be educated to use the services offered in app.
- ➢ Adequate number of custom hiring centers to be established with required quantity and quality machineries, ensure operators or drivers to make the service ''Agricultural Machinery for Rental'' so effective and useful even to the remote users.

A. Action Plan (2023-24)

S. No.	Centre/Scientists	Project Title	Project Period	Activities	Deliverables/ expected output
Theme I: Monitoring, Adoption & Impact Studies					
1.	Coimbatore Dr. P. Balasubramaniam, Dr. S. Manickam, Dr. P.S. Shanmugam, Dr. R. Parimalarangan	Neem based Bio-Pesticides in Crop Cultivation and Assessment of its Impact and Future Potential	1.10.2021-30.09.2023	18 training programmes on neem based biopesticide formulation and application to crops were conducted for the benefit of 450 farmers	Viable model for effective adoption of neem-based bio-pesticides will be evolved
2.	Coimbatore Dr. Ravi Kumar Theodore and Mrs. R. Sasikala	Preparation of Strategic Research and Extension Plan (SREP) for Coimbatore	Feb.2020 – May 2023	examining the problems and issues faced by farmers in different farming systems and developing the Strategic Research and Extension Plan (SREP) for Coimbatore district	Development of Strategic Research and Extension Plan (SREP)
3.	Coimbatore Dr. M. Nirmala Devi	Study on the adopter categories of coconut growers in Coimbatore	November 2020 to May 2023	Assessing the knowledge and adoption of the respondents on recommended coconut production technologies	Knowledge, adoption level of recommended coconut production technologies Adopter categories
4.	Killikulam Dr. T. Dhamodaran, Dr. G. Kumar	Perception and Constraints on Integrated Farming Approaches in Thoothukudi	Nov 2020 - Oct 2022	Ascertaining the different integrated farming methods adopted by the farmers in Thoothukudi district and perception about the advantages towards integrated farming methods	Perception and constraints on Integrated Farming Approaches
5.	Madurai Dr. K. Ramakrishnan	Impact analysis on PRADHAN MANTRI FASAL BIMA YOJANA in Madurai district	July 2022-June 2023	Assessing the awareness about PMFBY And finding the extent of adoption of PMFBY by farmers	Impact of PM-FBY among farmers in Madurai district
6.	Killikulam Dr. R. Rajasekaran	Study the "Social and Economic Impact of Pandemic COVID - 19 on the livelihood of	Jan 2021-Dec 2022	Data collection from 120 farm households to assess the socio-economic issues perceived by various stake holders of farming	Strategies to face similar pandemic disasters by farmers and restore their livelihood

		Farming Community" in Tirunelveli		sector due to Pandemic COVID–19 and to identify the problems faced by the farmers in executing the regular agricultural operations and marketing of their produces.	
7.	Madurai Dr. R. Velusamy	A Study on Pesticide Handling and Health Hazards in Vegetable Cultivation	February 2023 to January 2025	Data collection from forty farmers and twenty input dealers in each district namely Madurai, Dindigul and Theni	Policies to enhance the awareness, knowledge and adoption of the vegetable growers on health hazards and safe handling of pesticides
8.	Coimbatore Dr. P.P. Murugan, Dr. N. Anandaraja	Integrated Pest Management (IPM) Packages in Tomato and Lablab bean	2022-23	Establishment of IPM demonstration unit for Tomato and lablab 200 farmers visited low cost IPM model and 1712 farmers trained on IPM Reduction in pesticides usage (ETL advisory) Toxic free production system outreach through social media and mass media	Reduction in the pesticide usage due to adoption of IPM
	Theme II ICT in Agriculture				
1.	Coimbatore Dr. C. Karthikeyan, Dr. J. VenkataPirabu, Dr. S. Nakkeeran, Dr. B. Vinothkumar, Dr. D. Vijayalakshmi, Dr. V. Saravanakumar, Dr. G.A. Dheebakaran	"M-Velanmai"	2019 – August 2023	Database development work: AI & weather based weekly advisories for paddy AI based App development work:	AI based extension advisory system for paddy farmers of Tamil Nadu
2.	Coimbatore Dr. N. Sriram, Dr. S. Maruthasalam, Dr. R. Baskaran, Dr. K. Natarajan, Dr. K. Bharathikumaran, Dr. K. Sundaraiya, Dr. G. Gayathry	Empowering Farmers through Drone System for Precision Agriculture in Cuddalore	2022- March 2024	Purchased Petrol based Drone system from Tamil Nadu unmanned aerial corporation, Chennai Demonstration on Drone system is being conducted in farmers field.	Training of the farmers on the adoption of drone technology and thereby improve farm income
3.	Coimbatore Dr. P.P. Murugan Dr. N. Anandaraja Dr. P. Jaisridhar	Upgradation of TNAU Agritech Portal for Effective Transfer of Technology	2021-23	Upgradation of the existing Agritech Portal using new software. Creation of responsive template that will help in delivering the contents across all devices viz., Mobile, Tablets, iPad, Laptops, Desktops, etc. Transfer and editing of existing content to new portal	Updated and Upgraded Agritech portal

4	Coimbatore Dr. P.P. Murugan, Dr. N. Anandaraja	Strengthening of Educational Media Centre (EMC) for producing video programmes for youtube channel	2021-23	Video Programmes produced: 60 Video Recordings/ Coverages/ Functions/ Conferences: 122 Video Uploaded in TNAU TV (You Tube Channel): 104	Production of video programmes on agro-technologies & its dissemination through YouTube channel

Theme – III Gender, Livelihood and Tribal Studies

1.	Coimatore Dr. P. Balasubramaniam, Dr. C. Gopalakrishanan, Dr. P. Balaji	Enhancing the livelihoods of Tribal – Women through community/village-based bio-enterprises at Kodaikanal Block, Dindigul	June 2020 – March 2024	Established one model production bio-fungicide centre at four villages of Pannakadu. Trainings and demonstrations conducted - 6	Establishment of bio-fungicides production centre by trained tribal women
2	Thiruvannamalai Dr. R. Arunachalam, Dr. S. Nazreen Hassan, Dr. M.A Vennila, Dr. C. Cinthia Fernandaz, Dr. V. Sendhilvel	Impact of Climate Change on the Ecosystem and the Life of the Tribal Communities	April 2022 - March 2024	Data pertinent to the major climatic factors such as temperature, rainfall, RH, wind behavior, snow fall distribution have been enumerated for the period from 1981 to 2022	Impact of Climate Change on the Ecosystem among tribal communities in Tamil Nadu Policies for adoption of management strategies to mitigate the climate change issues.
3	Kanyakumari Dr. D. Shoba, Dr. S. Nazreen Hassan, Dr. K. Kavitha, Dr. L. Karpagapandi, Dr. A. Selvarani, Dr. S. T. Bini Sundar	Enhancement of livelihood of tribal hamlets in Kanyakumari	Apr. 2021 – Sept. 2023	Focus group discussion and PRA techniques were conducted to identify the needs of tribal community. Establishment of value addition units for pepper and cashew with all machineries was done Skill training on white pepper processing to tribal beneficiaries. Livelihood enhancement to the tune of Rs. 2650/- per member/ month was obtained and is estimated to be Rs. 31800/- per member/year. Drudgery reduction in cashew shelling was expressed by 84% of tribal women.	Establishment of processing and nursery units and entrepreneurship development among tribal women. Pepper value addition can be an additional source of income for tribals.
4	Coimbatore Dr. M. Ramasubramanian and Dr. V. Radhakrishnan	Augmenting the Livelihood of Cauvery Delta Farmers through Demonstration of Paddy cum Fish Culture	Apr. 2022 – March 2024	Established Demo units in Farmers Field Nursery of Karuppukavuni and Mappilai Samba Paddy varieties. Teak trees planted on the outer border of the	Establishment of Paddy cum fish culture model demonstration unit in KVK, Needamangalam and farmers filed in Thiruvarur

			bund. Vegetable seeds were distributed and raised seedlings in pro tray. Murrel fish under Paddy cum Fish culture model.	district to augment the livelihood of delta farmers
Theme- IV Youth, Training and Entrepreneurship				
1.	Mettupalayam Dr. Jansirani, Dr. S. Manickam, Dr. M. Suganthy	Income Generation and Livelihood Security of Marginal and Small Farmers of Theni District through Sustainable Organic Agriculture	2020-22	Trainings (6) - Organic banana cultivation, vegetables, seed production, Vermicompost, Value-addition, organic seed certification Skill demos (6) - Panchagavya, Jeevamrutham, Herbal leaves extract, Seed treatment with biofertilizers, 3G extract, Egg amino acid	Establishment of input preparation units - (panchagavya, jeevamrutham, arappu, buttermilk karaisal, vermicompost) Pest repellent cafeteria Azolla units
2.	Coimbatore Dr. S. R. Padma	Entrepreneurial intention among postgraduate students of TNAU-An Analysis	April 2022 – Mar 2024	Descriptive survey among Final PG, pre-final and final Ph.D. scholars of TNAU	Identification of entrepreneurial intention among PG students
3.	Kaniyakumari Dr. S. Nazreen Hassan	Livelihood assessment of rural youth through Krishi Vigyan Kendra interventions in Kanyakumari	Apr. 2022-Sep. 2023	Identification of training needs of farmers by surveying 120 farmers	Impact of KVK intervention and training needs of rural youth
4	Madurai Dr. Mahandrakumar, Dr. P. Prema	Effectiveness of e-Learning on cognitive and affective domain of students in Agricultural college	Aug. 2022-Mar. 2024	All faculty and UG students of Madurai campus. Online questionnaire	Strategies to enhance the effectiveness of online learning process in agriculture
Theme- V Farmers Organization & Natural Resource Management				
1	Madurai Dr. M. Jegadeesan, Dr. T. Rajendran, Dr. S. R. Padma	Long term Tank Performance and Institutional effect of Tank Management in Tamil Nadu	1.3.2020 - 31.10.2023	200 tanks were surveyed for primary and secondary data. Plotted all the modernized tanks in chain, to know its exact location.	Effect of modernized tanks on socio-economic status of farmers
2	Coimbatore Dr. N. Sriram, Dr. R. Baskaran, Dr. K. Natarajan, Dr. K. Sundaraiya, Dr. K. Bharathikumarm, Dr. S. Maruthasalam, Dr. G. Gayathry	Climate Resilient Integrated Wet Land Farming System (IFS) to Minimize Risk in Farming and to Accelerate the Farmers' Income of Cuddalore	2021-22 to 2022-23	Identified 15 participatory farmers from 3 clusters of Cuddalore. 13 climate resilient IFS model units were established in the farmers' field and 60 farmers were trained. Critical inputs for IFS namely crops, fish, duckling, sheep, poultry, vermicompost with worms and fodder	Impact of IFS on socio-economic status of farmers

3	Coimbatore Dr. M. Shanthasheela	Performance Analysis of Coconut FPOs in Western Tamil Nadu	Jan 2023 to March 2024	Data collection from coconut FPOs in Coimbatore, Erode and Tirupur districts	Strategies to enhance the performance of coconut FPOs in western Zone of Tamil Nadu

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				components were distributed to the farming community.	

Current status of the projects:

A total of thirty-four projects being implemented in the Department of Agricultural Extension and Rural Sociology were reviewed. Out of which, two externally funded project, eight university research projects were completed; twelve university sub-projects and twelve externally funded projects are ongoing in this department.

CURRENT STATUS OF RESEARCH PROJECT

Campus	University sub projects		Externally funded projects		Total	
	Completed	Ongoing	Completed	Ongoing	Completed	Ongoing
Coimbatore	2	6	..	6	2	12
Madurai	2	3	..	..	2	3
Killikulam	..	2	..	..	..	2
Trichy	..	..	..	..	..	..
Kumulur	..	..	..	..	..	..
Kudumiyanmalai	..	..	..	1	..	1
Mettupalayam	..	..	..	..	..	..
Periyakulam	1	..	..	..	1	..
Vazhavachanur				1	..	1
KVK, Dharumapuri	..	..	2	..	2	..
KVK, Vridhachalam	..	..	..	2	..	2
KVK, Kanyakumari	..	1	..	1	..	2
KVK, Trichy	..	..	..	..	..	..
KVK, Tindivanam	1	..	..	..	1	..
KVK, Auppukkottai	1	..	..	..	1	..
KVK, Pongalur	..	..	..	..	..	..
KVK, Needamangalam				1	..	1
RRS, Tirur	1	..	..	..	1	..
TOTAL	**8**	**12**	**2**	**12**	**10**	**24**

NEW PROJECTS PROPOSED DURING 2021-22

Campus	University sub projects		Externally funded projects	
	Proposed	Obtained	Proposed	Obtained
Coimbatore	..	..	10	..
Madurai	1	1	..	..
Trichy	2	..	..	..
Kumulur	..	..	..	..
Kudumiyanmalai	..	..	..	..
Eachangkottai	..	..	..	..
Mettupalayam	..	..	..	..
Periyakulam	..	..	..	..
Vazhavachanur	1	..	..	..
KVK, Aruppukkottai	..	..	..	..
KVK, Tirupur	..	..	..	..

KVK, Virudhunagar	..	..	..	..
KVK, Nilgris	1	..		
KVK, Kaniyakumari	..	..	..	..
KVK, Needamangalam	..	..	..	..
Total	**5**	**1**	**10**	**0**

D. Remarks on ongoing Research Projects

S. No.	Project Number & Title	Project Period	Project Leader (PI/Co-PI)	Remarks
a.	**Externally funded Projects**			
1.	SPC/CARDS/CBE/AEX/2020/R005 Enhancing the Livelihood Status of Tribal Women through Community /Village Based Bio-Enterprises –Kodaikanal Block, Dindigul District	June 20 to Sept 2023	PI: Dr. P. Balasubramaniam Co-PIs: Dr. C. Gopalkrishanan Dr. P. Balaji	The project may be continued
2.	CDIL/CARDS/CBE/AERS/2021/R005 Neem Based Bio-Pesticides in Crop Cultivation and Assessment of Its Impact and Future Potential	1.10.2021to 30.09.2023	PI: Dr. P. Balasubramaniam Co-PIs: Dr. S. Manickam Dr. P.S. Shanmugam Dr. R. Parimalrangan	The project may be continued
3.	Proc. No. DR / P2 /ASO/TN IAMP /WTC/2020 (F36H) "M-Velanmai"	2019-2023	PI: Dr. C. Karthikeyan Co-PIs: Dr. J. Venkata Pirabu Dr. S. Nakkeeran Dr. B. Vinothkumar Dr. D. Vijayalakshmi Dr. K.N. Selvaraj Dr. V. Saravanakumar Dr. P. MuraliArthanari Dr. GA. Dheebakaran Mr. M. Parthiban	The project may be continued
4.	DBT/DPBCPMB/CBE/2022/R002 Adaptive Rice Cultivation for a Changing Climate (Ad-RICCE)	2022-2027	Principal Investigator: Dr. M. Raveendran (Director of Research) Dr. A. Velayutham (Dean) Dr. S. Pazhanivelan (Director, WTC) Co- Investigators: Dr. C. Karthikeyan, (Agrl. Extn) Dr. A. Senthil (CRP), Dr. S. S. Sivakumar (FM&P), Dr. V. Saravanakumar (Eco), Dr. C. Babu (PB&G), Dr. M. Sudha (Biotech), Dr. N. Balakrishnan (Ento), Dr. N. Sriram (Agrl. Extn), Dr. P. Jeyaprakash (PB&G), Dr. M. Raju (Agro), Dr. S. Elamathi (Agro), Dr. V. Radhakrishnan	The project may be continued

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S. No.	Project Number and Title	Project Period	Project Leader	Remarks
			(Ento), Dr. M. Dhandapani (PB&G) & Dr. R. Raghu (Micro)	
5.	SADP/DCM/CBE/SOA/2021/001: Income generation and livelihood security of marginal and small farmers (with special emphasis on youth) of Theni District through Sustainable Organic Agriculture	2020-December 2023	PI: Dr. R. Jansirani Co-PIs: Dr. S. Manickam Dr. M. Suganthy	The project may be continued
6.	JSPS/ACRI/KDM/DSS/2020/R002 Long Term Tank Performance and Institutional Effect of Irrigation Tank Management in Tamil Nadu	1.3.2020 to 30.04.2023	PI: Dr. M. Jegadeesan Co-PIs: Dr. T. Rajendran Dr. S.R. Padma	The project may be completed
7.	DoEE/ICAR/KVK-VRI/NABARD FSPF Project (Drone)/2022 Empowering Farmers through Drone System for Precision Agriculture in Cuddalore District	2021-22 to 2022-23	PI: Dr. N. Sriram Co-PIs: Dr. S. Maruthasalam Dr. R. Baskaran Dr. K. Natarajan Dr. K. Bharathikumar Dr. K. Sundaraiya Dr. G. Gayathry	The project may be continued
8.	DoEE/KVK-VRI/NABARD/2021/22 Climate Resilient Integrated Wet Land Farming System (IFS) to Minimize Risk in Farming and to Accelerate the Farmers' Income of Cuddalore District	2021-22 to 2022-23	PI: Dr. N. Sriram Co-PIs: Dr. S. Maruthasalam Dr. R. Baskaran Dr. K. Natarajan Dr. K. Bharathikumar Dr. K. Sundaraiya Dr. G. Gayathry	The project may be continued
9.	ICSSR/VVNR/SOC/2022/R001 Impact of Climate Change on the Ecosystem and the Life of the Tribal Communities	April 2022 - March 2024	PI: Dr. R. Arunachalam Co-PIs: Dr. S.Nazreen Hassan Dr.M.A. Vennila Dr.C.CinthiaFernandaz Dr.V.Sendhilvel	The project may be continued
10.	DEE/ KKM20AGR007 Enhancement of livelihood of tribal hamlets in Kanyakumari district	2021-2024	PI: Dr. D. Shoba, Co-PIs: Dr. S. Nazreen Hassan Dr. K. Kavitha Dr. L. Karpagapandi Dr. A. Selvarani Dr. S. T. Bini Sundar	The project may be continued
11.	DoEE/TNAU-KVK/Scheme/FC/NABARD/22-23/02 Augmenting the Livelihood of Cauvery Delta Farmers through Demonstration of Paddy cum Fish Culture	April 2022 to March 2024	PI: Dr. M. Ramasubramanian Co-PI: Dr. V. Radhakrishnan	The project may be continued
12.	WVC/CPPS/CBE/2022/R001 Integrated Pest Management (IPM) practices for Tomato and Lablab Bean	May 2022 to December 2022	PI: Dr. P.P. Murugan Co-PI: Dr. N. Anandaraja	The project may be completed

S. No.	Project Number and Title	Project Period	Project Leader	Remarks
b.	**University Research Project (Ongoing)**			
1.	CARDS / CBE / AEX / 2020 / 006 Preparation of Strategic Research and Extension Plan (SREP) for Coimbatore District	Feb. 2020 to May 2023	Dr. Ravi Kumar Theodore Tmt. R. Sasikala	The project may be completed

2.	CARDS/CBE/ AEX/2020/007 Study on the adopter Categories of Coconut growers in Coimbatore District	December 2020- May 2023	Dr. M. Nirmala Devi	The project may be completed
3.	CARDS/KKM/AEX/2021/001 Farmers Perception and Constraints on Integrated Farming Approaches in Thoothukudi district.	November 2020 – October 2022	Dr. T. Dhamodaran Dr. G. Kumar	The project may be extended
4.	CARDS/KKM/ARM/2021/002 Study on the Social and Economic Impact of Pandemic COVID-19 on the livelihood of farming in Tirunelveli District	January 2021 – December 2022	Dr. R. Rajasekaran	The project may be extended
5.	CARDS/ KVK, KANY/ SS/ 2022 /001 Livelihood assessment of rural youth through Krishi Vigyan Kendra interventions in Kanyakumari district	2022 -2023	Dr. S. Nazreen Hasan	The project may be completed
6.	CARDS/CBE/AERS/NON/2022/001 Entrepreneurial intention among postgraduate students of TNAU-An Analysis	April 2022 – March 2024	Dr. S. R. Padma	The project may be continued
7.	CARDS/ MDU/AE&RS/ NON / 2022 /001 Effectiveness of e-Learning on cognitive and affective domain of students in Agricultural College	August 2022 to March 2024	Dr. Mahandrakumar Dr. P. Prema	The project may be continued
8.	CARDS/ MDU/ EXTN/ SOC/ 2022/001 Impact analysis on PRADHAN MANTRI FASAL BIMA YOJANA in Madurai district	01.07.2022 to 30.06.2023	Dr. K. Ramakrishnan	The project may be continued
9.	CARDS / CBE / ABD /SS / 2022 /001 Performance Analysis of Coconut FPOs in Western Tamil Nadu	Jan 2023 to March 2024	Dr. M. Shanthasheela	The project may be continued
10.	CARDS/MDU/AE&RS/HOR/2023/001 A Study on Pesticide handling and Health hazards in Vegetable Cultivation	February 2023 to January 2025	Dr. R. Velusamy	The project may be continued
11.	TNAU/ERDF/DoEE/TD/2022/010 Strengthening of Educational Media Centre (EMC) for producing Video programmes for YouTube Channel	October 2021 to March 2023	PI: Dr. P.P. Murugan Co-PI: Dr. N. Anandaraja	The project may be continued
12.	TNAU/ERDF/DoEE/TD/2022/011 Up gradation of TNAU Agritech Portal for Effective Transfer of Technology	October 2021 to March 2023	PI: Dr. P.P. Murugan Co-PIs: Dr. N. Anandaraja Dr. Jai Sridhar	The project may be continued

IV. AGRICULTURAL AND RURAL MANAGEMENT

A. Key Findings of the Completed Projects

a. Externally Funded Projects

CARDS/KKM/ARM/2020/001
Unlocking the Potential of Internet of Things (IoT) − A Case Study on Agritech Startup Model (Dr. C. Muralidharan)

- Revenue generation business models: Pay-per-usage (70%), Subscription Model (13.3%), Platform based model (6.7%), Monetize your IoT Data and offer a Service (3.3%), others (outcome-based model, click and mortar model, Asset sharing model and Service based model (6.7%).

- IOT applications in Agriculture are implemented in entire supply chain (i.e) Pre harvest (83.33 %) and post-harvest including marketing (16.67%)

- Almost all startups expressed that Investments were generated through Venture capital, angel investment, pitching competitions, own funding and bank finance.

- Market linkages through Business to Government (B to G), Business to Business (B to B) and few cases in Business to Customer (B to C)

- It was found that IOT enabled agriculture enhanced 30 percent of their crop yield per hectare and ensured clean environment and energy. The above results are in support of M/s Fuselage Innovations Pvt. Ltd., Cochin and reported that 30 percent yield was increased in their farms through IoT enabled farm practices. However, in case of M/s Farmagain, it was reported that above smart system could boost the yield up to 50 percent.

- All respondents informed that technology and equipment to establish IOT farms are imported and were expensive

- Major basic technology solutions available in India have come from China but their measurement accuracy on pH & EC are way off

General
- All IoT based Agritech start-ups were educated and studied in premier academic institutions

Policy implications
- Respondents revealed that infrastructural facilities like technological lab with optical, thermal and multispectral cameras, sensors equipped with necessary software, robotics labs specializing in self routing abilities, picking, transporting and storing abilities may be created for the benefit of IOT startups
- Import duty on technological equipment and sensors needs to be reduced

CARDS/CBE/ARM/2020/002
An Evaluation of MUDRA Scheme in Coimbatore District (Dr. N. Deepa)
- 65 % of the respondents are between the age group of 31-50 years
- More than 60 % of the respondents are from rural area
- Major source of information is through internet and newspaper
- Majority (60 %) of the respondents got loan from public sector bank
- Respondents have wide nature of business-like aquarium, tea shop, Xerox centre, agarbathi, tailoring unit, salon *etc.*

- Majority (70 %) got loan for start ups
- Nearly 78 % of the respondents got Sishu loan, which means less than Rs.50,000
- Major problems faced by the respondents are applied loan amount has not been fully received (45%), Amount sanctioned is not enough to start the business (32.5%), Delay in disbursement of loan (22.5%) *etc.*

Problems faced by the financial institutions in disbursing MUDRA Loan includes no collateral so non-repayment of loans, utilization of loan amount for other personal uses, if loans are not sanctioned the candidates lodge a complaint against FIs, Accumulation of NAP in future

Recommendations
- Applications should be processed through centralized system and loan disbursement may be decentralized
- Should strengthen the rules for delayed payment, because many respondents thought that the loan amount may be waived off in future

CARDS/MTP/ARM/2021/001
Performance analysis of Packing Case Industries in Coimbatore District, Tamil Nadu (Dr. S. Selvanayaki)
Majority of the firms procured raw material on 60 days credit (66.67%). Few micro firms (25%) were found to procure the raw material on cash basis as they were either new to the business or have started procuring from the particular supplier during the recent time
➢ Term loan was obtained by 50 % of the firms for investment in machineries used for making packing cases.
➢ The term loan amount ranged from Rs 5 to 10 lakhs depending up on the type and number of machineries.
➢ All the sample firms had working capital loan (CC facility) and the limit ranged from 20 lakhs to one crore depending on the size of business.

Subsidy
➢ Subsidy is available for installation of wood seasoning plant. The average cost of wood seasoning plant is Rs 15 lakhs.
➢ Subsidy was available through UYEGP Unemployed Youth Employment Generation Programme (UYEGP) and New Entrepreneur cum Enterprise Development *Scheme* (NEEDS Scheme (25 to 35 percent of the project cost)

Constraints
1. Non availability of raw material throughout the year especially from June to September
2. Scarcity for skilled manpower
3. Lack of Scientific Storage Structures for the planks
4. Lack of adequate wood seasoning plants

Policy Implications
1. Steps could be taken to promote formation of an industrial cluster exclusively for packing case industries to enable creation of common infrastructural facilities and attract funding
2. Since there exists a huge demand for pine wood in packing case industry measures may be taken to facilitate import from competitive sources.

Common wood seasoning plants and scientific storage structures with huge capacities could be installed under PPP mode

CARDS/CBE/ARM/2021/001

Analysis of Export Trend and Performance of Non-Basmati Rice from Tamil Nadu (Dr. R. Balaji & Dr. S.D. Sivakumar)

Salient Findings

Factors influencing the export of non-basmati rice from Tamil Nadu

Product information - 72 % of exporters felt the need for Government facilitation for product information & sourcing.

Market information - 93% exporters are relying on online portals & associations website for market information.

Export Facilitation - 91 % of exporters requested more support for facilitation like logistics, certification etc., from the Government.

Financial information - 82 % of exporters requested for more easier ways to access the financial information

Suitable non-basmati rice export varieties

- ➢ Varieties like IR 64, IR 8, Ponni rice, Idly/Kranti rice, Jeera samba rice, Broken rice, Matta rice, & Sona Masoori.
- ➢ West African country Benin is one of the major importers of non-basmati rice from India. Other destinations are Singapore, Bangladesh, Nepal, Malaysia, China, Cote D' Ivoire, Togo, Benin, Vietnam, Djibouti, Madagascar, Cameroon, Senegal, Guinea and United Arab Emirates.

Policy recommendations

- ✓ Ensure representations from our Tamil Nadu state as member of Rice Export Promotion Forum (REPF) for taking our native rice varieties to exports.
- ✓ Conduct of exhibitions & field days of native & traditional non-basmati rice varieties and TNAU varieties to be popularised among exporters in the export meets and Expos.

Provision of product and market information to the exporters by having regular interaction with SAUs and state export facilitation centres

CARDS/MDU/ARM/2021/001

A Study on Increasing Production of Moringa Value Added Products from Farmers and Entrepreneurs through Value Chain Approach in Southern Districts of Tamil Nadu (Dr. T. SAMSAI)

- • Two major types of moringa are cultivated in the study area namely **Perennial Moringa** (Karumbu variety, *Valayapatti Murungai* and *Alagarsami Murungai*) and **Annual Moringa** (PKM 1)
- • The major constraints faced by the producers were price fluctuations followed by non-availability of labours, high wage rate and lack of market information

Marketing

- • More than 50 traders are actively participated in trading of moringa in Ottanchatram market
- • Distributed to Kerala, Karnataka, Andhra Pradesh, Gujarat and Maharashtra
- • On an average more than 100 tonnes of moringa distributed to different location in peak season and more than 30 tonnes of moringa distributed to different location in lean season
- • Commission agents received 7.5 - 8 % commission from farmers for trading of moringa.
- • Price spread for Channel I – The farmers share in consumer rupee was worked out to 65.32 % and the price spread was 34.68 %.

- Price spread for Channel II – The farmers share in consumer rupee was worked out to 71.24 % and the price spread was 28.76 %.

B. Action Plan (2022-2025)

S. No.	Centre/Scientists	Project Title	Project Period	Activities	Deliverables/ expected output
Theme 1 Management of Agribusiness and Entrepreneurship					
1.	Coimbatore Dr. S. Hemalatha Dr. K. Mahendran Dr. S. Moghana Lavanya Dr. R. Balaji Dr. D. Murugananthi Dr. S. Anandhi	Assessment of Demand and Supply Pattern of Industry Human Capital in Agribusiness Sectors	Sep 2020 – Sep 2023	Formulation of causal loop diagram for human capital behaviour in the seed sector Formulation of stock-flow diagram for assessing the demand for human capital	Sectorial analysis for the three sectors will be done using PESTLE and 7 S framework to identify the factors influencing the demand for industry human capital. A common organizational structure with the attributes (Knowledge, skill and attitude) required for each sector will be identified.
Theme 2 Institutions for Agribusiness Development					
1.	Coimbatore Dr. N. Venkatesa Palanichamy Dr. D. Suresh Kumar Dr. C. Karthikeyan Dr. A. Rohini Dr. M. Chandrakumar Dr. D. Murugananthi Dr. P. Balaji Dr. K.R. Karunakaran	Preparation of Study on Groups (Part II) and State Level Up Gradation Plan (Part – III) - SLUP	September 2021 – Dec 2023	Conducting baseline assessment studies to assess the existing situation w.r.t assessment of Food Processing Policies in the State, assessment of ongoing and proposed State govt. programmes in Food Processing Industries and allied sectors, assessment of existing regulatory frameworks for Food Processing Industry and Stakeholder mapping.	State level upgradation plan for formalizing the micro food processing industries

Current status of the projects:

A total of seven projects being implemented in the Department of Agricultural Extension and Rural Sociology were reviewed. Out of which, five university research projects were completed; and two externally funded projects are ongoing in this department.

CURRENT STATUS OF RESEARCH PROJECT

Departments	University sub projects		Externally funded projects		Total	
	Completed	Ongoing	Completed	Ongoing	Completed	Ongoing
Coimbatore	3	..	..	2	3	2
Madurai	1	..	..	..	1	..
Kudimiyanmalai	..	..	..	..	..	..
Mettupalayam	1	..	..	..	1	..
Vazhavachanur	..	..	..	..	..	..
TOTAL	5	..	..	2	5	2

NEW PROJECTS PROPOSED

Campus	University sub projects		Externally funded projects		Consultancy Projects		Total	
	Proposed	Obtained	Proposed	Obtained	Proposed	Obtained	Proposed	Obtained
Coimbatore	4	..	11	1	2	1	14	2
Madurai	..	..	..	..	..	..	..	..
Kudimiyanmalai	..	..	..	..	..	..	..	..
Mettupalayam	..	..	1	..	..	..	1	..
Vazhavachanur	1		1		..	..	2	
TOTAL	5		13	1	2	1	20	2

D. Remarks on ongoing Research Projects

S. No.	Project Number and Title	Project Period	Project Leader (PI/Co-PI)	Remarks
a. Externally funded Projects				
1.	DST/CARDS/CBE/ARM/2020/R003 Assessment of Demand and Supply of Industry Human Capital in Agribusiness Sectors	Sep 2020 – Sep 2023	Dr. S. Hemalatha Dr. K. Mahendran Dr. S. Moghana Lavanya Dr. R. Balaji Dr. D. Murugananthi Dr. S. Anandhi	The project may be continued
2.	GoTN / CARDS / CBE / ARM /2021 / R004 Preparation of Study on Groups (Part II) and State Level Up Gradation Plan (Part – III) - SLUP	September 2021 – Dec 2023	Dr. N. Venkatesa Palanichamy, Dr. D. Suresh Kumar, Dr. C. Karthikeyan, Dr. A. Rohini, Dr. M. Chandrakumar, Dr. D. Murugananthi, Dr. P. Balaji, Dr. K.R. Karunakaran	The project may be continued

V. REMARKS

a. General recommendations

- All the Social scientists may get involved themselves in multi-disciplinary research projects
- Research on FPOs may be carried out and strategies may be identified for improving the performance of FPOs
- The outcome of Research projects may be published /documented in the form of policy brief, policy report and policy advisories

- Efforts may be taken to display price/market information of commodities in all Research Stations/KVKs
- Scientists may be encouraged to publish their research findings in the peer reviewed journals having NAAS rating more than 7
- Efforts may be made to obtain more externally sponsored schemes

b. Agricultural Economics

- The accuracy of predicted market information provided by DEMIC over actual may be analysed
- Price advisories of DEMIC may be communicated through *Uzhavan* apps, KVKs, Stations and colleges
- Adoption of e-NAM and strategies to improve the e-NAM adoption may be studied
- Value chain analysis of Niche crops may be carried out
- Efforts may be taken to map the Agro-based industries present in all Districts of Tamil Nadu and documented
- The impact of TNAU released varieties/Technologies may be studied and top 10 varieties/technologies/implements may be identified and documented.
- MSP of major crops may be studied for revision through CCPC

c. Agricultural Extension and Rural Sociology

- Research projects may be proposed based on the location specific problems and recommendations
- Technology dissemination through KVKs may be encouraged and performance /impact of KVKs may be documented

d. Agricultural and Rural Management

- Supply chain management of Niche products may be carried out
- Location specific agribusiness models may be developed and popularized

VI. List of Participants

S. No.	Name & Designation	Place
	Department of Agricultural Economics	
1.	Dr. D Suresh Kumar, Director, CARDS	CARDS, TNAU, Coimbatore
2.	Dr. S. Senthilnathan, Prof. & Head,	Dept. of Agrl. Economics, TNAU, Coimbatore
3.	Dr. M. Anjugam, Prof. & Head,	Dept. of Agrl. Economics, AC&RI, Madurai
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5.	Dr. R. Senthilkumar, Prof. & Head	Dept. of Agrl. Economics, ADAC&RI, Trichy
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8.	Dr. K.R. Karunakaran, Prof. & Head	Dept. of Agrl. Economics, AC&RI, Kudumiyanmalai
9.	Dr. S. Varadha Raj, Prof. & Head	Dept. of Social Sci., FC&RI, Mettupalayam
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22.	Dr. R. Parimalarangan, Asst. Prof. (Agrl. Econ.)	O/o. Director of Research, TNAU, Coimbatore
23.	Dr. N. Kiruthika, Asst. Prof. (Agrl. Econ.)	Dept. of Agrl. Economics, TNAU, Coimbatore
24.	Dr. V. Karthick, Asst. Prof. (Agrl. Econ.)	Dept. of Agrl. Economics, TNAU, Coimbatore
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28.	Dr. A. Sundar, Asst. Prof. (Agrl. Econ.)	KVK, Ramnad
	Department of Agricultural Extension and Rural Sociology	
29.	Dr. P.P. Murugan, DEE	TNAU, Coimbatore
30.	Dr. P. Balasubramanian, Director, ODL	TNAU, Coimbatore
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51.	Dr. R. Rajasekaran. Prof. (Agrl. Extension)	Dept. of Agrl. Ext., AC&RI, Eachangkottai
52.	Dr. K. Mahendra Kumar, Prof. (Agrl, Extn.)	Dept. of Agrl. Ext., AC&RI, Kudumiyanmalai
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68.	Dr. G. Anandhan, Asst. Prof. (Agrl. Extn.)	KVK, Sirugamani
69.	Dr. J. Thilagam, Asst. Prof. (Agrl. Extn.)	KVK, Pongalur, Tiruppur
70.	Dr. D. Periyar Ramasamy, Asst. Prof. (Agrl. Extn.)	KVK, Needamangalam
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72.	Dr. S.D. Sivakumar, TPO	TPO to the Vice Chancellor
73.	Dr. K. Uma, Professor & Head (ARM)	Dept. of ARM, Coimbatore

74.	Dr. P. Balaji, Professor & Head	Dept. of Agrl. Economics, AC&RI, Vazhavachanur
75.	Dr. K. Mahendran, Professor (ARM)	Dept. of ARM, Coimbatore
76.	Dr. A. Rohini, Professor (ARM)	Dept. of ARM, Coimbatore
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84.	Dr. N Deepa, Associate Professor (ARM)	Dept. of ARM, Coimbatore
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86.	Dr. M. Malarkodi, Assoc. Professor (ARM)	ABD, Coimbatore
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