

TAMIL NADU AGRICULTURAL UNIVERSITY



PROCEEDINGS OF THE 10TH SOCIAL SCIENCES SCIENTISTS' MEET

30th August, 2022

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

2022

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PROCEEDINGS

10th SOCIAL SCIENCES SCIENTISTS' MEET 2022 (30th August, 2022)

The 10th Social Sciences Scientists' Meet 2022 was held during 30th August, 2022 at TNAU, Coimbatore through hybrid mode. Director of Research, Director CARDS, Director of Extension Education, Director, ODL, Dean (Agri) and all other University Officers, Heads and Scientists of the Departments of Social Sciences of TNAU attended the meeting. Social Scientists from other campuses, KVKs and research stations have participated through online mode.

Dr. M. Raveendran, Director of Research, welcomed the gathering and highlighted the significance of Social Science in Agricultural Research. He also mentioned that the ratio of number of Scientists *versus* no. of projects is very less and suggested to propose more no. of research projects. The Director of Research has reviewed the progress of research and offered critical comments and suggestions.

Dr. D. Suresh Kumar, Director, CARDS, presented the overview of Social sciences research.

Dr. S. Senthilnathan, Professor and Head, Department of Agricultural Economics, **Dr. C. Karthikeyan**, Professor and Head, Department of Agricultural Extension and Rural Sociology and **Dr. K. Uma**, Professor and Head, Department of Agricultural and Rural Management have presented the action taken report of the 9th SSSM, research highlights from the completed projects, progress of work on the ongoing projects and action plan for 2022-23 of respective departments.

Key findings and progress of 74 nos. of research projects (25 completed projects and 49 ongoing research projects) have been presented during the meet.

Formal vote of thanks was proposed by **Dr. S. Padmarani**, Research Coordinator of the Directorate of CARDS.

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)

- The study was conducted in Tamil Nadu, Kerala, Telangana and Andhra Pradesh and the selected districts are 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. Data was collected from producer, consumer, milk vendor, sweet makers, commercial dairy farms, Industry samples in Tamil Nadu, Kerala, Telangana and Andhra Pradesh were collected.
- Indigenous Cow maintained by the farmers was Kangayam and the Cross breeds 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 upto 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
- Constraints observed among the milk producers are inadequate availability of green fodder and high cost of feed.
- Price spread was Rs. 20 per lt (Consumer price Rs. 46 and price received by the producer is Rs. 26 per lt)

Kerala

- 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 toned was Milk: Rs. 44 -46/lit and price of Desi Ghee was upto 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 and it ranged between 67 to 95 per cent.

B. Action Plan (2022-2025)

Project 1: Developing and Disseminating Market Advisories for TN - IAMP Basin crops				
Name of the Scientists and Centre	2022-23	2023-24	2024-25	Deliverables/ expected output

Coimbatore Dr.K.M.Shivakumar Dr.S.Selvam Dr.A.Rohini Dr.M.Prahadeeswaran Dr.D.Murugananthi Dr.R.Parimalarangan	ARMA, ARIMA, ARCH, GARCH, ANN models for generating pre sowing and pre harvest market advisories.	ARMA, ARIMA, ARCH, GARCH, ANN models for generating pre sowing and pre harvest market advisories.	...	Provide price forecasts and market intelligence for select six commodity to basin farmers
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C. Details of research projects

A total of 2 numbers of externally funded projects were reviewed. Out of which, one project was completed and one project is ongoing.

Current Status of Research Projects

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

D. Remarks of the ongoing projects

S. No	Project No.	Project Title	Project Period	Project Leader (PI/Co-PI)	Remarks
a.	Externally Funded Projects				
1	DPC 241501120 PF 0934	Developing and Disseminating Market Advisories for TN - IAMP Basin crops	2017-24	Dr.K.M.Shivakumar Dr.S.Selvam Dr.A.Rohini Dr.M.Prahadeeswaran Dr.D.Murugananthi Dr.R.Parimalarangan	Project may be continued

II. DEPARTMENT OF AGRICULTURAL ECONOMICS

A. Key findings of completed projects

a. Externally Funded projects

CIL / CARDS / CBE / AEC / 2020 / R023

An Inquiry into Rural Households Participation in Neem Seed Collection and Market Arrivals in the Light of Covid-19 Disaster (Dr.D.Suresh Kumar, Dr.A.Vidhyavathi)

- More than ninety per cent of the respondents involved in neem seed collection were female and more than forty per cent of the people involved in neem seed collection are illiterates.
- The participation of households in neem seed collection was not much affected by the incidence of COVID'19. No significant difference was observed across regions interms of the number of days engaged in neem seed collection, average quantity collected, price and income earned among the respondents of north and south zone.
- During 2020 neem season, 40 percent of income reduced in Puliampatti block compared to 2019 neem season. The main reason quoted by the respondents and traders was poor neem season in Puliayampatti area. The South zone was not suffered due to pandemic. The quantity collected per household was increased more than ten percent during 2020 compared to 2019.
- Approximately 13000 to 16000 tonnes of neem seed domestically collected is arrived in the markets annually in Tamil Nadu alone. Annur market alone trades around 1000to 1500 tonnes per year. Compared to 2019, more than forty percent seed collection per household was reduced during 2020.
- The participation of respondents in neem seed collection was not affected due to COVID'19. Market arrivals in North zone especially Annur area was severely affected during 2020 due to poor neem season. Neem seed collection was done regularly every season even during pandemic. The landless agricultural labourers and rural labourers depend on neem seed collection for their livelihood. Developing neem plantations in Common lands and fallow lands would help improve the livelihood status of rural people in Tamil Nadu. Capacity building programmes may be conducted to neem seed collectors to create awareness on seed quality, processing, 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)

Common marketing chain for copra is Producer - Farm gate Sales / Village traders - Wholesalers - Retailers - Consumers

Peak price period: January, February, March, August, September and October.

Major markets: Vellakoil, Aanaimalai, Palladam and Avalpoonthurai of which Vellakoil is the largest regulated market for copra in South India.

ARCH and GARCH estimates - price of copra in Hasan (1.15) and Kasargod (1.10) and Erode (1.04) markets are highly volatile.

Johansen's multiple co integration tests - domestic copra markets of Hasan, Kasargod and Erode had long run equilibrium relationship.

Tamil Nadu market price influences the Kerala and Karnataka market price whereas Kerala market influences the Karnataka price.

In TN, Vellakoil regulated market - major copra market linked in e-NAM. The total participation of farmers and traders from 2017 to 2020 in Vellakoil markets were 9767 and 124 members respectively.

Total arrivals of copra for the respective period were 50937 tonnes and value transacted through e-NAM was 39.26 crores

Groundnut:

Common marketing chain for groundnut is Producer - Merchant - Commission Agent - Wholesaler - Oil Miller - Retailer - Consumer.

Higher prices for the commodity in Tamil Nadu were observed during the months of June to October reaching the peak in the month of August.

ARCH and GARCH estimates - high volatility (0.85) in the price of groundnut in Thindivanam market of Tamil Nadu.

Price of groundnut in the major markets of Tamil Nadu, Karnataka, Gujarat, and Andhra Pradesh - Existence of bi-directional causality assured between Tamil Nadu and Karnataka, unidirectional causality is present in Gujarat to Andhra Pradesh, Andhra Pradesh to Karnataka, Gujarat to Tamil Nadu, Gujarat to Karnataka

ICSSR/ACRI/ECK/DSS/ECO/2020/R002

Frontier Agricultural Technologies for Climate Change Adaptation and Mitigation: Policy Options for Innovations and Technology Diffusion (Dr.V.Saravanakumar, Dr.R.Balasubramanian, Dr. K.Boomiraj)

- The average size of the farms was 2.77, 3.01 and 2.39 ha under conventional, SRI and DSR methods, respectively.
- Marginal and small farmers were more interested in adoption of new technologies compared to medium and large farmers in the study area.
- Majority of the farmers cultivate CR1009 and BPT 5204 rice variety in the study area. Rice fallow pulse or cotton was also cultivated in the study area to some extent, based on the prevailing market price and water availability.
- Conventional and SRI farmers depend on bore well and canal water as a main source of irrigation whereas, DSR farmers cultivate rice as a rain fed crop.
- Average level of NPK consumption was high in conventional followed by SRI and DSR. Nitrogen (includes N from both urea and DAP) consumption was high in conventional (144.97 kg/ha) followed by SRI (129.47/ha) and DSR (125.33 kg/ha). Usage of phosphorus was ranged from 45 to 50 kg/ha in all the three methods. In the case of potassium, conventional farms consumed high quantity (60.46 kg/ha) as compared to SRI (51.27 kg/ha) and DSR farms

(50.96 kg/ha). The average quantity of farmyard manure used by conventional farmers, SRI farmers and DSR farmers were 4320 kg, 4108 kg and 5710 kg respectively.

- The usage of electricity was lesser in SRI method of rice cultivation (828 kWh/ha) than conventional method (1846 kWh/ha) due to practicing of mat nursery and Alternate Wetting and Drying (AWD) practices, whereas it was high under conventional method due to flooded irrigation

Economic analysis of different methods of rice production

- For analyzing the profitability of rice, the standard cost and returns method were used. The average cost of rice cultivation was higher in conventional method (₹76209.09) followed by SRI (₹73587.28) and DSR (₹66537.12).
- An average yield obtained from the conventional, SRI and DSR methods was 5.34, 6.06 and 4.97 tons per hectare respectively, The cost of production of rice per quintal was ₹1426.80, ₹1213.74 and ₹1337.96 under conventional, SRI and DSR methods.
- The average price received for paddy was ₹1930 per quintal (The Minimum Support Price announced by Government of India was ₹1960 per quintal (2021-22)).
- The gross return realized from conventional, SRI and DSR methods of rice cultivation was ₹117512.58, ₹130474.24 and ₹110822.24, respectively. Net return arrived from gross returns minus Cost C (total cost of cultivation), which was more in SRI (₹56886.96) followed by DSR (₹44285.12) and conventional (₹41303.49) method of rice cultivation. Benefit-cost ratio of rice production under conventional, SRI and DSR method was 1.54, 1.77 and 1.67 respectively.

Technology adoption Multinomial logit analysis was used for examining the factors influencing the technology adoption. The distance between the field and canal, water scarcity, extension contacts and experience in SRI farming have positive influence on willingness to adopt new SRI and DSR technologies in rice cultivation.

Greenhouse Gas Emissions (GHGs) in different methods of rice production

Rice production is an important anthropogenic activity for GHGs emission. Synthetic fertilizers, manure management, rice cultivation, manure applied to the soil, energy use and off-farm activities were the major sources of GHG emission from rice production. Rice ecosystem and synthetic fertilizers contributed from 60 to 75 per cent to total GHG emission in all the three methods of rice production *viz.*, conventional, SRI and DSR. Total GHG emission from conventional, SRI and DSR was 29723, 15791, and 19135 CO₂ eq kg/ha/year, of which the share of CO₂ and N₂O emission were accounted more than 80 per cent. Adoption of new technologies *viz.*, SRI and DSR has potential to reduce GHGs emissions up to 47 and 36 per cent, respectively compared to conventional method of rice production. The social cost of carbon (SCC) represents the economic cost associated with climate change (or benefit) that results from the emission of an additional tonne of

carbon dioxide (CO₂) or its equivalent. The social cost, which includes external cost was found to be lower in SRI (47 per cent) and DSR farms (36 per cent) than conventional farms.

Constraints in SRI and DSR methods of rice production

The major constraints reported by the SRI farmers were lack of skill in transplanting young seedlings, unwillingness of labourers to do line sowing, lack of skill in nursery preparation, lack of cooperation from neighbour farmers and difficulty in using cono weeder. Monsoon failure, high machine labour cost, more weed infestation, poor germination of seed and lodging of matured crop were the major constraints faced by DSR farmers.

Policy Implications

Adoption of SRI and DSR would enhance income and reduce GHGs by conserving resources. Therefore necessary policies should be devised to upscale these technologies, wherever it is feasible.

Extension contact is the significant determinant of SRI adoption. Hence provision of appropriate extension services such as training and demonstrations can make a positive impact on the adoption of new technologies.

B. University Research Projects

CARDS/CBE/AEC/2021/ Trends in Export of Major Agricultural Commodities and Products (Dr. M. Prahadeeswaran, Dr. R. Balaji)

- India's agricultural products export touched \$ 50 billion for the financial year 2022, the highest level ever achieved. Total agricultural export basket accounts for about 2.5 percent of world agricultural trade. Despite COVID-19, balance of trade in agriculture has improved by 42.16% from USD 14.51 billion to USD 20.58 billion.
- Basmati and Non-basmati rice are major exports and doubled during 2010-20 compared to 2000-2010. Export value of basmati and non-basmati rice were about Rs. 32,000 crores and Rs. 23,000 crores respectively during 2019-20. Exports of processed vegetables, fruits, nuts and fresh grapes are growing nearly 3 times during 2010-2020 (Rs.500 crores each) compared to 2000-2010
- Exports of cucumbers, gherkins, jaggery and confectionary items are growing at a faster rate in the recent decade (Rs.400 crores during 2005-06 to Rs. 1600 crores during 2019-20). Export basket of agricultural commodities is highly diversified (Herfindahl Index increased from 0.09 to 0.26 and non-conventional exports like processed vegetables, fruits and vegetables are increasing in faster rate.
- Export promotion programmes to support market identification, exhibitions and transport support) are the strength , Assembling and quality variations (especially in fruits and vegetables), lack of pack house facilities, inadequate

number of accredited labs are the weakness; Potential for fruits and vegetables (fresh & processed), oil meals, honey, mushrooms, moringa and herbs (post COVID) are considered as opportunities and High cost of certification, SPS measures related to fresh fruits and vegetables are the Challenges in export

- Existing support programmes (transport support, market expansion measures) to the export of conventional and new high value exports have to be continued and enhanced. Capacity building to small and new exporters in identification of markets, innovation, certification and incoterms may be provided.

CARDS/MDU/AEC/2018/001 Structural changes in Rural Employment and Its Implications for Agriculture (Dr. A. Daniel Viswasam Samuel)

The results of the study revealed that old aged group dominated in both farm and labor households followed by middle aged group. Non-farm households are *nota bene* dominated by younger age group. This showed, younger generation is likely to shift from farm employment to non-farm employment. The results of Chow test showed that there is a structural change occurred in rural employment of farmers and laborers during 1981 through 2011 in Tamil Nadu. These structural changes in the rural employment is attributed to the rural to rural turn and rural to urban turn. Mostly in the labor households there is a horizontal shifting to either lack of education or tenure of less diversified skills. Vertical shifts are more common in farm households. Possession of assets benefitted then from comparative opportunity cost or else educate their wards to move out for non-farm employment.

The workforce participation rate (WFPR) was found to be higher in rural areas contiguous to urban centre, it ranged 54 percent in farmers HH through 67 percent in labor HH. There is a gradual increase in percent of land put to non-agricultural use in the state from last 5 years to the tune of 0.15 percent during 2012-13 through 2016-17 with 0.60 percent.

The study concluded that effects of nonfarm activity on rural population are positive. The growth of real per capita non-agricultural output had a significant impact in reducing rural poverty. Measures to invest more public and private investment on rural and cottage industries and artisan works and also initiating rural based non-farm government employment programmes are needed to reduce the competition for employment opportunities for the rural households. This may improve the employment level and wage raise and any surplus gain will be spent on farms and thus raising the existing farm income.

The study concluded that effects of nonfarm activity on rural population are positive. The growth of real per capita non-agricultural output had a significant impact in reducing rural poverty. Rising non-agricultural incomes can also increase inequality as a consequence of differential access between as the less and better endowed.

The movement of workers outside the agriculture sector was influenced by factors like the pattern of economic growth, inter-sectoral differences in the wage rate and worker productivity, government programmes and education. Measures to ensure more public and private investment on rural and cottage industries and artisan works and also initiating farm based non-farm government employment programmes are needed to reduce unemployment problem for the rural households. This may improve the employment level and wage raise and any surplus gain will raise the existing farm income

CARDS/ECK/ AEC/2020/001 Assessment of Impact of Mechanization on Rice fallow Pulses in Thanjavur District (Dr.K.R.Jahanmohan)

Poor germination of black gram seeds due to machinery movement was cited as the major reason for lower plant population. Higher seed rate (28 % more) is the major production constraint. Reduced Yield – (63 % in Kumbakonam & 57.50 % in Orathanadu) and reduced income upto 59 % on an average. Sub optimal plant population due to machinery transverse is the major constraint. Infinitesimal marketable surplus (23.5 %) than the previous regime is the disincentive with respect to marketing. Non availability of labour and high cost of labour for harvesting are the major reasons for preference towards Combine Harvesters. Inadequate labour availability and higher straw recovery were the major reasons for Baler's preference.

CARDS/TRY/AEC/2019/ Socio Economic Assessment of High Density Planting Technology in Mango and Guava (Dr.S.Senthilnathan)

Two blocks in Theni district with largest area under mango and two blocks in Dindigul district with largest area under guava were selected for the study. Status of the HDP in terms of awareness and adoption is very poor in the study area. Resource use efficiency is higher for HDP technology than the normal technology. Yield and income received were higher for HDP farmers by 389 percent and 416 per cent respectively for mango 52.5 percent and 22.22 per cent for guava. Fertilizer application and canopy management were major constraints reported. Development of nutrient mixture exclusively for use under HDP may be attempted. Technology team with skilled labour and unemployed horticulture graduates may be formed at block level to guide and assist the mango and guava growers in adopting HDP.

CARDS/MDU/AEC/2020/001 Impact of COVID-19 on Vegetable marketing in Madurai District (Dr.R.Rajesh)

The study was conducted in Madurai and Theni district during Lockdown period. Vegetable growers were not able to sell their products due to blockades in the transport of commodities and indicated as most important challenge with mean score value of 57.42 followed by non-availability of labour for picking operations with mean score value of 54.19 as the second major challenge. About 58.33 per cent of respondents reported that better utilization

of VPO's in vegetable marketing was the most important alternate vegetable marketing linkage and possible mitigating measure

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

- 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 Kuruvai season (88%).
- The share of TNAU varieties in Samba (CO 50, CR 1009, ADT 51, ADT 42, ADT 46, ADT 38, TRY 3, and TKM 13) and Thaladi are 53 %; Share of Non-TNAU varieties during Samba and Thaladi (BPT, CR1009 Sub1, NLR, Swarna sub) are 47%.
- Varieties such as CR 1009, sub-1 in Samba, ASD 16, and 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 paddy 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 rice varieties such as BPT 5204, NLR 34449, MTU 7029 and Achaia 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.

Policy Implications

- CO 52, paddy variety 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.
- 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/TRY/AEC/2018/001 An Assessment of Agricultural Vulnerability to Climate Variability in Tiruchirappalli District of Tamil Nadu (R. Salvadi Easwaran)

The composite rainfall analysis of Tiruchirappalli district for the past 120 years pertaining to the various seasons revealed that there was a wider range in distribution of rainfall and the Co-efficient of Variation was higher and the variance observed was large. These facts clearly portray the profound effect of Climate Change in rainfall distribution in Tiruchirappalli district. An analysis of Kurtosis showed Platykurtic distribution (negative kurtosis with lighter tail) of rainfall for the first 6 decades of the 19th century (1900-1960), whereas, it was Leptokurtic distribution (positive kurtosis with heavier tail) for the rest of the 6 decades. (1961-2019). This implies the probability of outlier namely extreme events will be more in the later decades. The number of Extreme Events is continuously rising every decade. It was 3 in the first three decades and 8 in the last three decades. The rainfall received during the South West monsoon period is consecutively lower in the last 30 years compared to the rainfall received in the first 9 decades of 19th century. The Simpson Index of Diversification of the crops grown in Trichy district was worked out and it was found to increase over years which clearly shows that as one of the measure of Adaptive Capacity of farmers facing Climate Vulnerability, by resorting to Crop Diversification to minimize the risk exposure.

B. Action Plan (2022-2025)

Theme No:1	Title	Economics of Agricultural Production and Planning		
Theme Leader	Dr.K.R.Karunakaran			
Name of the Scientists and Centre	2022-23	2023-24	2024-25	Deliverables / expected output
Project 1: Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in Tamil Nadu				
Coimbatore: Dr.D.Suresh Kumar Dr. V.Karthick	Collection and compilation of cost data on major crops Collection of input and output price data for major crops	Collection and compilation of cost data on major crops Collection of input and output price data for major crops	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

Project 2: Doubling Farmers Income : An Empirical Analysis on Relationship between Crop Diversification and Farm Income

Madurai Dr.A.Malaisamy	Data collection Analysis of data Report submission			Drivers of Crop diversification will be identified
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Theme No:2 Title Agricultural Marketing and Price Analysis

Theme Leader	Dr.K.N.Selvaraj			
Name of the Scientists and Centre	2022-23	2023-24	2024-25	Deliverables/ expected output

Project 1: Institution of Endowment Chair in Agricultural Marketing

Coimbatore Dr.K.N.Selvaraj Dr.R.Parimalarengan	Research on marketing issues and capacity building	Research on marketing issues and capacity building	Research on marketing issues and capacity building	Commodity reports on marketing of important Crops
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Project 2: Causes and Consequences of e-NAM on the Economic Development of Indian Agriculture – A Case Study

Coimbatore Dr.K.M.Shivakumar Dr.M.Prahadeeswaran Dr.N.Kiruthika Dr.S.R.Padma	Bottlenecks in e-NAM, Formulation of strategies and develop case studies and success stories			Preparation of policy reports Policy implications for promotion of e-NAM
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Project 3: Developing and Disseminating Market Intelligence for TN-IAM project Basin Crops

Coimbatore Dr.K.M.Shivakumar Dr.S.Selvam. Dr.A.Rohini Dr.M.Prahadeeswaran Murugananthi R.Parimalarangan	Data collection and Analysis of data	Data Analysis Report preparation		Identification of challenges and alternate vegetable market linkages in response to COVID-19.
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Project 4: Value Chain Analysis of Castor: A Study in Salem District

Yethapur Dr. T. Rajendran	Data collection Analysis Report preparation			Value chain in castor will be identified
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Project 5: Performance Evaluation of Primary Producers Societies of Tea in the Nilgiris District

Coimbatore Dr. K.N. Selvaraj, Dr.R.Parimalarangan, Dr. K. R. Karunakaran	Data collection Analysis Report preparation			Studying coping strategies of PPSin tea production
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Theme No:3	Title	Natural Resources and Environmental Economics		
Theme Leader	Dr.A.Vidhayavathi			
Name of the Scientists and Centre	2022-23	2023-24	2023-24	Deliverables/ expected output

Project 1: Micro Irrigation in Tamil Nadu: An Analysis of Issues, Potentials and Strategies

Coimbatore Dr.D.Suresh Kumar Dr.K.R.Ashok Dr.P.Balasubramanian Dr.V.Karthick	Data collection Analysis of data Report submission			Extent of adoption, dis- adoption of micro irrigation and the factors influencing the adoption. Economic viability of adoption of micro irrigation
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Project 2. An Economic Analysis of Vulnerability, Resilience and Adaptation to Climate Change on Livelihood Security and Crop Planning of Dry Land Farms of Madurai District

Madurai Dr.J.S. Amarnath Dr.B.Sivasankari	Analysis of data, Report Submission			Optimal plan for dry land farms
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Project 3. Improving Livelihoods of Farm and Rural household through collective management of Common Property land resource in Madurai district

Coimbatore Dr.A.Vidhyavathi Dr. N.Deepa	Conducting training on value addition on firewood and basket making			Improving the livelihood of people dependent on CPLRs
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Theme No:4	Title	Impact Evaluation of Development Projects		
Theme Leader	Dr.D.Suresh Kumar			
Name of the Scientists and Centre	2022-23	2023-24	2024-25	Deliverables/ expected output

Project 1 : Impact Evaluation of Watershed Development Projects implemented under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) - (Earth while IWMP) during 2009-10

Coimbatore Dr.D.Suresh Kumar Dr.K.R.Ashok Dr.S.Padma Rani Dr.S.Varadha Raj.	Data analysis and report preparation			Impacts of Watershed development programmes in the state
Project 2 : Impact Evaluation of Watershed Development Projects implemented under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) - (Earth while IWMP) during 2011-12				
Coimbatore Dr.D.Sureshkumar, Dr.K.R.Ashok, Dr.S.Padma Rani Dr.S.Varadha Raj	Data analysis and report preparation			Impacts of Watershed development programmes in the state
Project 3: Impact Evaluation of Watershed Development Projects implemented under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) – (Earth while IWMP) during 2014-15				
Coimbatore Dr.D.Sureshkumar, Dr.K.R.Ashok, Dr.S.Padma Rani Dr.S.Varadha Raj	Filed visits Collection of data Report preparation Submission of Final report		-	Impacts of Watershed development programmes in the state
Project 4. Rainfall and Tank Storage: Relooking the Tank Performance with Time Tested Tank Storage Pattern Using Tank Cascade Approach in Tamil Nadu				
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	Collection of Data and analysis of data Report submission			Study the tank filling pattern indentify the list of tanks for future modernization and develop strategies for modernization of tanks

Theme No:5	Title	Labour and Employment		
Theme Leader	Dr.C,Sekar			
Name of the Scientists and Centre	2022-23	2023-24	2024-25	Deliverables/ expected output
Project 1: An Analysis of Higher Education, Placement, Employment and Earning Contours of TNAU Farm graduates during the Pre and Post COVID 19 Regimes				
Coimbatore C. Sekar Shibi Sebastian	Collection of data Report preparation			Structural change in placement and employment of farm graduates in institutional and non- institutional

				domains during the pre and post Covid 19 regimes.
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Theme No. 6		Title: Artificial Intelligence & Big Data Analytics		
Project 1: Artificial Intelligence & Big Data Analytics in Food & Agriculture				
Theme Leader		Dr.K.M.Shivakumar		
Name of the Scientists and Centre		2022-23	2023-24	2024-25
Coimbatore Dr.K.M.Shivakumar Dr.M.Kalpana Dr.C.S.Sumathi		Design and conduct courses in artificial intelligence, machine learning and Big Data Analytics	Design and conduct courses in artificial intelligence, machine learning and Big Data Analytics	Develop networks with agro industries, commodity exchanges, consultancy firms for improved networking of academia with industries
Theme No:7		Title Agricultural Finance		
Theme Leader		Dr.M.Anjugam		
Name of the Scientists and Centre		2022-23	2023-24	2024-25
Coimbatore: Dr.A.Vidhyavathi S.Padma rani P.Balaji		Collection of Primary and Secondary data	Collection of Primary and Secondary data Analysis of Data and Report Writing	Help in identifying constraints in cashless transaction and to suggest suitable policy measures for cashless transaction

Theme No:8		Title Documentation of Intellectual Property Rights and Impact Studies		
Theme Leader		Dr.M.Anjugam		
Name of the Scientists and Centre		2022-23	2023-24	2024-25
Coimbatore: Dr.A.Vidhyavathi S.Padma rani P.Balaji		Collection of Primary and Secondary data	Collection of Primary and Secondary data Analysis of Data and Report Writing	Help in identifying constraints in cashless transaction and to suggest suitable policy measures for cashless transaction
Project 1: Documentation of Select Agricultural Commodities for GI Registration in Tamil Nadu				

Coimbatore: M.Anjugam Dr.N.Kiruthika Dr.D.Suresh Kumar Dr. K.R.Ashok	Collection of secondary data on selected crops GI application	Collection of data on selected crops GI application		facilitate for GI tag for selected crops
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C. Details of research projects

A total of 24 projects were reviewed. Out of which three externally funded projects, and Seven University Research projects were completed; five university research projects and nine 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	3	9	4	11
Madurai	2	1	..	..	2	1
Trichy	2	..	..	..	2	..
Killikulam	..	..	..	..	..	..
Periyakulam	..	..	..	..	..	..
Echangottai	2	..	..	..	2	..
Mettupalayam	..	..	..	..	..	..
Vazhavachanur	..	..	..	..	..	..
Kudumiyamalai	..	1	..	..	..	1
Yethapur	..	1	..	..	..	1
TOTAL	7	5	3	9	10	14

New Projects Proposed During 2020-21

Campus	University sub projects		Externally funded projects		Consultancy Projects/ Policy		Total	
	Proposed	Obtained	Proposed	Obtained	Proposed	Obtained	Proposed	Obtained
Coimbatore	..	..	16	4	..	..	16	4
Madurai	1	..	..	..	..	..	1	..
Trichy	..	..	1	..	..	..	1	..
Killikulam	..	..	..	..	..	..	..	..
Periyakulam	..	..	3	..	..	..	3	..
Echangottai	-	..	..	..	..	..	1	..
Mettupalayam	--	..	..	..	..	..	..	..

Vzhavachanur	1	..	..	..	..	..
Kudumiyanmalai					..	..
TOTAL	2		20	4	..	..	22	4

D. Remarks of the ongoing projects

S. No.	Project Number	Project Title	Project Period	Project Leader (PI/Co-PI)	Remarks
a.	Externally funded Projects				
1	GOI/CARDS/CBE/AEC/1970/R001	Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in Tamil Nadu	Continious Scheme Since 1970	Dr.D.Suresh Kumar Dr.V.Karthick	Continuous Scheme Project activities may be carried out as per the plan
2.	TAWDEVA/CARD S/CBE/AEC/2020/R021	Impact Evaluation of Watershed Development Projects implemented under Pradhan MantriKrishiSinchayeeYojana (PMKSY) - (Earth while IWMP) during 2009-10	Sep-2020 to Mar-2022	Dr.D.Suresh Kumar Dr.K.R.Ashok Dr.S.Padma Rani Dr.S.Varadha Raj	The project may be completed in time
3.	TAWDEVA/CARD S/CBE/AEC/2020/R022	Impact Evaluation of Watershed Development Projects implemented under Pradhan MantriKrishiSinchayeeYojana (PMKSY) - (Earth while IWMP) during 2011-12	Sep-2020 to Mar-2022	Dr.D.Suresh Kumar Dr.K.R.Ashok Dr.S.Padma Rani Dr.S.Varadha Raj	The project may be completed in time
4.	TAWDEVA/CARD S/CBE/AEC/2021/R001	Impact Evaluation of Watershed Development Projects implemented under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) - (Earth while IWMP) during 2014-15	Apr-2021 to Mar-2022	Dr.D.Sureshkumar Dr.K.R.Ashok, Dr.S.Padma Rani Dr.S.Varadha Raj	The project may be done as per the plan
5.	SDPC/CARDS/CBE/AEC/2021/R024	Micro Irrigation in Tamil Nadu: An Analysis of Issues, Potentials and Strategies	Feb-2021 to June-2021	Dr.D.Suresh Kumar Dr.K.R.Ashok Dr.P.Balasubramanian Dr.V.Karthick	The project may be completed in time

6.	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 Dec-2022	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 in time
7.	NAHEP/CBE/ABD/2019/E001	Artificial Intelligence and Big Data Analytics in Food & Agriculture	2019 to 2022	Dr.K.M.Shivakumar, Dr.M.Kalpna, Dr.C.S.Sumathi	The project may be done as per the plan
8.	CARDS-ICSSR/CBE/AEC/2022/R001	Ecosystem for Transition to Cashless Agrarian Economy in Tamil Nadu: Challenges and Implications	09.03.2022 to 08.02.2024	Dr.A.Vidhyavathi, Dr.S.Padma Rani, Dr.P.Balaji	The project may be done as per the plan
9.	STGS/CARDS/CBE/AEC/2021/R026	Performance Evaluation of Primary Producers Societies of Tea in the Nilgiris District	December, 2021 to June, 2022	Dr. K.N. Selvaraj, Dr.R.Parimalarangan, Dr. K. R. Karunakaran,	The project may be done as per the plan
10	SDPC/ CARDS/CBE/AEC I2021/R002	Improving Livelihoods of Farm and Rural Households through Collective Management of Common Property Land Resources (CPLRs) in Madurai District"	01.04.2021 to 31.03.2022	Dr.A.Vidhyavathi, Dr.N.Deepa,	The project may be done as per the plan
b. University Research Project					
1	IPMC –FMC CARDS/CBE/AEC/2021/ R025	Documentation of Select Agricultural Commodities for GI Registration in Tamil Nadu	Sep-2019 to Aug-21	Dr.M.Anjugam, Dr. N.Kiruthika, Dr. D. Suresh Kumar, Dr.K.R.Ashok	<ul style="list-style-type: none"> • Sensitization of GI and Identify one product per research station for GI registration • Initiate for GI marking for Kumbakonam Beetle wine The project may be done as per the plan

2	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	Aug-2020 to June 2022	Dr.C. Sekar	<ul style="list-style-type: none"> • Study may include Identifying reasons for why farm graduates not doing entrepreneurial activities • Identify Strategies for making farm graduates self employed. The project may be completed in time
3.	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	<ul style="list-style-type: none"> • The project may be completed in time
4.	CARDS/MDU/AEC/2019	Doubling Farmers Income: An Empirical Analysis on Relationship between Crop Diversification and Farm Income	Oct-2019 to Mar-2022	Dr.A.Malaisamy	Complete the project as per the time schedule. Use only secondary data for analysis and submit the report with solid findings for doubling of farmers income
5.	CARDS/YTP/AEC/2020/001	Value Chain Analysis of Castor: A Study in Salem District	Sep-2020 to Aug 2022	Dr. T. Rajendran	Value chain analysis of castor may be studied with larger sample size The project may be completed in time.

III. DEPARTMENT OF AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY

RESEARCH AGENDA

RPA I Monitoring of Adoption and Impact

Monitoring and evaluation of the adoption of varieties, technologies, machineries and other inputs on continuous basis is one of the important processes in the technology development and delivery system. This process will give concrete feedback on varieties and technologies to the research system. The level of adoption of technologies / varieties, adopter categories, diffusion of innovations will show the current status of technologies spread and status of production, productivity and income of the farmers. Accordingly, objectives with regard to monitoring of adoption and Impact are framed for implementation.

- Diffusion and adoption levels of new varieties / hybrids, crop management technologies and farm machinery / implements introduced by TNAU.
- Studies on adopter categories in the changing agricultural scenario.
- Study the impact of KVKs on farmers' prosperity.
- Conducting participatory monitoring and impact assessment of different schemes, interventions and special programmes implemented by TNAU, Agriculture department and other stakeholders.

RPA 2 Extension Research on ICT in Agriculture

ICT in agricultural extension is an emerging field focusing on the enhancement of agricultural and rural development in India. It involves application of innovative ways to use Information and Communication Technologies (ICT) in agricultural extension. The advancements in ICT can be utilized for providing accurate, timely, relevant information and services to the farmers, thereby facilitating an environment for more remunerative agriculture. However, all the ICT initiatives are not uniform with disparities between regions in the level and quality of telecommunications, information and the effort of individuals, public and private organizations and differentiated nature of demand of the farmers in different areas. As a result, there have been many successes, failures, lessons learned and experience gained, so far. While these initiatives are intended to address the needs of the farmers through ICT, their actual usage and their ability to bring significant impact on the farm productivity and socio-economic development of the intended beneficiaries is to be studied.

- Use of Artificial Intelligence in technology delivery to farmers.
- Development and validation of the online contents for ICT projects.
- Organization of stakeholders meets for identification and development of ICT tools.
- Evaluation of ICT projects implemented in Agriculture by the Government, NGOs and Private Organization.
- Harnessing the different ICT tools and its effectiveness in ToT and empowerment of farmers.

- Development of new extension process for the content development suitable to different ICT tools including mobile, social media and portal.

RPA 3 Gender Studies and Livelihood of Tribal Farm Women

Women folk extensively involved in production of crops particularly, in land preparation, seed selection and seedling production, sowing, applying manure, fertilizer and pesticide, weeding, transplanting, threshing, winnowing and harvesting; in livestock production, fish processing, collection of non-timber forest produces (NTFPs) etc. In animal husbandry, women have multiple roles ranging from animal care, grazing, fodder collection and cleaning of animal sheds to processing of milk and livestock products. The majority of workers involved in collection of non-timber forest produces (NTFP) are women, particularly tribal women. Women also augment family resources through tasks such as collection of fuel, fodder, drinking water and water for family members and domestic animals. In the changing agrarian structure and economic relations, women's role in family farms is constantly increasing. The recent studies have indicated that men's role in family farms is declining rapidly and they shift to non-farm wage employment in urban and peri-urban areas. In this context, the following research areas are important for the empowerment of women folk.

Hence, the gender related studies would be focused to offer policy inputs, feedback to the research system and to develop new extension strategies for mainstreaming the gender in agriculture.

- Role of gender in agriculture and allied activities.
- Studies on constraints encountered by the farm women.
- Gender budgeting for different development departments and sectors.
- Strategies to overcome the drudgery of farm women.
- Livelihood opportunities of farm women through technological interventions.

RPA 4 Youth and Training

A large percentage of the population of India is under 18 years of age and the majority of the overall population lives in rural areas. It follows that young people make up a considerable portion of rural population. These young people represent the farm families of the future. Large number of rural youth is migrating to urban areas for seeking white colour jobs in the wake of declining the profitability of agriculture. One of the strategies to retain youth in agriculture is providing skill training in selected agriculture based entrepreneurial ventures to rural youth and making them become an entrepreneur. Extension research will make efforts to retain young people in agriculture and allied activities.

- Shifting pattern among rural youth from agriculture and its impact.
- Factors responsible for the movement of youth from agriculture.
- Entrepreneurial need analysis of rural youth in Tamil Nadu.
- Skill training on agro-based entrepreneurial ventures to SC/ST rural youth.
- New extension strategies to retain the rural youth in agriculture.

RPA 5 Tank Irrigation Management and Farmer Organizations

Tank irrigation resource is very vital in sustaining agriculture and livelihood of rain-fed farmers. Studies on tank irrigation management, water users association and farmers' interest groups will give insight into the dynamics and sustainability of such groups and federations. Strong and willing participation of the farmers in such collective modes need to be encouraged as it guarantees not only better income but also societal outcome. Hence, it is very important to study the function of farmers' discussion groups, role of farmer interest groups, commodity groups and farmer producer organizations in terms of process, adoption of market-led extension approaches and dissemination of technologies.

- Institutional effectiveness of tank performance and its effect on agriculture.
- Group dynamics of farmers groups and farmers producers organizations.
- Documentation of the value chain system in commodity groups / farmers producer organizations.
- Skill gap assessment in the farmer producers' organizations and farmers groups.

III. DEPARTMENT OF AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY

RESEARCH AGENDA

A. Key findings of Completed Projects

A. Externally Funded Projects

DST/CARDS/MDU/EXT/2017/R006 Agricultural Mechanization amidst Unemployment in India: Case of Landless and Poor in Cauvery Delta in Tamil Nadu in India (Dr. M. Jegadeesan and Dr. M. Ramasubramanian).

Salient findings

- Mechanization leads to sharply reduce the employment opportunities to the land poor and landless community in the Cauvery delta. 800 household from four villages from three districts of Cauvery delta zone based on land distribution and intensive agriculture and census survey were selected.
- In tank irrigated paddy cultivation revealed that adoption of combine harvester is increasing though soil type (alkali soil) is not suited for using combine harvester. Again, those farmers owning livestock may be reluctant to adopt combine harvester since they need straw for animal feed.
- After the rice season, with depending on the water availability, some farmers go for next crop; Mostly the proposed study area's cropping pattern is paddy-paddy followed by pulses.
- 96% of the farmers using Combine Harvester and 70.00% using Rice transplanter.
- 30 Labours (25 women & 5 men) were replaced by Combine Harvester and 24 labour (21 women & 3 men) were replaced by Rice transplanter.
- 37.50 % and 30 % of the total labour requirement is displaced by paddy Combine Harvester and Rice transplanter respectively.
- 57% of displaced women were engaged in MGNREGA and local construction work.
- Due to Lack of Non-farm Opportunities the men are migrated to domestic (Chennai, Bangalore, Tirupur, Kerala) and International (Singapore, Dubai, Kuwait, Malaysia, Saudi, UAE) countries

Policy recommendations

- Create alternative employment opportunities to engage unemployed laborers due to introduction of machineries.
- Creation of coir pith Industries, Coconut oil industries, Paddy processing and Modern Rice mills, Cashew Process Industries, Mango processing Industries, Spinning and Garment, Brick Industries, Milk Processing and Value addition.
- Providing skill development opportunities for potential migrants to gain employment.

- Repairing and services of Tractor and other agricultural implements
- Training for tailoring especially women
- Driving Skillset for Earth movers,Electrical and Plumbing
- Communication skill for joining in service sector (like Hotels and Travels)

DEE-1/ SBGF Project/ SDPC/Nutri-garden/ ASO/ 2020-21Empowering School Students on Establishment of Nutritional Garden in their backyard through Virtual training by ICAR KVKs of TNAU in Villupuram, Cuddalore and Tiruppur districts of Tamil Nadu during COVID-19 Pandemic, (Dr. M. Senthilkumar, Dr. N.Sriram, Dr. P. Sridhar, Dr.Neelavathi, Dr. Rajalingam, Dr. Kavithasree & Dr. Sundaraiyah)

Salient findings:

- Skilling school students on establishment of nutritional gardens in their backyard and creating awareness on Nutrition and importance of nutrition in diet among students and increased consumption of vegetables were the focus of this scheme.
- Students were provided Nutri-Garden seeds besides training on Establishment of Nutri-Garden. Established shade net at KVKs of Tiruppur, Cuddalore and Villupuram.
- Distributed Seed kits to interested 360 students and trained on the establishment of Nutrition Garden, 20 teachers were given orientation.
- 100% of the Students acquired skill on gardening and established in their backyard home.
- 85% of the Students continued cultivation for the third season
- 30% of the students increased consumption of vegetables in their family diet
- Spillover Effect is 20%. 52kg of Vegetables harvested by students per season (gourds, tomato, bhendi, chillies and greens)

Policy recommendations

- Nutrition garden may be promoted in all schools and students may be trained on establishment and maintenance with the hand holding support from scientists, extension personnel and teachers.
- Convergence with government department's viz., school education, rural development, Agriculture, Horticulture and KVKs for implementing similar programmes.

DABD/CDB/FDP/TRG/2021/T001/ 2021-2022 Coconut Farmers Entrepreneurship Programme, (Dr.M.Shanthasheela, Dr.S.D.Sivakumar, Dr.R.Manimekalai)

Salient findings:

- The main focus of the project is to train One Coconut FPO from each district of Tamil Nadu@20 FPO members / training. They were exposed to

Good Agricultural Practices (GAP) and hands on training for preparation of bankable projects and successful entrepreneurs were invited to handle class on how to start an enterprise, difficulties faced by them and how to manage the situation.

- 60 farmers (3 FPOs) were trained and Exposed on cultivation, entrepreneurship development, project meetings with entrepreneurs.
- After the Entrepreneurship training 8.00 % of participants started doing organic coconut cultivation. Two of them started small scale oil extraction unit. One farmer started neera processing unit. One farmer started handcraft coconut shell processing unit.

Policy recommendations:

- Post evaluation, monitoring and hand holding support is needed.

b. University Research Projects

CARDS/MDU/AEX/2020/R002 Drought Mitigation Strategies of Farmers in Irrigated Cropping System in Madurai (Dr. K. Mahandrakumar)

Salient findings:

- The major focus of the project is to study the adoption of drought mitigation practices among 100 farmers in Madurai District. Majority of the farmers prefer to go for less water consuming crops like tapioca and tuberose over the sugarcane, banana and turmeric crops.
- Nearly 30 percent of farmers have shifted to mono cropping from double cropping due to drought. Due to reduction in the water level 22 percent of respondents moved to drip method of irrigation from flood type.
- Though most of respondents aware of the technologies like drip / sprinkler method of irrigation, mulching and selection of drought tolerant varieties and application of anti-transparent chemicals sprays but only few have adopted.
- Crop loan is one of the major avenues in which most of the farmers (72%) got benefit followed by waiving of interest to the crop loan (69.00 %) and drought relief fund (25.00%) respectively. Mitigation measures followed by the farmers are very low as the high category itself secured the score between 32 to 45 out of 100
- The variables namely information seeking behaviour, perception of farmers towards effect of drought and Education status are positively associated with mitigation index. Two third of respondents stated that faster and necessary arrangements should be made to quick release of compensation/insurance for crop loss during drought.
- Nearly two-third of the respondents expressed that providing sufficient water during cropping season through canal and rivers through proper management. Vocational training related to improved agronomical and

technological mitigation practices should be provided by agricultural department.

Policy recommendations:

- Rural youth should be trained in maintenance of water bodies and drip fertigation.
- Drought mitigation measures may be popularized through intensive campaign & demonstrations.
- Quick release of compensation /insurance for crop loss during drought.
- Release of sufficient water during cropping season through canal and rivers through proper management.

AICRP / CARDS / TRY / AEX / 2021/001 Impact of KVK Interventions in Pulses under Rice Fallow and Sole crop cultivation in Trichy, (Dr. Noorjehan, A.K.A.Hanif, Dr.V.Dhanushkodi, Dr.N.Tamilselvan)

Salient findings:

- Study was conducted with 200 pulse growers in Trichy District to study the impact of KVK Interventions in Pulses under Rice Fallow and Sole crop cultivation. Through KVK interventions, knowledge on TNAU pulse wonder foliar spray, Mechanized sowing behind seed drill and DAP foliar spray got enhanced among the black gram farmers (above 50 %).
- In Green gram cent per cent of the farmers had knowledge on application of farmyard manure, time of first irrigation and proper maturity level for harvesting. Knowledge on formation of beds and channels, mechanized sowing behind seed drill, recommended YMV resistant varieties for green gram, seed treatment with bio fertilizers were increased through KVK interventions.
- Least knowledge was recorded in pest and disease management, application of TNAU mineral mixture, seed coating, multibloom technology, weedicides, chemicals like ZnSO₄ application, KCl spray for drought mitigation. More than 90 per cent of the red gram growers had knowledge on seed rate, pre-sowing ploughing of land to fine tilth, time of application of fertilizers followed by spraying of Diammonium phosphate (DAP) or urea, NAA and salicylic acid, spacing for pure crop & mixed crop and pre emergence application of weedicides.
- Through KVK interventions, knowledge gain enhanced in recommended sterility mosaic resistant varieties for red gram, red gram transplanting method, nipping technology in red gram, raising sunflower as intercrop (1:9) and maize as border crop for pod borers management and TNAU pulse wonder foliar spray. Least knowledge recorded in seed coating with bio fertilizers and micronutrients, nitrogen substitution by organic sources for pulses, seed treatment before sowing with chemicals, seed treatment with bio control agents and amendments for soil surface crusting.

Policy Recommendations:

- Knowledge level on yield maximizing technologies in pulses is to be imparted through intense trainings and through mobile agro advisories.
- Through block wise Farmer Friends, Skill training in application of bio control agents, seed treatment, application of TNAU crop boosters need to be given for speedy TOT.
- ICT tools shall be utilized widely to reach large unreached farmers.

CARDS/ KVK/ PPT/ AEX/ PUL/ 2019/001 Impact of KVK Interventions on TNAU Released Varieties and Management Technologies of Pulses in Dharmapuri district (Dr. M.A.Vennila, Dr. P.S. Shanmugam, Dr.M. Sangeetha, Dr.P. Ayyadurai).

Salient findings:

- Study was conducted with 150 Pulse growers to study the impact. Majority of the farmers adopted TNAU varieties in major pulse crops viz., Co 8 (68.00 percent), Co7 (36 .00 percent) and BSR 2 (12 per cent) in Red gram, VBN 8 (62.67 percent) and VBN 10 (29.33 per cent) in Black gram, Co 8 (80.00 percent) and VBN 3 (62.00 per cent) in Green gram, COCP 7 (72. 00 per cent) and VBN 3 (41.33 percent) in Cowpea, Co 8 in Bengal gram (37.33 per cent) and Paiyur 2 (83.33 percent) in Horse gram.
- Majority of the pulse growers (77.33 percent) adopted recommended seed rate. About 45.00 percent of the pulse growers adopted seed treatment with *Rhizobium* and 22.00 percent of them adopted seed treatment with fungicides.
- Only 25.33 percent of the pulse growers adopted the recommended rate of FYM application. About 30.00 percent of the pulse growers adopted TNAU MN mixture for pulses @ 3kg/ ac under rainfed condition. Foliar application of TNAU Pulse wonder followed by 74.67 per cent. 26.67 per cent of the red gram growers followed the pheromone traps for pod borer management.
- About 76.00 per cent of the pulse growers expressed that Non availability of seeds of high yielding varieties in time, followed by cost of seed (52 per cent) and weed problem (46 per cent) as bio- physical constraints in adoption of technologies Cost of labour (78 percent), lack of Subsidy for inputs (44 per cent) and low Price for the commodity (52 per cent) were the major economic constraints expressed by them. Weak extension at gross root level (28 per cent) and lack of awareness on recent technologies (15 per cent) were the technological constraints expressed by the pulse farmers.

Policy Recommendations

- Seeds should be made available at block level. Large scale demonstration of major technologies for conviction building.
- Small scale machineries like Seed drill should be made available at village level.

- Research on farm Mechanization is needed for performing major operations.

CARDS/CBE/AEX/2020/001 Footfall Analysis of farmers in ICAR Krishi Vigyan Kendras (KVKs) of TNAU through farmers' database for invigorating the technology delivery (Dr. M.Senthilkumar)

Salient findings:

- Farmers digitized database being maintained by 14 KVKs of TNAU were collected and mapping of Horizontal reach of farmers were done. A total of 1.33 lakh farmers visited 14 KVKs by covering 183 blocks in Tamil Nadu from 2015 to 2021. Among them 1.33 lakh farmers. 80.5 percent male farmers and remaining 19.5% were female. Only 10 % the farmers belongs to SC/ST category.
- The average age of the farmer were 45-50 years old and the average land holding pattern is 1.9 hectares. More interventions carried out in blocks that are in close proximity to KVKs. Majority of the farmer's availed technological support on plant protection, crop production aspects.

Policy Recommendations:

- The KVK interventions shall be planned / taken up in blocks, wherever least interventions are made especially in the blocks that are far away from KVK.
- Emphasis to be given in KVK programmes to target marginal and small farmers, women farmers and SC/ST farmers to increase their participation.
- To further increase the horizontal spread of KVK interventions, programmes may be planned in convergence with line departments.

CARDS/ TRY/ AEX/2020/001 Comprehensive analysis of Kisan Call Centre in Tiruchirappalli District (Dr.D.Periyar Ramasamy)

Salient Findings:

- Tiruchirappalli district of Tamil Nadu was selected for this study. KCC users are high among the districts of Tamil Nadu. 90 KCC beneficiaries were studied to assess the activities of Kisan call centre. 47.00 per cent of the respondents were having moderate attitude towards use of Kisan Call Centre and was followed by 27 per cent favorable attitude and 10.00 per cent having both unfavorable, strongly favorable attitude and only 7 per cent strongly unfavourable attitude, respectively. Inputs recommended by the KCC experts were not available in the local shops.
- KCC experts were unable to understand questions asked by the farmers. KCC requires huge amount of exposure through mass media Up to date information needed Facilities for feedback are required in KCC.

Policy recommendations:

- KCC requires good exposure through mass media to reach the unreached. Updating latest technical information is needed for the KCC personnel.
- Facilities for feedback mechanism are required in KCC for the better understanding and utilization of the services rendered by the KCC

CARDS /KUM /AEX/ 2019 / 001, Sensitization Training on recently developed Technologies and Modern Machineries in Agriculture, (Dr. A. Sakunthalai)**Salient findings:**

- To assess the Preference and knowledge on Agricultural Machineries 180 Farmers from 18 Districts were contacted. Farm Machinery, Solar Energy, Agrl. Processing, Dryland Agriculture, Irrigation management, Agriculture were the technologies covered.
- 80-90 percent farmers felt Small size of implements, suited to small Landholdings
- 70-80 % Farmers required machineries for millets from sowing to harvest Ground nut harvester.
- Pulse planter, vegetable seedling planters and small onion harvester were the preferences of 55-65% of farmers.
- 65-75 %Farmers preferred solar operated machineries.

Policy Recommendations:

- Establishment of custom hiring centres and model units at block level. Exposure on solar energy, dry land and processing based Machineries were needed.
- Research on crop specific Machineries suited to small and Marginal farmers.

CARDS / CBE / AEX / 2020 / 002, Developing a Climate led Transfer of technology Model for the Rice Eco system (Dr.R.Arunachalam)**Salient findings:**

- The study was conducted in Madurai district in four identified major rice growing villages under Madurai East and West blocks. There existed remarkable variations in the climatic factors in rice eco systems. Following are the climate induced issues identified in the study area. The higher temperature induced issues were, reduction in yield and grain size, poor grain setting and grain filling, reduced population of beneficial insects, production of chaffy grains and bold grain formation.
- Higher temperature favours the incidences of leaf mite, thrips, mealy bug, green leaf hopper and white ear formation. The low temperature favours the

incidences of stem borer attack, blast, leaf folder, bacterial leaf blight and multiplication of rats during harvest time.

- Higher rainfall affects seed germination, crop submergence, crop lodging (Co(R) 51), and production of chaffy grains, incidences of root rot, leaf mite, bacterial leaf blight and mealy bug. Low rainfall facilitated weed growth and yield loss.
- Higher relative humidity facilitates BPH, blast, brown spot, sheath blight, stem borer, false smut, bacterial leaf blight, grain discolouration and flower drop, while lower relative humidity favours production of weightless grains and affects grain filling 216 Variation in wind velocity / direction facilitates quicker dispersal of pests and diseases throughout the field, affects crop pollination and higher wind velocity produces scorching effect, yellowing of leaves and crop lodging Farmers were found distributed between medium to high in their overall level of awareness and perception on the documented issues.
- Accordingly a climate led transfer of technology model has been suggested for the rice eco system. This model consisted of four stages Viz., formation of district level climate led nodal team, activities to be carried out during pre-cropping stages, cropping stages and post cropping stages.

Policy Recommendations

- Formation of district level climate led nodal team comprising of KVK head, agro meteorologists, and extension officers.
- Forecast climate related, issues & mitigating measures may be popularized Organize pre-season trainings for farmers and extension workers Prepare and distribute technical literature and advisories through radio/TV/ mobile based applications

CARDS /TRY/AEX/2019/002A study on awareness and adoption of technology and production and marketing constraints of jasmine growers in Trichy and Dindigul districts (Dr.G.Anand)

Salient Findings:

In Dindigul and Trichy-@80 jasmine growers were contacted for the study. Cent per cent awareness level was on Spacing, Weed Management, Intercultural Operations & Plant protection Cent per cent adoption was on variety, plant protection (Bud worm & Mite Mgt.) and intercultural operations like pruning.

- Non availability of labour and credit, adverse climate and price fluctuations were the major constraints

Policy Recommendations:

- Awareness may be given on recommended fertilizers, foliar spray for flower induction and pruning at proper time.

- Measures may be taken to prolong the shelf life of flowers by providing Storage room facilities with advanced technologies.
- Farmers need to be aware of concrete preparation and trained on value addition during peak seasons.

CARDS/TRY/AEX/2019/001 A study on the impact of vegetable farming on the livelihood status of small farmers in Trichy district (Dr.P.Sumathi)

Salient Findings:

- Socio and economic impact of small farmers due to vegetable farming was conducted in Trichy district with 120 farmers. Adoption behaviour of small farmers towards onion cultivation technologies Cent percent of the onion growers adopted onion cultivation during the season of planting (April –May and October – November), preparation of field by making ridges and furrows and harvesting in correct stage.
- About 48.33 per cent of the farmers cultivated the recommended variety Most of the farmers (98.33 per cent) adopted the irrigation schedule (daily once, three days once, weekly once) and spacing (81.66%) for onion cultivation. Only 43.33 per cent of cultivators adopted the recommended seed rate. FYM application was adopted by 80.83 per cent of the farmers during cultivation.
- More than half of the onion growers 87.50 per cent adopted NPK fertilizers in split doses. Most of the farmers (90.00 per cent) adopted the practices like hoeing, hand weeding and earthing up followed by 78.33% applying weedicides to control weeds.
- About 56.66 per cent of the farmers adopted control measures to resist pests such as thrips, onion fly and cut worm (46.66%). IPM practices adopted by 35.83 % of the onion growers. More than half of the farmers adopted control measures for diseases such as leaf spot (68.33%) and basal rot (61.66%).
- Socio-economic impact regarding socio-economic impact, In the case of farm changes, most of the respondents (87.50%) reported that vegetable farming increased the purchase of implements and additional livestock and also improved existing lands With respect to material changes, majority of them (81.00%) improved their life style in terms of purchase of new household appliances, two wheeler vehicle and utensils.
- Majority of the farmers expressed the following constraints Fluctuations in market price (97.50%) Lack of knowledge about the control measures for various pests and diseases (95.83%). Difficulty in identifying the pests and diseases (93.33%) High cost of storage structures (93. 33%).

Policy Recommendations:

- Subsidies may be provided for the construction of storage structures to keep onion for increasing the shelf life in anticipation of better price at markets.

CARDS/CBE/AEX/FOR/2021/001 Evaluation of the Impact of Social Forestry Programme and Social Benefits created for beneficiaries in Thanjavur District (Dr. J. Thilagam, Dr. S. Angles)

Salient Findings:

- The project was carried out with 60 beneficiaries of Social Forestry Programme in Thanjavur District. 75 % of the beneficiaries converted ¼th of their land to tree cultivation. 10 -15 % of land (nearly 48 ha) covered under tree cultivation.
- 70 % of beneficiaries did agriculture and allied activities *viz.*, aquaculture, rearing milch animal and goat rearing etc.80 % of beneficiaries had inter disciplinary contact with all line departments. Continuous employment offered for 4-5 persons in one farm.

Policy Recommendations

- Formation and strengthening of Farmers Interest Groups, Farmers Associations will help farmers to coordinate the social forestry activities.

CARDS /CBE/AEX/2020/003 Sustainability of Urban vegetable gardening (Dr.Sibi Sebastian)

Salient findings:

- A total of 120 Beneficiaries of vegetable kit distribution Program in Coimbatore were contacted for the study. The results found that 50 percent of the respondents were house wives while 50 were doing. Nearly 50 percent had garden in their terrace while 25 percent had in open area around the house, the remaining in balcony area
- Nearly 52 percent of the respondents took up gardening to avoid chemicals while 48 percent took it up as hobby. 35 percent of the respondents had utilized more than one cent for gardening, 25 percent had 15 to 20 pots.
- 100 percent took gardening only for household consumption, none of them had any commercial outlook on the products. Recycled products were utilized by majority of the people (58%), 22 percent utilized grow bags while the rest made use of pots and open ground.
- Almost equal proportion of respondents purchased material from JDAs office, Shops, online. Almost 50% had purchased the kit from JDAs office last year.48 percent used coir pith while the remaining used soil as the medium for growth
- Homemade composting and vermicomposting were used by majority of the respondents. Homemade composting was made of vegetable waste to a tune of 1-5 kg per month. Among the vegetables tomato, brinjal and gourds were grown in order of preference; among the green sirukeerai; among fruits guava and papaya
- Seeds/seedlings were purchased from govt. sources, nurseries and friends. All of them used homemade pesticides.75 percent used ground water and 25 percent used municipality water.

- Majority of them watered alternate days and it was done by women in the house
- The maximum production included Brinjal - 12Kg, Beans - 10Kg, Tomato - 8Kg, Radish - 3Kg, Green Chilli - 3Kg in one season, however there was no record keeping. More than 50 percent sought online support for information.
- The amount spent on vegetables ranged from 1000 to Rs.3000/- while the savings was not visible, a maximum of Rs. 5000 has been spent on structures. The respondents needed more nurseries in the neighbourhood and access to raw materials like coir pith and seeds and also information on pesticides for garden level.

Policy recommendations:

- The state department of horticulture may form urban / peri urban SHGs to develop urban community vegetable nurseries.
- Common spaces in colonies may be used for community vegetable gardening with support from Horticulture department for establishment of protected structures.

B. Action Plan (2021-24)

Theme No. 1	Monitoring of Adoption and Impact			
Title	CARDS / CBE / AEX / 2020 / 006 Preparation of Strategic Research and Extension Plan (SREP) for Coimbatore District			
Theme Leader	Dr. Ravi Kumar Theodore, Professor & Head, Training Division, DoEE, TNAU, Coimbatore			
Name of the Scientists and Centre	Tmt. R. Sasikala, Asst. Professor (Journalism), DoEE, TNAU, Coimbatore - 3			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Data collection	Data tabulation and analysis Report writing	-	Analyze the performance of sub-systems and supra systems in different farming systems To examine the problems and issues faced by farmers in different farming systems To develop a Strategic Research and Extension Plan (SREP) for Coimbatore district.
Title	CARDS/CBE/AEX/2020/007 Study on the Adopter Categories of coconut growers in			

	Coimbatore District.			
Theme Leader	Dr.M.Nirmala Devi DAE&RS,TNAU, Coimbatore -3			
Name of the Scientists and Centre	Dr.M.Nirmala Devi DAE&RS,TNAU, Coimbatore -3			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, Interpretation of data and report preparation	-	-	To assess the adoption of latest technologies among coconut growers To find out the distribution of adopter categories among coconut growers
Title	CARDS/CBE/AEX/2020/004 Socio-economic impact of TNAU Millet varieties and technologies in Dharmapuri District			
Theme Leader	Dr. R.Premavathi, Assoc. Professor (Agricultural Extension)			
Name of the Scientists and Centre	Dr.M.A.Vennila, Asst. Professor (Agricultural Extension), KVK, Dharmapuri			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Data analysis and Interpretation of data and report preparation.	-	-	To assess extent of adoption of TNAU millet varieties and technologies by farmers To analyze the socio-economic impact of TNAU millet varieties and technologies of millet growers
Title	CARDS/TKM /AEX/2021/001 A study on Farmer's livelihood Analysis due to pandemic covid-19 in Thiruvallur district			
Theme Leader	Dr. R. Agila, Professor, RRS, Tirur			
Name of the Scientists and Centre	Dr. R. Agila, Professor, RRS, Tirur			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Data collection, analysis and	-	-	To assess the social, economic and psychological

	report preparation			consequences perceived by the farmers due to pandemic COVID-19. To identify the problem faced by the farmers in executing agricultural operations and marketing their produces.
Title	CARDS/MDU/AEX/2020/001 A study on underutilized kodo and barnyard small millets cultivation and its post-harvest Processing in Madurai District.			
Theme Leader	Dr. J. Pushpa, Professor, AC&RI, Madurai.			
Name of the Scientists and Centre	Dr. J. Pushpa, Professor, AC&RI, Madurai.			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Data collection and analysis and report preparation	-	-	To know the present status of kodo and barnyard millet cultivation and to document diversity of the same. To assess the utilization behavior of post-harvest millet processing units established with govt. support programme at millets growing areas.
Title	CARDS/KKM/ARM/2021/002 Study on the Social and Economic Impact of Pandemic COVID-19 on the livelihood of farming in Thirunelveli District			
Theme Leader	Dr.R.Rajasekaran, Associate Professor (Agrl.Extn.), AC&RI, Killikulam			
Name of the Scientists and Centre	Dr.T.Domodharan, Professor (Agrl.Extn.), AC&RI, Killikulam			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Data collection and analysis and report preparation	-	-	To identify the problems faced by the farmers in executing the regular agricultural operations and marketing of their produces with other stake holders of farming sector. To enumerate suggestive measures from the farmers and stakeholders perception to restore their livelihood.
Title	CARDS/KVK/TVM/AEX/2021/001 Impact of TN-IAMWARM project on Watermelon farmers in Villupuram District			

Theme Leader	Dr.S.Sangeetha, Asst. Professor (Agrl. Extension)			
Name of the Scientists and Centre	-			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Data collection, Analysis and report preparation	-	-	Analyzing the socio economic impact of IAMWARM project among Watermelon farmers. To study the factors influencing adoption of ICM practices in Watermelon cultivation.
Title	CARDS/PKM/AEX/2020/001 A study on adoption of recommended banana production technologies among banana growers in Theni District.			
Name of the Scientists and Centre	Dr. K.P.Vanetha, Asst. Prof. (Agrl. Extn.),HC&RI,Periyakulam			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Data analysis, interpretation of results and report preparation	-	-	To know the knowledge and adoption level of banana growers on recommended banana production technologies To study the constraints faced by the banana growers towards adoption of TNAU recommended technologies.
Title	CDIL/CARDS/CBE/AERS/2021/R005, Neem based Bio-Pesticides in Crop Cultivation and Assessment of its Impact and Future Potential			
Theme Leader	Dr.P.Balasubramaniam, Director (ODL)			
Name of the Scientists and Centre	Dr.P. Balasubramaniam, Dr.S. Manickam, Dr.P.S. Shanmugam, Dr.R. Parimalarangan			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data	Data analysis and report preparation	-	Viable model for effective adoption of neem based bio-pesticides will be evolved.

Title	SDPC/DCM/CBE/SOA/2021/001, Income Generation and Livelihood Security of Marginal and Small Farmers of Theni District through Sustainable Organic Agriculture			
Theme Leader	Dr. Jansirani			
Name of the Scientists and Centre	Dr. S. Manickam, Dr. M. Suganthy			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, data entry and analysis.	Interpretation of data and report preparation	-	Establishment of input preparation units - (panchagavya, jeevamrutham, arappu, buttermilk karaisal, vermicompost) Pest repellent cafeteria Azolla units

Theme II	ICT in Agriculture			
Title	"M-Velanmai"			
Theme Leader	Dr. C. Karthikeyan, Professor and Head (Agrl. Extension)- PI			
Name of the Scientists and Centre	Dr. J. Venkata Pirabu, Dr. S. Nakkeeran, Dr. B. Vinothkumar, Dr. K.N. Selvaraj, Dr. P. Murali Arthanari, Dr. GA. Dheebakaran, Dr. P. Jeyakumar, Mr. M. Parthiban Dr. A. Sankari & Dr.Tirunavukarasu			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	The 1st version of the M-Velanmai mobile application will be designed and planned to deploy in Google Play store for pilot testing	AI inference validation and Query redressal by TNAU scientists Conversational platform supported by text and voice input between farmers & TNAU scientists, Continuous flow of push notifications on daily/ weekly basis for crop monitoring, E- Governance system for project administrators to monitor the utility	- Training the image datasets to detect the pests of paddy using the Convolution Neural Networks (CNN)	To design and develop an artificial intelligence based Agricultural Extension Advisory System named ' M-Velanmai ' which can facilitate farmers to access the needed decision support in agriculture. To pilot test, evaluate and upscale M-Velanmai in Tamil Nadu and study its impact

		of app.		
Title	DoEE/ICAR/KVK-VRI/NABARD FSPF Project (Drone)/2022, Empowering Farmers through Drone System for Precision Agriculture in Cuddalore			
Name of the Scientists and Centre	Dr. N. Sriram, Dr. S. Maruthasalam, Dr. R. Baskaran, , Dr. K. Natarajan, Dr. K. Bharathikumar, Dr. K. Sundaraiya, Dr. G. Gayathri			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, data entry and analysis. Interpretation of data and report preparation	-	-	Encourage farmers for the adoption of drone Technology and thereby improve farm income.
Title	CARDS/CBE/AEX/2020/006, Performance Evaluation of Mobile "Uzhavar" farmer app in information dissemination and services rendered among Farmers			
Name of the Scientists and Centre	Dr. S. Srivara Buddhi Bhuvaneshwari			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, data entry and analysis. Interpretation of data and report preparation	-	-	Performance and constraints of "Uzhavan app"
Theme III	Gender, Livelihood and Tribal studies			
Title	SPC/CARDS/CBE/AEX/2020/R005 Enhancing the Livelihood Status of Tribal Women through Community /Village Based Bio-Enterprises –Kodaikanal Block , Dindigul District			
Theme Leader	Dr. P. Balasubramaniam (PI), Director (ODL), TNAU, Coimbatore -3			
Name of the Scientists and Centre	Dr. C. Gopalkrishnan, Professor (Pathology) (Co-PI), TNAU, Coimbatore -3 Dr.P.Balaji, Asst. Professor (ARM), TNAU, Coimbatore -3			
Year	2022-23	2023-24	2024-25	Deliverables/Expected

				Output
	Conducting trainings and formation model centers and Impact Evaluation	Report preparation	-	To impart training on bio-fungicides production technologies To motivate tribal women to start community village based bio -enterprises for self- employment
Title	No. DEE- 1/KVK/ DPI/ ICAR- NBAIR/ Training Programme/ ASO/2021 Demonstration and training on bio intensive IPM and entrepreneurship development through bee keeping for the tribal farmers of Dharmapuri district, Tamil Nadu			
Name of the Scientists and Centre	Dr. M. A. Vennila, Dr. C. Sivakumar, Dr. S. Srividhya, Dr. M.Sangeetha, KVK, Dharmapuri			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	data analysis, Interpretation of data and report preparation	-	-	To demonstrate and train the tribal farmers on the use of bio control technologies in the field To develop entrepreneurship in bee keeping to sustain their family income.
Title	CARDS/CSCRI/MDU/AEX/2021/001 Analytical study on Multi-Dimensional Role of Women in vegetable cultivation and Marketing in Coimbatore District			
Name of the Scientists and Centre	Dr.A.Janaki Rani, Associate Professor (Agrl. Extension), DoEE, TNAU, Coimbatore			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, data entry and analysis.	Interpretation of data and report preparation and submission	-	To identify the gaps in the participation and limiting factors for their involvement in vegetable cultivation and Marketing. To assess the social networking among the women vegetable growers.
Title	No. DEE- 1/KVK/ Dharmapuri/ SCSP Project/ASO/ 2021 Enhancing the Livelihood of Scheduled Caste farmers through Entrepreneurships development in bee keeping and Capacity building on Bio-intensive IPM of Major crops in Dharmapuri district of Tamil Nadu			

Name of the Scientists and Centre	Dr. M. A. Vennila, Dr. C. Sivakumar, Dr. S. Srividhya, Dr. M.Sangeetha, KVK,Dharmapuri			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, data entry and analysis. Interpretation of data and report preparation	-	-	To develop entrepreneurship in honey bee rearing among the scheduled caste farmers To measure the training effectiveness on bio control technologies
Title	CARDS/MTP/AEX/2020/001 A study on the role of Non-Wood Forest Products (NWFPs) on Tribal livelihood development			
Name of the Scientists and Centre	Dr. C. Cinthia Fernandez, Asst. Professor, FC&RI, Mettupalayam			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Interpretation of data and report preparation	-	-	Mapping the profile of the Tribal People involved in NWFP Collection Assessing the Socio-economic impact of NWFP collection and marketing in terms of income, employment generation, savings, asset creation, social status and empowerment on the tribal livelihood
Title	No. DoEE/ KVK-TPS/KK/SADP/KKM 20AGR 007Enhancement of livelihood of tribal hamlets in Kanyakumari			
Name of the Scientists and Centre	Dr. D. Shoba, Dr. S. Nazreen Hassan, Dr. K. Kavitha, Dr. L. Karpagapandi, Dr. A. Selvarani,, Dr. S. T. Bini Sundar			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, Establishment of processing and nursery units	Interpretation of data and report preparation and submission	-	Establishment of processing and nursery units and entrepreneurship development

Theme IV	Youth and Training
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Title	CARDS/CBE/AERS/NON/2022/001, Entrepreneurial intention among postgraduate students of TNAU-An Analysis			
Theme Leader	Dr.A.Sakunthalai, Professor (Agrl.Extn), AEC&RI, Kumulur			
Name of the Scientists and Centre	Dr.V. Alex Albert, Assistant Professor(SST), AEC&RI, Kumulur Dr.A. Aruna Devi, Assistant Professor, SWCE, AEC&RI, Kumulur			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, data entry and analysis.	Interpretation of data and report preparation	-	Identification of entrepreneurial intention among post graduate students.

Title	CARDS/APK/AEX/2021/001, Analysing the preference of farmers on training programmes in Virudhunagar			
Name of the Scientists and Centre	Dr. L. Nirmala Assoc. Professor (Agrl. Extn)			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, data entry and analysis.	Interpretation of data and report preparation	-	Need based training programme for farmers.

Title	CARDS/ KVK, KANY/SS/2022/001 Livelihood assessment of rural youth through Krishi Vigyan Kendra interventions in Kanyakumari			
Name of the Scientists and Centre	Dr. S. Nazreen Hassan Asst.Professor (Agrl. Extn)			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, data entry and analysis.	Interpretation of data and report preparation	-	Impact of KVK intervention and training needs of rural youth

Theme V	Farmers organizations & Natural Resource Management			
Title	JSPS/ACRI/KDM/ DSS/2020/R002 Long Term Tank Performance and Institutional Effect of Irrigation Tank Management in Tamil Nadu			
Theme Leader	Dr.M.Jegadeesan, Asst Professor (Agrl. Extension)			
Name of the Scientists and Centre	Dr.T.Rajendran, Dr.S.R.Padma			

Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Interpretation of data and report preparation	-	-	To analyze long term historical changes in the tank management practices among the Ryotwari and Zamindari system in Tamil Nadu To compare the institutional effectiveness of tank performance and its effect on agricultural production under the PWD, Ex-Zamin and Panchayat Union (PU) management.
Title	CARDS/KKM/AEX/2021/001 Farmers Perception and Constraints on Integrated Farming Approaches in Thoothukudi district			
Name of the Scientists and Centre	Dr. T. Dhamodaran, Dr.G.Kumar			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, and analysis. Interpretation of data and report preparation	-	-	Ascertain the different integrated farming methods adopted by the farmers in Thoothukudi district. Advantages of integrated farming methods in Thoothukudi district.
Title	Farming System (IFS) to Minimize Risk in Farming and to Accelerate the Farmers Income of Cuddalore			
Name of the Scientists and Centre	Dr. N. Sriram, Dr. R. Baskaran, Dr. K. Natarajan, Dr. K. Sundaraiya, Dr. K. Bharathikumarm, Dr. S. Maruthasalam Dr. G. Gayathry			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output
	Collection of data, and analysis.	Interpretation of data and report preparation	-	Impact of Integrated Farming System on socio-economic status of farmers
Title	CARDS/CBE/SOA/2021/001, Case studies on organic farming models practiced by farmers in Coimbatore, Erode and the Nilgiris			
Name of the Scientists and Centre	Dr. A. Jansirani, Professor (Agrl. Extension)			
Year	2022-23	2023-24	2024-25	Deliverables/Expected Output

	Collection of data, and analysis.	Interpretation of data and report preparation	-	Identification of organic farming model
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Current status of the projects:

A total of forty projects being implemented in the Department of Agricultural Extension and Rural Sociology were reviewed. Out of which, three externally funded project, eleven university research projects were completed; sixteen university sub-projects and ten 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	4	6	2	4	6	10
Madurai	1	2	-	-	1	2
Killikulam	-	2	-	-	-	2
Trichy	4	-	-	-	4	-
Kumalur	1	-	-	-	1	-
Kudumiyamalai	-	-	1	1	1	1
Mettupalayam	-	1	-	-	-	1
Periyakulam	-	1	-	-	-	1
KVK, Dharumapuri	1	-	-	2	1	2
KVK, Vridhachalam	-	-	-	2	-	2
KVK, Kanyakumari	-	1	-	1	-	2
KVK,Tindivanam	-	1	-	-	-	1
KVK, Aruppukottai	-	1	-	-	-	1
RRS,Tirur	-	1	-	-	-	1
TOTAL	11	16	3	10	14	26

NEW PROJECTS PROPOSED DURING 2021-22

Campus	University sub projects		Externally funded projects		Total	
	Completed	Ongoing	Completed	Ongoing	Completed	Ongoing
Coimbatore	1	1	2	-	3	1
Madurai	2	-	3	-	5	-
Trichy	-	-	1	1	1	1
Echangottai	1	-	-	-	1	-
Vazhavachanur	-	-	2	1	2	1
KVK,Aruppukottai	-	-	1	-	1	-

KVK,Needamangalam	-	-	1	1	1	1
KVK,Kaniyakumari	1	1	-	-	1	1
TOTAL	5	2	10	3	15	5

D. Remarks on ongoing Research Projects

S. No.	Project Number & Title	Project Period	Project Leaders	Remarks
a.	Externally Funded Projects			
1	CSEAS/ACRI/KDM/AEX/2019/R001 Agricultural Mechanisation in the midst of unemployment in India: Case of land poor and landless labour in Cauvery Delta in Tamil Nadu	1.12.2019 to 30.06.2021	Dr. M Jegadeesan, Dr.M. Ramasubramanian	Only potential industries fitting in to the geographical locations have to be identified to provide sustained employment to the Jobless due to mechanisation.
2.	No. DEE-1/ SBGF Project/ SDPC/Nutrigarden/ ASO/ 2020-21, dt.01.12.2020 Empowering School Students on Establishment of Nutritional Garden in their backyard through Virtual training by ICAR KVKs of TNAU in Villupuram, Cuddalore and Tiruppur districts of Tamil Nadu during COVID-19 Pandemic"	2019-20	Dr. M. Senthil Kumar, Dr.N.Sriram, Dr.N.Anandaraja, Dr.K.Sundharaiya, Dr.R.Neelavathy, Dr.G.G.Kavitha Shree	Project report may be submitted.
3.	DABD/CDB/FDP/TRG/2021/T001/2021-2022 Coconut Farmers Entrepreneurship Programme	2021-22	Dr.M.Shanthaseela, Dr.S.D.Sivakumar Dr.R.Manimekalai	Prepare a catalogue of cottage industries in coconut suited to farmers need. Suitable policies may be formulated to create and upscale the cottage industries.
b.	Externally Funded Projects-Ongoing			
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 June 2022	Dr. P.Balasubramanian Dr. C.Gopalkrishnan, Professor (Pathology) (CoPI) Dr.P.Balaji ,Asst.Professor (ARM)	Project may be continued
2.	CDIL/CARDS/CBE/AERS/	1.10.2021-	Dr.P.Balasubra	Project may be continued

	2021/R005, Coromandel International Ltd Neem based Bio-Pesticides in Crop Cultivation and Assessment of its Impact and Future Potential	30.09.2023	maniam, Dr.S.Manickam, Dr.P.S.Shanmugam, Dr.R.Parimalarangan	
3.	DR/P2/ASO/TN IAMP/WTC/2020 M-Velanmai”	2019-2024	Dr. C. Karthikeyan, Dr. J. Venkata Pirabu, Dr. S. Nakkeeran, Dr. B. Vinothkumar, Dr. K.N. Selvaraj, Dr. P. MuraliArthanari, Dr. GA. Dheebakaran, Dr. P. Jeyakumar, Mr. M. Parthiban, Dr. A. Sankari, Dr. M. Thirunavukkarsu	Project may be continued
4.	JSPS/ACRI/KDM/DSS/2020/R002 Long Term Tank Performance and Institutional Effect of Irrigation Tank Management in Tamil Nadu	1.3.2020 to 30.10.2021	Dr.M.Jegadeesan, DrT.Rajendran DrS.R.Padma,	Project may be continued
5.	No. DEE- 1/KVK/ DPI/ ICAR- NBAIR/ Training Programme/ ASO/ 2021 Demonstration and training on bio intensive IPM and entrepreneurship development through bee keeping for the tribal farmers of Dharmapuri district, Tamil Nadu	2021-2022	Dr. M.A. Vennila Dr. C. Sivakumar	Project may be continued
6.	No. DEE- 1/KVK/ Dharmapuri/ SCSP Project/ASO/ 2021 Enhancing the Livelihood of Scheduled Caste farmers through Entrepreneurships development in bee keeping and Capacity building on Bio-	2021-2022	Dr. M.A. Vennila Dr. C. Sivakumar Dr. S. Srividhya, Dr. M.Sangeetha,	Project may be continued

	intensive IPM of Major crops in Dharmapuri district of Tamil Nadu			
7.	SDPC/DCM/CBE/SOA/2021/001 Income Generation and Livelihood Security of Marginal and Small Farmers of Theni District through Sustainable Organic Agriculture	2020-22	Dr. Jansirani, Dr. S. Manickam, Dr. M. Suganthy	Project may be continued
8.	DoEE/ICAR/KVK-VRI/NABARD FSPF Project (Drone)/2022 Empowering Farmers through Drone System for Precision Agriculture in Cuddalore	2021-22 to 2022-23	Dr. N. Sriram, Dr. S. Maruthasalam, Dr. R. Baskaran, , Dr. K. Natarajan, Dr. K. Bharathikumara n, Dr. K. Sundaraiya, Dr. G. Gayathry	Project may be continued
9.	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	2021-22 to 2022-23	Dr. N. Sriram, Dr. R. Baskaran, Dr. K. Natarajan, Dr. K. Sundaraiya, Dr. K. Bharathikumara m, Dr. S. Maruthasalam, Dr. G. Gayathry	Project may be continued
10.	No. DoEE/ KVK-TPS/KK/SADP/KKM 20AGR 007/ASO/ 2021 Enhancement of livelihood of tribal hamlets in Kanyakumari	Apr. 2021 – Sept. 2023	Dr. D. Shoba, Dr. S. Nazreen Hassan, Dr. K. Kavitha, Dr. L. Karpagapandi, Dr. A. Selvarani, Dr. S. T. Bini Sundar	Project may be continued
c.	University Research Projects-Completed			
1.	CARDS/MDU/AEX/2020/R002 Drought Mitigation Strategies of Farmers in Irrigated Cropping System in Madurai	Sept. 2020 to Aug. 2021	Dr. K. Mahandrakumar	Reasons for the poor adoption of drought mitigation measures may be identified.
2.	AICRP / CARDS / TRY /	Dec. 2020 -	Dr. Noorjehan.	Impact of presence of KVK

	AEX / 2021/001 Impact of KVK Interventions in Pulses under Rice Fallow and Sole crop cultivation in Tiruchi	Nov. 2021	A.K.A.Hanif, Dr.V.Dhanushkodi, Dr.N.Tamilselvan	penetration and non-penetration data may be included. Specific recommendations may be given for pulse growers under Rice fallow conditions.
3.	CARDS/ KVK/ PPT/ AEX/ PUL/ 2019/001 Impact of KVK Interventions on TNAU Released Varieties and Management Technologies of Pulses in Dharmapuri	Dec. 2019- Nov. 2021	Dr. M.A.Vennila, Dr. P.S. Shanmugam, Dr.M. Sangeetha, Dr.P. Ayyadurai	Highly impactful technologies may be shortlisted and included for impact studies.
4.	CARDS/CBE/AEX/2020/001 Footfall Analysis of farmers in ICAR KVKs of TNAU through farmers' database for invigorating the technology delivery	Aug. 2019- Dec. 2021	Dr. M.Senthilkumar	KVK scientists may be Sensitised to work for the needy farmers and plan innovative technologies to reach more number of farmers.
5.	CARDS/TRY/AEX/2020/001 Comprehensive analysis of Kisan Call Centre (KCC) in Trichy	Jan. 2020- Dec. 2021	Dr. D. Periyar Ramasamy	Strategies to enhance the use of KCC by farmers may be highlighted.
6.	CARDS /KUM /AEX/ 2019 / 001 , Sensitization Training on Recently Developed Technologies and Modern Machineries in Agriculture	01.09.2019- 01.09.2021	Dr. A. Sakunthalai	Machineries suited to particular environment may be proposed.
7.	CARDS /CBE / AEX / 2020/002 Developing a Climate led Transfer of Technology Model for Rice Eco System	July 2020- June 2021	Dr.R.Arunachalam	Include necessary climate change parameters and Pest and disease dynamics related to Climate change.
8.	CARDS/TRY/AEX/2019/002 A study on awareness and adoption of technology and production and marketing constraints of Jasmine growers of Trichy and Dindigul	Aug.2019- July 2021	Dr. G. Anand	Improving the shelf life of jasmine as being one of the major marketing constraints may be addressed.
9.	CARDS/TRY/AEX/2019/001 A study on the impact of vegetable farming on the livelihood status of small farmers in Trichy	Sept 2019- Feb 2022	Dr. P. Sumathi	Impact of vegetable farming on livelihood may be specified through appropriate indicators.
10.	CARDS/CBE/AEX/FOR/2021/001	Nov 2020 - April 2022	Dr. J. Thilagam, Dr. S. Angles	Forestry scientist may be consulted to bring out the

	Evaluation of the Impact of Social Forestry Programme and Social Benefits created for beneficiaries in Thanjavur			impact due to social forestry.
11.	CARDS/CBE/AEX/2020/003 Sustainability of Urban Vegetable Gardening	June 2020- May 2022	Dr. Shibi Sebastian	Suitable models for various size of vegetable gardens may be suggested to cater the needs of Urban Vegetable Gardeners
C	University Research Projects-Ongoing			
1	CARDS / CBE / AEX / 2020 / 006 Preparation of Strategic Research and Extension Plan (SREP) for Coimbatore District	Feb. 2020 to Jan. 2021	Dr. Ravi Kumar Theodore,	Project may be continued with stated objectives
2	CARDS/CBE/AEX/2020/007 Study on the adopter Categories of Coconut growers in Coimbatore District	December 2020- November 2022	Dr.M.Nirmala Devi	Project may be continued with stated objectives
3	CARDS/CBE/AEX/2020/004 Socio-economic impact of TNAU Millet varieties and technologies in Dharmapuri District	From July 2020 to December 2022	Dr.R.Premavathi	Project may be continued with stated objectives
4	CARDS/MTP/AEX/2020/001 A study on the role of Non-Wood Forest Products (NWFPs) on Tribal livelihood development.	December 2020- June 2022	Dr.C.CynthiaFernandaz	Project may be continued with stated objectives
5	CARDS / CBE / AEX / 2020/ 006 Performance Evaluation of Mobile "Uzhavan" farmer app in information dissemination and services rendered among Farmers	October 2020 to September 2022	Dr.S. SrivaraBuddhi Bhuvaneswari	Project may be continued
6	CARDS/ TKM / AEX/ RIC/2021/001 A study on Farmer's livelihood Analysis due to pandemic COVID-19 in Thiruvallur district	Nov 2020 – Oct 2022	Dr.R.Agila	Project may be continued
7	CARDS/MDU/AEX/2020/001 A study on underutilized kodo and barnyard small millets cultivation and its	June 2020 to July 2022	Dr.J.Pushpa.	Project may be continued

	post harvest processing in Madurai District.			
8	CARDS/CSCRI/MDU/AEX/2021/001 Analytical study on Multi-Dimensional Role of Women in vegetable cultivation and Marketing in Madurai District	Feb 2021 – Jan 2023	Dr.A.Janaki Rani,	Project may be continued
9	CARDS/KKM/ARM/2021/002 Study on the Social and Economic Impact of Pandemic COVID-19 on the livelihood of farming in Thirunelveli District	January' 2021 – December' 2022	Dr.R.Rajasekaran	Project may be continued
10	CARDS/KVK/TVM/AEX/2021/001 Impact of TN-IAMWARM project on Watermelon farmers in Villupuram District	January 2021 to December 2022	Dr.S.Sangeetha	Project may be continued
11	CARDS/PKM/AEX/2020/001 A study on adoption of recommended banana production technologies among banana growers in Theni District	Oct , 2020 to Sep, 2022	Dr.K.P.Vanetha	Project may be continued
12	CARDS/KKM/AEX/2021/001 Farmers Perception and Constraints on Integrated Farming Approaches in Thoothukudi district	November 2020 – October 2022	Dr. T.Dhamodaran,	Project may be continued
13	CARDS/CBE/AERS/NON/2022/001 Entrepreneurial intention among postgraduate students of TNAU-An Analysis	April 2022 – Mar 2024	Dr. S. R. Padma	Project may be continued
14	CARDS/APK/AEX/2021/001 Analysing the preference of farmers on training programmes in Virudhunagar	April 2021- Mar 2023	Dr. L. Nirmala	Project may be continued
15	CARDS/ KVK, KANY/SS/2022/001 Livelihood assessment of rural youth through Krishi Vigyan Kendra interventions in Kanyakumari	2022-2023	S. Nazreen Hassan	Project may be continued

16	CARDS/CBE/SOA/2021/001 Case studies on organic farming models practiced by farmers in Coimbatore, Erode and the Nilgiris	July 2021 - June 2023	Dr. A. Jansirani	Project may be continued

IV. AGRICULTURAL AND RURAL MANAGEMENT

Key Findings of the Completed Projects

Externally Funded Projects

1. NFSM/CARDS/CBE/ARM/2019/D001

Development of National Database on millets and establishing benchmarks for production, consumption and utilization of millets

(Dr.N.VenkatesaPalanichamy, Dr.A.Rohini, Dr.M.Shanthasheela, Dr.D.Muruganathi, Dr.M.Chandrakumar, and Dr.V.M.Indumathi)

- Indian millet markets are integrated in the long run. In majority of the selected markets bidirectional flow of information was found.
- Nepal remained as the most and first stable market among the major importers of Indian ragi as the higher probability of retention.
- India's export of bajra, Yamen Arab Republic remained as the most and first stable market among the major importers of Indian bajra with the higher probability of retention.
- Kenya remained as the most and first stable market among the major importers of Indian sorghum with probability of retention at 0.29 i.e., the probability that Kenya retains its export share over the study period was 29 per cent.
- None of the major importers retained the share in import. There was no stability among the importing countries in sorghum import from India.
- In all the markets Sorghum price is showing increasing trend. Since May to September is lean arrival season there are chances for price increase across the major Indian markets. Sorghum price across major Indian markets showed increasing trend. In June 2021 in all the major markets Sorghum price will be ruling higher.
- In case of Bajra marginal increase in price is seen across major Indian markets. Ragi prices showed mixed trend across Indian markets.
- In all the States millets are marketed through Village merchant and Wholesaler
- Marketed surplus was lesser for small millets compared to Sorghum, Ragi and Cumbu.
- In Tamil Nadu, small millets are marketed through Farmer Producer Organization where in further value addition is done and farmers are getting higher price when selling through FPOs
- In other States, millet farmers were involved in primary processing like cleaning and drying and not involved in further value addition.
- Majority of the Indian millet farmers are not taking up the processing activity which limits the opportunities for additional income.
- In all the States, consumption of rice was higher in urban household than in rural.
- Wheat consumption is also higher among the urban household
- In all the States, Sorghum, Bajra and Finger Millet was consumed more by the rural compared to urban household.

2. Action Plan (2022-2025)

Theme No : 1	Title	Management of Agribusiness and Entrepreneurship		
Name of the scientists and centre	2022-23	2023-24	2024-25	Deliverables/ expected output
Project 1. Assessment of Demand and Supply of Industry Human Capital in Agribusiness Sectors				
Dr. S.Hemalatha Dr. K. Mahendran Dr. S. MoghanaLavanya Dr. R. Balaji Dr. D. Murugananthi Dr. S. Anandhi	Agribusiness sectors – Seed, Plant protection and Banking sectors selected and organizational structure of agribusiness sectors analyzed	Designing forecasting model and simulating the model. Final report preparation		Prediction of human capital requirement in different agribusiness sectors for ten years from 2020 to 2030.
Project 2. Unlocking the Potential of Internet of Things – A Case Study on Agritech Start-up Model				
Dr.C.Muralidaran	The potential of agritech startups to be briefed and report writing to be completed			Agri startups could benefit from the study
Project 3. An Evaluation of MUDRA Scheme in Coimbatore District				
Dr. N.Deepa	Report writing to be done			Impact of MUDRA scheme in Coimbatore district will be known
Project 4. Performance analysis of Packing Case Industries in Coimbatore District, Tamil Nadu				
Dr.S.Selvanayaki	Assessing performance of the packing case industries - report writing.			Packing case industries and farmers could be benefitted from the study
Project 5. Analysis of Export Trend and Performance of Non Basmati Rice from Tamil Nadu				
Dr.R.Balaji	Report writing to be done			Trend and export performance of non-basmati rice would be known
Theme No : 2	Title	Institutions for Agribusiness		
Project 1. Preparation of study on Groups (Part II) and State Level Up Gradation Plan (Part III)				
Dr.N.Venkatesa Palanichamy Dr.D.Suresh Kumar Dr. C.Karthikeyan Dr. A.Rohini Dr.M.Chandrakumar Dr. D. Murugananthi	Finalizing the report and conducting stakeholder meetings			State level Up Gradation Plan with regard to micro food enterprises in TN

Theme No : 2	Title	Supply Chain Management and Value Chain Analysis				
Project 1. A Study on Increasing Production of <i>Moringa</i> Value Added Products from Farmers and Entrepreneurs through Value Chain Approach in Southern District of Tamil Nadu						
Dr.T.Samsai	Data collection, analysis and report writing					<i>Moringa</i> value chain model could be developed

C. Details of Research Projects

Departments	University sub projects		Externally funded projects		Total	
	Completed	Ongoing	Completed	Ongoing	Completed	Ongoing
Coimbatore	..	3	1	2	1	5
Madurai	..	1	..	..	..	1
KVK, Vamban
Mettupalayam	..	1	..	..	..	1
TOTAL	..	5	1	2	1	7

A total of 8 projects are operated in the department of ARM, in which one externally funded project is completed; two externally funded projects and five university research projects are ongoing projects in the department.

New Projects Proposed

Campus	University sub projects		Externally funded projects		Consultancy Projects		Total	
	Proposed	Obtained	Proposed	Obtained	Proposed	Obtained	Proposed	Obtained
Coimbatore	3	1	3	2	6	3

D. Remarks of the Ongoing Project

S. No	Project Number and Title	Project Period	Project Leader (PI/Co-PI)	Remarks
1. Externally Funded Projects				
	DST/CARDS/CBE/ARM/2020/R003 Assessment of Demand and Supply of Industry Human Capital in Agribusiness Sectors	2020-2023	Dr. S. Hemalatha Dr. K. Mahendran Dr. S. MoghanaLavanya	The project may be continued

			Dr. R. Balaji Dr. D. Muruganandhi Dr. S. Anandhi	
2.	GoTN/CARDS/CBE/ARM/2021/R00 4 Preparation of study on Groups (Part II) and State Level Up Gradation Plan (Part III)	2021	Dr.N.Venkatesa Palanichamy Dr.D.Suresh Kumar Dr. C.Karthikeyan Dr. A.Rohini Dr.M.Chandrakumar Dr. D. Murugananthi	The project may be continued. The outcome would help to refocus the mandates of stations.
2. University Research Projects				
1.	CARDS/KKM/ARM/2020/001 Unlocking the Potential of Internet of Things (IoT) – A Case Study on Agritech Startup Model	2020-2022	Dr.C.Muralidharan	The project may be completed
2	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	Dec 2020- Nov 2022	Dr.T.Samsai	The project may be completed and discussion with the related project scientists is required
3	CARDS/CBE/ARM/2020/002 An Evaluation of MUDRA Scheme in Coimbatore District	Oct 2020- Sep 2022	Dr.N.Deepa	The project may be completed
4	CARDS/MTP/ARM/2021/001 Performance analysis of Packing Case Industries in Coimbatore District, Tamil Nadu	Jan 2021- Dec 2022	Dr.S.Selvanayaki	The project may be completed
5	CARDS/CBE/ARM/2021/001 Analysis of Export Trend and Performance of Non-Basmati Rice from Tamil Nadu	2021-2022	Dr.R.Balaji	The project may be completed and information on potential export varieties is needed

V. REMARKS

a. General recommendations

- All the Social scientists working in Research stations/ Institutes may be encouraged to document location specific problems so as to initiate research to address them. They may be encouraged to map the districts with agro-based industries
- Impact of TNAU varieties/technologies may be documented
- Prioritization of Research for next the 10 years may be given importance.
- Research on new business models may be taken up across agro climatic zones
- All the faculties should have a minimum of two University research projects and encouraged to propose externally funded projects
- The outcome of Research projects may be communicated to the biological scientists
- All the Extension Scientists may be encouraged to get involved in Government programmes/schemes
- All the social scientists are encouraged to publish in Scopus indexed journals / > 6 NAAS rated Journals

b. Agricultural Economics

- A detailed study on students' hesitation towards entrepreneurial activities may be taken up so as to develop strategies to overcome
- Sample size may be taken into consideration in value chain management studies
- Price information of all the agricultural commodities may be communicated to all the Research Stations for displaying at the farm gates
- The challenges faced by the farmers during COVID 19 pandemic may be analysed and documented

c. Agricultural Extension and Rural Sociology

- Important findings obtained from the URP/Externally funded projects may be documented
- A document/catalogue of cottage industries may be prepared
- Crop Physiologists may be involved while formulating URP/EFP on drought mitigation
- KVKs recorded <50 % footfall during 2021-22 may be sensitized for improvement
- A model kitchen garden may be developed in all KVKs to showcase to the farmers

b. Agricultural and Rural Management

- Farmers may be encouraged to cultivate high yielding varieties in millets to get better yields.

- Direct marketing may be encouraged to get remunerative price to the millet farmers.
- Studies may be undertaken to improve availability of millets through FPOs
- The export potential of non Basmathi rice varieties may be documented
- Export potential of value added millets may be analysed
- Studies on consumption pattern of millets may be undertaken

List of Participants

Offline Participations

S. No.	Name & Address of the scientists
1	Dr. M.Raveendaran, Director of Research, TNAU, Coimbatore
2	Dr. D.Suresh Kumar, Director CARDS, TNAU, Coimbatore
3	Dr.Venkatesa Palanichamy, Dean (Agri), TNAU, Coimbatore
4	Dr.P.Balasubramanian, Director (ODL), TNAU, Coimbatore
5	Dr.P.P.Murugan, Director of extension Education, TNAU, Coimbatore
6	Dr.R.Umarani, Director Seed Centre, TNAU, Coimbatore
7	Dr.S.Pazhanivelan, Director, WTC, TNAU, Coimbatore
8	Dr.S.Senthil Nathan, Prof. & Head, Dept. of Agrl. Economics, TNAU, Coimbatore
9	Dr.K.Uma, Prof. & Head, Dept. of ARM, TNAU, Coimbatore
10	Dr.C.Karthikeyan, Prof. & Head, DAE&RS, TNAU, Coimbatore
11	Dr.M.Anjugam, Professor (Agrl.Econ) Dept. of Agrl. Economics, Coimbatore
12	Dr.R.Jansirani, Professor (Agrl.Extn.) Dept. of Sustainable Organic Agri.,Coimbatore
13	Dr.K.R.Karunakaran, Professor (Agrl.Econ.) Dept. of Agrl. Economics, Coimbatore
14	Dr.A.Rohini, Prof (Ag.&RI.Mgt.) Dept. of Agrl.& Rural Mgt. Coimbatore
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17	Dr.M.Prahadeeswaran, Asst. Professor (Agrl. Econ.) Dept. of Agrl. Economics, Coimbatore
18	Dr.N.Anandaraja Assoc. Prof (Agrl.Extn) O/o DEE, TNAU, Coimbatore
19	Dr. P.Balaji, Assoc. Prof (Ag.&RI.Mgt.) Dept. of Agrl.& Rural Mgt. Coimbatore
20	Dr. R.Balaji Asst. Prof (HRM), Directorate of ABD, Coimbatore
21	Dr. N.Deepa., Assoc. Prof. (Ag.&RI.Mgt.) Dept. of Agrl.and Rural Management Coimbatore
22	Dr. K.Divya, Assoc. Prof. (Ag.&RI.Mgt.) Dept. of Agrl. And Rural Management Coimbatore
23	Dr. S. Hemalatha, Assoc. Prof. (Ag.& RI.Mgt.) Dept. of Agrl. And Rural Management Coimbatore
24	Dr. A. Janakirani Assoc. Prof (Agrl.Extn) Dept. of Agrl.Extension and Rural Sociology,Coimbatore
25	Dr. M.Malarkodi. Assoc. Prof. (HRM) Directorate of ABD,Coimbatore
26	Dr.R.Manimekalai, Assoc. Prof (Agrl. Extn), Dept. of Agrl. Extension and Rural Sociology, Coimbatore

27	Dr. S.Moghana Lavanya. Assoc. Prof. (Ag.& RI.Mgt.) DSW, Coimbatore
28	Dr. C.Muralidharan Assoc. Prof. (HRM) Directorate of ABD, Coimbatore
29	Dr.D. Murugananthi. Assistant Professor (ARM),O/o Dean (Agri) TNAU,CBE-3
30	Dr.S.R.Padma. Asst. Prof (Agrl. Extn O/o Dean (Agri),TNAU,CBE-3
31	Dr.R.Premamavathi, Professor (Agrl. Extn.) O/O DSW, TNAU, Coimbatore-3
32.	Dr.R.Rajasekaran, Assoc. Professor (Agrl. Extn.) O/o DEE, TNAU, Coimbatore-3
33	Dr.R.Sasikala (Journalism) O/o DEE, TNAU, Coimbatore
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35	Dr. M.Shantha Sheela, Assoc. Prof, Directorate of ABD,Coimbatore
36	Dr. S.Senthilnathan, Asst. Professor, Dept. of Social Sciences, Killikulam
37	Dr. C. Babu, Professor, (PB&G), Directorate of Research, TNAU, Coimbatore
38	Dr. N. Sriram, Professor, (Agrl. Extn), Directorate of Research, TNAU, Coimbatore
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41	Dr. C.Velavan. Prof (ARM) O/o DPM, TNAU
42	Dr.A.Vidhyavathi, Professor (Agrl. Econ) Dept. of Agrl. Economics, Coimbatore

Online Participants

S. No.	NAME	DESIGNATION	WORK PLACE (Dept./Station)
1.	Dr. R. Agila	Professor (Agrl.Extn.)	RRS, Tirur
2.	Dr. J.S.Amarnath	Professor (Agrl.Econ.)	AC&RI, Madurai
3.	Dr.G. Anand	Asst. Prof (Agrl.Extn.)	KVK, Sirugamani
4.	Dr. S.Angles	Asst. Prof (Agrl.Econ)	AC&RI, Vazhvachanur
5.	Dr. R.Arunachalam.	Professor (Agrl.Extn)	Dept. of AE&RS, Madurai
6.	Dr. M.Chandrakumar.	Asst.Prof (Ag.&RI.Mgt.)	Dept. of Agrl.& Rural Mgt.Coimbatore
7.	Dr. C. Cinthia Fernandaz	Asst. Prof. (Agrl.Extn.)	AC&RI, Eachangkottai
8.	Dr. T.Dhamodaran	Professor & Head (Agrl.Extn.)	AC&RI, Killikulam
9.	Dr. T.Elenchezian	Asst. Prof. (Agrl.Econ.)	AC&RI, Killikulam
10.	Dr. S.Gurunathan.	Asst. Prof.(Agrl.Econ.)	AC&RI, Kudumiyamalai
11.	Dr. V.M.Indumathi.	Assoc. Prof. (Ag.&RI.Mgt.)	KVK,Vamban
12.	Dr. K.R.Jahanmohan,	Professor and Head	AC&RI,Echangkottai

		(Agrl.Econ.)	
13.	Dr. P.Jai Sridhar.	Asst. Prof (Agrl.Extn.)	KVK, Virinjipuram
14.	Dr. M.Jegadeesan.M.	Asst. Prof. (Agrl.Extn.)	AC&RI, Kudumiyamalai
15.	Dr. K.A.Jeyakumar,K.A.	Professor (Agrl.Extn.)	CSC&RI, Madurai
16.	Dr.K.M.Shivakumar,	Professor (Agrl.Econ.)	Dept. of Agrl.Economics, Coimbatore
17.	Dr.K.N.Selvaraj	Professor (Agrl.Econ.)	Dept. of Agrl.Economics, Coimbatore
18.	Dr. S.Kanaka. S	Asst.Prof. (Agrl.Econ.)	Chennai
19.	Dr. Kiruthika. N	Asst.Prof (Agrl.Econ.)	Dept. of Agrl.Economics, Coimbatore
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23.	Dr. M.Nirmala Devi.	Prof (Agrl.Extn.)	TNAU, Coimbatore
24.	Dr. L.Nirmala.	Assoc. Prof (Agrl.Extn)	KVK, Aruppukottai
25.	Dr. Noorjehan A.K.A. Hanif [pc-kvk]	Asst.Prof (Agrl.Extn)	AC&RI, Karur
26.	Dr. R.Parimalarangan.	Asst.Prof (Agrl.Econ.)	Dept. of Agrl. Economics, Coimbatore
27.	Dr.D.Periyar ramasamy.	Asst.Prof (Agrl.Extn)	KVK, Needamangalam
28.	Dr. J.Pushpa, [P&H]	Professor & Head (Agrl.Extn)	CSCRI, Madurai
29.	Dr. T.Rajendran.	Asst.Prof (Agrl.Econ)	TCRS, Yethapur
30.	Dr. K. Ramakrishnan.	Assoc.Prof (Agrl.Extn.)	AC&RI, Madurai
31.	Dr. M. Ramasubramanian	Asst.Prof (Agrl.Extn.)	AC&RI, Madurai
32.	Dr.A.Sakunthalai	Professor (Agrl.Extn.)	ADAC&RI, Trichy
33.	Dr. R.Salvadi Easwaran, [P&H]	Professor & Head (Agrl.Econ.)	HC&RI, Trichy
34.	Dr. T.samsai.	Assoc. Prof.(Ag.&RI.Mgt.)	AC&RI, Madurai
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42.	Dr.S.Srivara Buddhi Bhuvaneswari,	AP., (Ag. Ext.)	FC&RI, Mettupalayam
43.	Dr.P,Sumathi	Professor & Head (Agrl.Extn.)	AC&RI, Vazavachanur
44.	Dr. A.Sundar.	Asst. Prof (Agrl. Econ.)	KVK,Ramanad
45.	Dr. J.Thilagam.	Asst. Prof (Agrl. Extn.)	KVK, Pongalur
46.	Dr. K.P.Vanetha	Asst. Prof (Agrl. Extn.)	HC&RI, Periyakulam
47.	Dr. S.Varadharaj.	Assoc. Prof (Agrl. Econ.)	Periyakulam
48.	Dr.R. Velusamy.	Assoc. Prof (Agrl. Extn.)	AC&RI, Madurai
49.	Dr. M.A. Vennila	Asst. Prof (Agrl. Extn.)	KVK, Papparapatty
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