



# TAMIL NADU AGRICULTURAL UNIVERSITY



## KVK ACTIVITIES

**ICAR-KRISHI VIGYAN KENDRA**  
**THIRUPATHISARAM – 629 901**  
**KANYAKUMARI DISTRICT**

- 1. Name and address of KVK** : ICAR- Krishi Vigyan Kendra  
Tamil Nadu Agricultural University  
Thirupathisaram – 629 901  
Kanyakumari District  
Tamil Nadu  
Phone : 04652-275759, 275758  
E-mail : [kvkppi@tnau.ac.in](mailto:kvkppi@tnau.ac.in)
- 2. Name of Sr. Scientist cum Head** : Dr. M. Saravanakumar, Ph.D  
**Phone** : 04652- 275759  
**Mobile no.** : +91 8148000545  
**E-mail id** : msaravanakumartnau@gmail.com
- 3. Host Institute name** : Tamil Nadu Agricultural University  
**Name of head of Institute** : The Registrar,  
Tamil Nadu Agricultural University,  
Coimbatore
- 4. Year of KVK establishment** : 2004

**Staff position** :

Sl. No	Name of the incumbent	Sanctioned post	Mobile No.
1.	Dr. M. Saravanakumar	Programme Coordinator	8148000545
2.	Dr. K. Kavitha	Subject Matter Specialist - Plant Pathology	9003418457
3.	Dr. CissieTheeblyn David	Subject Matter Specialist - Home Science	9486756725
4.	Dr. R. Latha	Subject Matter Specialist - Plant Breeding/Seed Science & Technology	9486522528
5.	Dr. S. Santheepan	Training Assistant – Agronomy	7708137775
6.	Tmt. K. R. Sudha	Programme Assistant (Technical)	9442567591
7.	Thiru. R. Rajesh Kannan	Farm Manager	9578129628
8.	Thiru. V. Sivaraman	Programme Assistant (Computer)	9843196469
9.	Thiru. T. Arul Muthu	Junior Assistant	8870348585
10.	Mrs. R. Sumathy	Junior Steno cum Computer Operator	9003663847
11.	Thiru. G. Jayasekharan	Driver (Jeep)	9486880094
12.	Tmt. S. Parvathy	Office Attendant	7867038081
13.	Tmt. R. Shanmugasundaram	Field Attendant	

## **Vision**

Science and technology-led growth leading to enhanced productivity, profitability and sustainability of agriculture

## **Mission**

Farmer-centric growth in agriculture and allied sectors through application of appropriate technologies in specific agro-ecosystem perspective

## **Mandate**

Technology Assessment and Demonstration for its Application and Capacity Development

## **Activities**

- On-farm testing to assess the location specificity of agricultural technologies under various farming systems.
- Organize Frontline Demonstrations to establish production potential of technologies on the farmers' fields.
- Capacity development of farmers and extension personnel to update their knowledge and skills on modern agricultural technologies.
- To work as knowledge and resource centre of agricultural technologies for supporting initiatives of public, private and voluntary sector in improving the agricultural economy of the district.
- Provide farm advisories using ICT and other media means on varied subjects of interest of farmers

### **Activities of KVK during 2017-18**

<b>Particular</b>	<b>2017-18</b>		
	<b>Target</b>	<b>Implemented</b>	<b>No. of Farmers</b>
OFT's	5	5	25
FLD's	11	11	110
Trainings of farmers	41	57	1545
Training of Extension Personnel	5	2	173
Participants in Extension Activities	278	315	2387
Vocational Trainings	5	3	59
Seed Production (Kg)	60 q	39.89 q	95
Planting Material (No's)	54,000 setts	30,533 setts	40
Diagnostic visits	15	10	54
Kisan Mobile Advisories	15	16	22925

### **Activities of KVK executed during 2017-18**

#### **On farm testing (2017-18)**

1. Assessment of Blackgram variety KKM1 in Kanyakumari District

2. Introduction of Sesame as an alternate crop in rice-fallow condition of Kanyakumari District
3. Assessment of Fusarium wilt management in banana
4. Assessment of Milky Mushroom Varieties in Kanyakumari District
5. Assessment of glycemic index of traditional paddy varieties

#### **Front Line Demonstrations (2017-18)**

1. Demonstration of ICM practices in puddled transplanted rice
2. Demonstration of ICM practices in Dry seeded rainfed rice
3. Demonstration of organic cultivation practices for traditional rice variety – Kattisamba
4. Demonstration of TNAU Maize Hybrid CO 6 with improved crop production technologies
5. Demonstration of short duration tapioca variety Hraswa
6. Demonstration of package of practice for spiralling white fly management in tapioca
7. Demonstration on PLR-1 Amaranthus in Banana based cropping system
8. Demonstration of Integrated Crop Management in Bhendi hybrid Co-4
9. Demonstration of integrated crop management in cluster bean
10. Demonstration of mixed fodder under Coconut gardens
11. Demonstration of Iron and Calcium fortified fish soup for addressing micronutrient malnutrition

#### **Activities of KVK for 2018-19**

##### **On farm testing (2018-19)**

1. Assessment of the performance of zinc nutrition in rice for Kanyakumari District
2. Assessment of Blackgram varieties under Rice Fallow condition
3. Assessment of suitable Redgram varieties for summer season with supplementary irrigation
4. Assessment of Groundnut varieties suitable for rainfed condition
5. Assessment of bio formulations for Pseudo stem weevil management in banana
6. Assessment of Soft rot disease management in Ginger
7. Assessment of suitable Bhendi hybrids for Kanyakumari District
8. Assessment of suitable Tapioca varieties for Kanyakumari District

9. Assessment of suitable poultry bird for Backyard rearing
10. Assessment of Mango bar

#### **Front Line Demonstrations(2018-19)**

1. Demonstration of rice variety MGR 100(CO-52) in Kanyakumari District
2. Demonstration of IWM practices in Direct sown rice
3. Demonstration of Ecofriendly pest and disease management practices in organic Rice
4. Integrated Nutrient Management for Nendran Banana in acid soil
5. Demonstration of short duration tapioca variety Hraswa
6. Demonstration on PLR-1 Amaranthus in Banana based cropping system
7. Demonstration of tuber rot and wilt management in tuberose
8. Demonstration of foot rot disease management in pepper
9. Demonstration of Multicut fodder sorghum CSV33MF
10. Demonstration of Green fodder Production through Hydroponic Technique
11. Demonstration of Mixed fodder cultivation under Coconut garden
12. Demonstration of Homestead Nutrition Garden

#### **Impactful and new work taken up during 2014 -15 to 2017-18:**

1. Management of soil acidity through dolomite application in paddy (2014 – 15): Application of dolomite increased the yield of Rice from 5.0 to 8.3 t/ha (10.5 to 32.2% increase) and an additional income of Rs. 7000 to 12500/ha.
2. Adoption of Rice TPS-5 variety (2015 -16): Demonstration (TPS 5 variety) recorded higher grain yield (70.1 q/ha) compared to ASD (56.5 q/ha). Yield increase was 26 percentage. Similarly, higher net returns (Rs. 83389/ha) and BC ratio (2.69) were recorded with TPS 5 compared to ASD 16 (net returns – Rs. 59119/ha); BCR – 2.24).
3. Management of pseudo stem weevil in banana (2016 -17): The technology of banana pseudostem injection with Monocrotophos @4 ml/plant recorded the highest per cent reduction of pseudostem weevil (76.07%) over farmers practice with a net profit of Rs. 3,84,840 and BCR of 3.33. The success of this technology has now spread over an area of more than 1500 ha in this district
4. Empowerment of farm women through mushroom cultivation (2017 – 18): The production capacity of the growers ranged from 3 kg per day commercial cultivation of

Oyster mushroom increased production capacity of 15 kg per day with net return of Rs.15,000/- per month.

## SUCCESS STORIES

**Mechanization in Rice cultivation:** Farmers Field School (FFS) on mechanization in Rice was made during 2014-15 enabled the farmers to adopt complete mechanization. Farmers adopted mechanical Rice transplanting around 500-600 ha. Two progressive farmers and Four cooperative societies and FIG purchased Rice transplanter. In Kanyakumari district around 70-75 per cent of the Rice was harvested through combined harvester during *Kharif*, 2016-17.

**Root feeding of coconut tonic:** The reduction in the button shedding ranged from 6.5 to 10.2 per cent. The mean yield increase was recorded as 94.4 nuts/ tree/ year and in the local check it was 80.2 nuts/tree/year. The usage of root feeding of coconut tonic is increased year by year. The area of adoption and coverage of village with farmers are also increased.

**Mechanical coconut harvester:** The mechanical device for coconut harvest attracted the unemployed youths. At present the trained unemployed youths formed 5 groups of 4-6 members of each and started harvesting the coconuts. They are taking the device in two wheelers and harvesting the coconuts. These groups are starting the harvest by 6.30 am and completing by 12.00 noon. Within this time, they are climbing 80 to 100 palms. These coconut harvesting groups are charging Rs.10-15/tree depending on the total number of coconut trees available and height of the tree. Each individual is earning minimum income of Rs. 1000/day and a maximum of Rs.1500/day and leading a happy life.

**Handicrafts making from banana fibre:** The fibre is generally extracted by hand stripping by the elderly group. The stripped fibre is dried and then coloured with dyes for making attractive handicrafts. The shade dried coloured fibre is used for making knits of different sizes and attractive handicrafts Tea set and round set , Table mat and door mat, Hand bag and pooja bag, Purse and basket, Flower vase and pen stand, Wall hanging and caps are prepared using the knits. Fibre workers Self Help Groups were formed by the trained farm women and the enterprise was strengthened and doing this enterprise successfully and they also train other farm women.

# TAMIL NADU AGRICULTURAL UNIVERSITY



## FLORICULTURE RESEARCH STATION THOVALAI - 629 302

### Floriculture Research Station, Thovalai

The Floriculture Research Station, Thovalai was established on 24.07.08 as per the G.O. Ms. No. 285 Agriculture (AU) Department dated 11.09.08, with the aim of developing and providing various improved and cost effective technologies to the flower growers and entrepreneurs involved in floriculture industry. The research station is located at Visuvasapuram village near Thovalai town, Kanyakumari District, in National Highway 47B at a distance of 2 km from Thovalai flower market and 10 km from Nagercoil town. The total extent of the farm is 4.43 ha.

#### **Mandate**

1. Breeding and evolving high yielding varieties of flower crops viz., Jasmine, Tuberose, Nerium, Rose, Marigold, Celosia, Chrysanthemum, Gomphrena, Crossandra etc.,
2. Collection and evaluation of under exploited ornamentals (*Heliconia*, *Alpinia* and Bird of Paradise etc;) for cut flowers with longer vase life along with high degree of resistance to pests and diseases
3. Standardization of agro-techniques for loose and cut flower crops suitable for this tract.
4. To study the possibility of growing flower crops as inter crops in the already existing coconut and banana cropping systems.
5. To standardize technologies for pest and disease management in flower crops.
6. To standardize harvest and post-harvest technologies in flower crops.
7. To develop value added products from flower crops.

#### **Research projects**

1. HCBE FRS FLO 10 001 : Collection and evaluation of Nerium accessions for high yield, prolonged shelf life and as standards for ornamental purpose

2. HCBE FRS FLO 10 002 : Standardization of package of practices in Kashmir rose for loose flowers production
3. HCBE FRS FLO 09 001: Evaluation of high yielding elite flowers in coconut and banana based cropping systems.
4. HCBE FRS FLO 09 002: Standardization of agro techniques in Heliconia.
5. HCBE FRS FLO 13 001: Flower regulation in *Jasminum sambac* and *J. grandiflorum* by use of chemicals and pruning in different periods.
6. HCRI/PKM/FLO/TUB/2015/002: Breeding for developing a high yielding tuberose variety with white flowers suitable for Kanyakumari District
7. HCBE FRS AEN 10 002: Insecticidal Management of rose thrips.
8. HCBE FRS AEN 10 001: Cataloguing of Pests, diseases and nematodes in flower crops of Kanyakumari district.
9. HCRI/PKM/FLO/LOT/2015/001: Collection and evaluation of lotus and lily types suitable for loose flowers and for landscaping.
10. HCRI/PKM/FLO/ORC/2015/001: Standardization of agrotechniques for commercial cultivation of orchids under Thoivalai conditions.

#### **Extension activities**

- Solving problems of the farmers and answering their queries.
- Organizing training / seminars / symposiums.
- Conducting field level demonstrations.
- Organizing farmer's exposure visits.
- Attending the zonal, field demonstration and monthly review meetings of the collector.

#### **Research accomplishments**

##### **a. Nerium**

- ❖ Through intensive surveys undertaken at potential nerium growing tracts, elite and promising accessions which are high yielding and with diverse flower colour were collected from various places in Kanyakumari, Namakkal, Madurai, Thiruvannamalai and Salem dts; and based on the evaluation of collected accessions for growth and yield characters over years, it was observed that Acc.no. 15 (Rasipuram red and pink mixed- single) continued to record the maximum yield of flowers per plant.
- ❖ The total germplasm collection of nerium at Floriculture Research Station, Thoivalai stands as 38

##### **b. Rose**



- In an experiment on `Standardization of propagation practices in button and gladiator roses it is inferred that, the plants raised with semi hard wood cuttings had early sprouting (3.33 and 5 days), highest sprouting percent (80 and 62 %) and lowest mortality percent (20 and 385) respectively.
- `Button rose (*Rosa chinensis*) and Gladiator rose (*Rosa hybrida* var. *Gladiator*) were planted under different growing environments viz., under 35 % shade, 50 % shade and 35 % & 50 % shade at top shade alone and purely under open conditions in order to elucidate information on requirement of appropriate growing environment and it was inferred that, the plants raised under open condition recorded more yield and other yield contributing characters in both the rose varieties.

#### **c. Jasmine**

Off season flowering was experimented by pruning (second week November, February, May and August) and application of growth regulators (Ethrel, CCC, Mepiquat chloride and Paclobutrazol). Pruning during second week of August and application of Mepiquat chloride (500 ppm) 15 days after pruning induced off season flowering during October - January (1.57 t / ha).

#### **d. Heliconia**

- Ten species of Heliconia and 36 varieties. belonging to them have so far been assembled and were evaluated for various growth and yield characters and it was found that the maximum number of spikes /plant per year were recorded in *Heliconialatispatha* Var. *Tropics* which is closely followed by *H. wagneriana* Var. *Wagenaria* Red and *Heliconia angusta* var *Red Christmas*.
- Different spacing treatments in heliconiarevealed that the paired row system of planting with a spacing of {60 x 60} x 90 cm had recorded the highest flower yield of 17.07 flowers / m<sup>2</sup>.
- Eleven varieties belonging to seven species of heliconia were evaluated for their performance both under 35 % shade and open conditions and the results showed that there was a reduction in plant height ranging from 40.57 to 57.53 percent and reduction in number of suckers / clump ranging from 17.43 to 55.88 percent when grown under shade net. There was a yield reduction of 29.73 to 49.0 percent under shade net. But, the appearance of flowers was good under shade.

#### **e. Orchid**

Under coconut ecosystems, among the different varieties of orchids, *Aranthera* (Anne Black) has recorded the highest yield 13.1 flowers / m<sup>2</sup>, while *Vanda* and *Aranda* have failed to flower under coconut based cropping system.

#### **f. Plant protection**

- ❖ Insecticidal management studies for control rose thrips showed that Thiamethoxam 25 WG at 0.2 g/ lit was found to be effective.
- ❖ Under the study on cataloguing of pests, diseases and nematodes in flower crops of Kanyakumari District, the following information were arrived.
  - The flower thrips, *Frankliniella occidentalis* was found to be a serious pest in rose and occurred throughout the crop season.
  - The incidence of bud borer, *Helicoverpa armigera* occurred in rose from January - March and powdery mildew during August, February and March.
  - Jasmine bud worm, *Hendecasis duplifascialis* infestation was more during July and August, 2011 whereas it is not predominant in this region.

#### **g. Under - exploited flowers**

- Among the two accessions of *Alpinia* (Red, Pink) the cv. Red has recorded 10.4 flowers / clump / year.
- In Bird of paradise, among the two accessions (*Strelitzia reginae* and *S. nicolai*) evaluated, *S. reginae* comparatively recorded more flowers (5 flowers / clump / year) in the first year of flowering.
- In a study to evaluate the performance of five underexploited flowers viz., *Alpinia*, Torch ginger, Ornamental Banana, *Heliconia* and Bird of Paradise as intercrop of banana cultivar `Rasthali, grown in wet land, it was found that *heliconia* was the best intercrop as it recorded the highest yield of 15.19 flowers/ m<sup>2</sup> with a Benefit Cost Ratio of 1.82.
- Under gardenland condition, among the different crops such as marigold, celosia, chrysanthemum, *heliconia*, aster and ocimum grown with banana cultivar `Rasthali, ocimum was found to be a remunerative crop with the highest cost benefit ratio of 2.98 and is followed by *Celosia* 2.84.

**Agricultural Research Station**  
**Tamil Nadu Agricultural University**  
**Thirupathisaram**

- 1. Name of the research station** : Agricultural Research Station,  
Thirupathisaram, Kanyakumari district.
- 2. Date of establishment** : 01.04.1981
- 3. Research mandates** :
- To evolve suitable rice varieties for different seasons of Kanyakumari District.
  - To work out the package of practices and management technologies for cultivation rice.
  - To give farmers advisory service on rice crop.

**3. Varieties released**

<b>Variety &amp; Year of Release</b>	<b>Duration (days)</b>	<b>Special Features</b>
TPS 1 & 1985	110	Suitable for Kannipoo (Jun-Sep) and semi-dry cultivation, Short bold red rice, Drought tolerant
TPS 2 & 1987	130	Suitable for Kumbapoo (Oct.- Feb.), Short bold white rice
TPS 3 & 1993	135	Suitable for Ela situation, Short bold white rice, Resistant to blast
TPS(R) 4 & 2006	95	Suitable for tail end area (Kannipoo), Short bold white rice
TPS5 & 2014	115	Suitable for first (kannipoo) season and for late planting in the second (kumbapoo) season of Kanyakumari district as it is not affected by RTD.

**4. Technologies developed**

- ♣ Application of FYM at 12.5 t/ha + Azospirillum + soil test recommendation of fertilizers registered highest grain yield in rice
- ♣ Butachlor @ 2 Kg ai/ha applied on 8<sup>th</sup> day after sowing when sufficient soil moisture is available, controls germinating weeds under semi dry rice cultivation.

- ♣ Sun drying of seeds for 12 hrs from 10 AM to 4 PM for two days to disinfect for the control of white tip Nematode
- ♣ Integrated Pest Management strategies viz., release of *Trichogramma japonicum* @ 1,00,000 / ha thrice (if moth activity is noticed), installation of Pheromone traps (12 / ha), need based application of insecticides - Chlorantraniliprole 0.4 G 10 kg / ha @ Vegetative stage and 18.5 SC 150 ml / ha (0.3 ml / l) @ Panicle initiation stage can be adopted for the management of rice stem borer.

## 5. Research programmes

- ✓ Evolving early duration rice variety suitable for kannipoo season and medium/long duration rice variety suitable for Kumbapoo season of Kanyakumari District
- ✓ Development of rice cultures with bold grain having superior cooking quality traits suited for Kanyakumari district
- ✓ Maintenance breeding for breeder seed production of rice varieties suited for Kanyakumari.
- ✓ Integrated pest and disease management in rice.

## **TAMIL NADU AGRICULTURAL UNIVERSITY**

### **Horticultural Research Station, Pechiparai**

### **Kanyakumari Dt.**

The Horticultural Research Station, Pechiparai was established in 1989 under National Agriculture Research Project in an area of 21.69ha to conduct research on crops of high rainfall zone.

### **RESEARCH MANDATE**

1. Selection and evolution of desirable high yielding varieties in tree spices, black pepper, jack, pineapple, anthurium and medicinal plants of this tract.
2. Standardization of management techniques to improve the yield and quality of pineapple, jack, tree spices and pepper.
3. Standardization of optimum nutrient requirements for pineapple, jack, pepper and tree spices.
4. Developing an agro-forestry system for this region by evaluating the existing practices and to study their impact on the socio-economic conditions of this region.

5. Development of Integrated pest and disease management practices in pineapple, jack, tree spices and pepper.
6. To establish a medium range weather forecasting system.
7. Training to local farmers, tribals and Department officials by organising T & V Zonal Workshops, Field days etc.

### Achievements

Crop	Variety released	Salient features
Jack	PPI-1	<ul style="list-style-type: none"> <li>• Yield – 1818 kg/tree (107 fruits).</li> <li>• Bearing twice annually in Main season (April - June) and Off season (Nov - December).</li> <li>• Carpels Crisp and creamy yellow colour.</li> <li>• Sweet and tastier with pleasant aroma.</li> </ul>
Brinjal	PPI(B)1	<ul style="list-style-type: none"> <li>• A selection from Karungal local.</li> <li>• Solitary bearing with 30 - 35 fruits per plant.</li> <li>• Moderately resistant to shoot &amp; fruit borer and wilt.</li> <li>• Excellent cooking quality without bitterness and minimum seeds.</li> <li>• Yield 45 - 50 t/ha.</li> </ul>
Cinnamon	PPI(C)1	<ul style="list-style-type: none"> <li>• A selection from open pollinated clones maintained at HRS, Pechiparai.</li> <li>• Yields 980 kg of bark on coppicing and oil recovery of 3.3 % in the leaf and 2.9 % in the bark.</li> <li>• Suitable for coppicing at an interval of 18-24 months.</li> <li>• Suitable for high rainfall regions and lower elevations ranging from 100-500 m.</li> </ul>

### Germplasm collection

Crop	No. of accessions
Clove	24
Nutmeg	40
Cinnamon	12
Cassia	4
Garcinia	11
Pepper	15
Jack	11

### Technologies generated

S.No.	Crop	Title of the technology
<b>Crop Management</b>		
1	Pepper	Prevention of Spike shedding
2	Cinnamon	Vegetative propagation using semi hardwood cuttings
3	Nutmeg	Season for maximum survival percent for approach grafting
4	Tapioca	Nutrient Management under rain fed farming
5	Anthurium	Media standardization
<b>Crop protection</b>		
1	Pepper	Management of <i>Phytophthora</i> foot rot
2	Clove	Management of stem borer & Leaf spot
3	Ginger	Management of Rhizome rot
4	Banana	Management of leaf spot & Pseudostem weevil
5	Jack	Management of fruit borer

### EXTENSION ACTIVITIES

#### Details of planting materials produced and supplied to farmers.

This research station has a nursery which is accredited by the Directorate of Areacanut and Spices Development, Calicut for the production of quality planting materials in spices. Quality Planting materials are being supplied from this research station for the benefit of farmers.

Planting materials	Quantity produced (Year wise details)										
	2007 (Nos.)	2008 (Nos.)	2009 (Nos.)	2010 (Nos.)	2011 (Nos.)	2012 (Nos.)	2013 (Nos.)	2014 (Nos.)	2015 (Nos.)	2016 (Nos.)	2017 (Nos.)
Bush pepper - rooted cuttings	--	--	-	-	95	60	26	5	41	694	2650
Pepper (Panniyur – 1) - rooted cuttings	29520	43220	54345	55330	50000	1,00,000	30,000	38,415	50617	21349	27176
Nutmeg (Viswashree) - grafts	802	1250	1345	2650	--	3000	--	700	1200	634	751
Cinnamon – rooted cuttings	3520	850	3654	5210	11,082	10000	523	1,118	810	927	1333
Clove - seedlings	--	5000	5025	5520	14,106	14,289	15,326	3,488	1,401	1071	1270
Jack PPI - Budded plants	--	--	--	-	510	495	520	400	386	132	150
Kudampuli - grafts	--	--	--	-	-	-	157	214	92	38	100

- Farmers are being trained on cultivation and post harvest technologies of black pepper, ginger and tree spices under the National Horticulture Mission scheme

- Queries on cultivation of horticulture crops by farmers are being attended by the scientists of this Institute regularly. On an average, around 20 farmers are visiting this research station every month.