

# ICAR KRISHI VIGYAN KENDRA Thiruvannamalai, Tamil Nadu.

## ANNUAL REPORT (1<sup>st</sup> January 2020 to 31<sup>st</sup> December 2020)

### 1. GENERAL INFORMATION ABOUT THE KVK

#### 1.1. Name and address of KVK with phone, fax and e-mail

Name of the KVK as per official records (MoU)	:	<b>ICAR - Krishi Vigyan Kendra</b>
Address	:	Kilnelli village, Chithathur post, Vembakkam Taluk, Thiruvannamalai District, <b>Tamil Nadu- 604 410</b>
Phone	:	04182, 290551, +916384093303
Fax	:	-
Email	:	<a href="mailto:kvktvmalai91@gmail.com">kvktvmalai91@gmail.com</a>

#### 1.2. Name and address of host organization with phone, fax and e-mail

Name of the Host Organization as per Official Records	:	<b>Tamil Nadu Board of Rural Development</b>
Status of the Host Organization (As per the MoU)	:	NGO
Address	:	No:24, II <sup>nd</sup> floor, Crescent park street, T.Nagar, Chennai-600 017. Tamil Nadu.
Phone	:	044-24361319
Fax	:	-
Email	:	<a href="mailto:tnbrd1978@gmail.com">tnbrd1978@gmail.com</a>
Name of the Chairperson	:	Mr.S.Ramesh
Mobile No	:	9444021523
Email	:	<a href="mailto:tnbrd1978@gmail.com">tnbrd1978@gmail.com</a>

#### 1.3. Name of the Programme Coordinator with phone & mobile No.

Name of the Programme Coordinator / SS&H	:	Mr.V.Suresh
Residential Address	:	-
Phone No.	:	-
Mobile No.	:	8220004286
Email	:	<a href="mailto:agrisuresh.v@gmail.com">agrisuresh.v@gmail.com</a>

1.4. Year of sanction of the KVK (as per Official Order) : 1991

1.5. Month and year of establishment : May 1991

**1.6. Total land with KVK (in ha) (Consolidated figure) :**

S. No.	Item	Area (ha)
1	Under Buildings	0.20
2.	Under Demonstration Units	0.50
3.	Under Crops	3.40
4.	Orchard/Agro-forestry	10.80
5.	Others (specify)	5.57
	<b>Total</b>	<b>20.47</b>

**1.6. Infrastructural Development:**

**A) Buildings**

S. No	Name of building	Source of funding	Stage						
			Complete			Incomplete			
			Completion Date	Plinth area (Sq.m)	Expenditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction	
1.	Administrative Building	ICAR	1997	696	25,34,244.00	Not applicable			
2.	Farmers Hostel	ICAR	1998	305	14,96,643.00				
3.	<b>Staff Quarters</b>								
	1. SMS quarters	ICAR	1997	390	13,42,350.00				
	2. Assistant Quarters	ICAR	1998	300	9,00,000.00				
4.	<b>Demonstration Units</b>								
	1. Animal shed	ICAR	1996	145.0	173384.05				
	2. Poultry shed	ICAR		29.2	88793.75				
	3. Goat shed	ICAR		22.1	88793.75				
	4. Mushroom shed	ICAR		24.7	96797.35				
	5. Workshop	ICAR		65.79	181236.25				
5	Fencing	ICAR		6407.3 Meter	5,58,765.00				
6	Threshing floor	ICAR		270.8	2,92,757.00				
7	Vehicle shed	ICAR	1996	80.4	192764.00				

**B) Vehicles**

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms./hrs Run	Present status
Jeep : TN-09 AF – 0775	2004	4,82,356/-	287129	In condemned condition
MF Tractor & Trailer : TN-25 AX 1058	2012	5,70,000/-	2022.6	Good
Hero Honda : TN-09 AP 4662	2006	36,890/-	87763	Need to be replaced
Hero Honda passion plus : TN-25 S 0563	2009	49,476/-	89491	Good

## C) Equipment &amp; AV aids

Sl. No.	Name of the equipment	Year of purchase	Cost (Rs.)	Present status
1	Steel Almirah 5.5 ft. Green colour	9/15/1993	2750	Good
2	Steel Almirah 6.5 ft. Green colour	9/15/1993	15200	Good
3	Wooden table with cup-board L shape	11/20/1993	5500	Good
4	Wooden table with cup-board L shape	11/20/1993	6200	Good
5	Wooden Teapoy 5x2 ft.	11/20/1993	1750	Good
6	Wooden cupboard	11/20/1993	3300	Good
7	Polymer chairs-CH 23 type	3/7/1995	285000	Need to be replaced
8	Steel cot super size 6 x 4 ft	9/25/2004	33880	Need to be replaced
9	Steel dining table 5 x 2 x 2.5 ply wood top	9/25/2004	16120	Need to be replaced
10	Iron rack	3/1/2005	3500	Good
11	Revolving stool	3/8/2005	565	Good
12	Digital Conductivity meter	3/10/2005	10444	Good
13	Hot air oven - Guna Make	3/10/2005	15033	Good
14	Hot plate - Sunbim Make	3/10/2005	24998	Good
15	Refrigerator – Whirlpool	3/10/2005	19998	Good
16	Spectro photometer Model SL177	3/17/2005	60300	Good
17	Grinder -NACLE - 65mm x 25mm motor - 1/4HP Stainless Steel	3/23/2005	30009	Good
18	Electronic balance -AUY 220, Capacity:20 gms	3/26/2005	100242.5	Good
19	Servo Voltage Stabilizer with 5 KVA Electronic High/Low Voltage cut off	3/30/2005	9008	Good
20	Teak plywood table 6 x 2.5 x 2.5 ft-8 x 2.5 x 2.5 ft	1/3/2006	86280	Good
21	LCD-Panasonic Projector	3/22/2007	55000	Good
22	Computer Tables	9/19/2008	0	Good
23	Printer Tables	9/19/2008	0	Good
24	Chairs	9/19/2008	0	Good
25	Laser Printer-Hp LJ 1505	2/17/2009	0	Need to be replaced
26	Pruning saw heavy duty	2/18/2010	3474	Good
27	Lopping shear	2/18/2010	1283	Good
28	Secature	2/18/2010	1624	Good
29	Garden tools	2/18/2010	386	Good
30	Garden hoe	2/18/2010	565	Good
31	Garden fork with steel handle	2/18/2010	291	Good
32	Leaf rabe with handle	2/18/2010	291	Good
33	Hand saw	2/18/2010	239	Good
34	Secature-Geneo	2/18/2010	445	Good
35	Portable Generator --Birla Ecogen-EG 3000 AS Model	3/9/2010	77520	Need to be replaced
36	Inverter-Usha Zentra digital-1400 VA with Tubular battery SR-2 Nos	3/9/2010	27500	Need to be replaced

37	Rotavator-Model:36/30	3/25/2010	60320	Condemned
38	Tope-Round Vessel-10 G-6.700 kg	6/8/2010	1045	Good
39	Tope-Round Vessel-10 G-17.060 kg (52-60")	6/8/2010	2750	Good
40	Kaivadi Big Vegetable stainer-1.400 kg	6/8/2010	532	Good
41	Vegetable Kothu-SS 2.800 kg	6/8/2010	700	Good
42	Milk cane-SS-1.480 kg	6/8/2010	385	Good
43	Bucket- Satha-SS-1.580 kg	6/8/2010	253	Good
44	MS Jarnee-MS-2.060 kg	6/8/2010	134	Good
45	MS Stand-Fire wood Stove stand-16.080 kg	6/8/2010	1045	Good
46	Prestige Pressure cooker-20 lit.	6/19/2010	3770	Need to be replaced
47	Wet Grinder-Jumbo Junior 6" Plate grinding machine with stand, 1.5 HP single phase motor	7/5/2010	12540	Good
48	72 x 48 x 4 " Inch Cushion Double Bed Mattress	8/5/2010	76608	Good
49	72 x 36 x 4 " Cushion Mattress	8/5/2010	29352	Good
50	VST-Sakthi Power tiller-130DI with CT85 fitted diesel engine	8/13/2010	148190	Need to be replaced
51	Prestige mixture Grinder 3 Jar	2/17/2011	3465	
52	Idly Pannai – Small	2/26/2011	495	Good
53	Tabara with lid	2/26/2011	555	Good
54	Iron Kadai	2/26/2011	400	Good
55	Hot pack	2/26/2011	1300	Good
56	Public Address system - Ahuja PS x 1200 Amplifier Speaker	3/11/2011	10860	Good Good
57	Public Address system - Ahuja AW 490 VHL Cordless dual mike	3/11/2011	2513	
58	Ahuja SRX 50 x T Speaker box	3/11/2011	5587	Good
59	DVD Player-Sony-SR700H	3/11/2011	4050	Good
60	Deep Freezer-110 lit capacity (-200C)-ELANPRO	3/31/2012	31500	Good
61	Refrigerated Centrifuge (Centrifuge tube two types 1.Rotor 2. Expend of) 20000 RPM speed-RCF37570 - 8 to 400C-Remi with Rotor	3/31/2012	198500	Good Good
62	Vacuum desiccators-Made 3.3 low expansion Borosilicate Glass	3/31/2012	5000	
23	Hot air oven-Double walled chamber	3/31/2012	30000	Good
64	Laminar Air flow chamber- Clean air model	3/31/2012	57250	Good
65	BOD Incubator - Horizontal - Capacity : 6 Cubic feet.-Lark	3/31/2012	74425	Good
66	Vortex mixer - 200-2800 RPM variable speed	3/31/2012	3738	Good
67	D.O Meter - Range 0-20 ppm, 0-600C	3/31/2012	8400	Good
68	Digital pH Meter - Range -2.00 to 16.00pH	3/31/2012	9450	Good
69	Digital Colony counter - 5 digit, Size 110mm	3/31/2012	5000	Good
70	Thermo hygrometer - Range 0-100 %	3/31/2012	1312	Good
71	Digital moisture meter-VFD Display	3/31/2012	86000	Good
72	Microscope with stand - Lens dia 145 mm,	3/31/2012	5250	Good
73	UV rays chamber - UV lamp long wave length 365nm	3/31/2012	6875	Good

74	Magnetic stirrer-Fitted with Pilot lamps, Variable speed stirring.	3/31/2012	4095	Good
75	Brix meter-0-45 %	3/31/2012	3500	Good
76	Brix meter-45 to 85 %	3/31/2012	3500	Good
77	Phase contrast microscope-Antifungal and anti reflection	3/31/2012	57000	Good
78	Dissection microscope-ISI standard with movable condenser	3/31/2012	1575	Good
79	Water bath - Tank-Double walled chamber with thermo stat	3/31/2012	4725	Good
80	Stereo zoom microscope - Digital imaging systems	3/31/2012	103050	Good
81	10 KVA Wide range single phase electronic servo voltage stabilizer	3/31/2012	21755	Good
82	Whirlpool Air Conditioner split 1.5 ton 5 Star with stabilizer	3/31/2012	33000	Need to be replaced
83	IFB Microwave oven-20 lits. Capacity	3/31/2012	4500	Good
84	Mridaparikshak-Mini Soil Testing kit	3/31/2017	180600	Good
85	Ahuja Portable Speaker with Mic	2019	9000	Good
86	HP Laptop with wireless	2020	60699	Good

#### 1.7. A). Details SAC meeting\* conducted in the year

S.No.	Date	No of Participants	Salient Recommendations
1.	06.03.2020	21	-
2.	17.03.2021	22	Details given hereunder:

#### I. SALIENT RECOMMENDATIONS OF THE SAC MEMBERS

##### The President, TNBRD, Chennai

- KVK should increase the soil and water testing samples which was given by the farmers
- KVK has to promote the dry land agriculture and water conservation techniques.
- Rabbit farming has to be encouraged among the farmers.
- KVK may provide technical support to the women self-help groups for the promotion of nutrigarden.

##### The Director, ATARI, Zone X, ICAR, Hyderabad

- NewsOnAir mobile application should be promoted among the farmers.
- Regular updating of KVK Activities in various social media.
- Demonstration units like micro irrigation, Integrated Farming System and Organic farming should be established in the KVK Premises.

##### Director of Extension Education, TNAU, Coimbatore.

- The exposure visit for the farmers should be arranged to FC & RI Mettupalayam to acquire knowledge about tree farming.
- Detailed case study on IFS should be documented.

**The District Development Manager, NABARD, Thiruvannamalai**

- Mushroom production unit activities should be increased. Economics and case study should be recorded.
- KVK may organise the training to FPOs Directors and CEO
- KVK May concentrate on the production of low-cost Honey bee box to supply to the farmers in order to reduce the cost of production in Honey bee rearing.
- KVK may create awareness on the mobile app “Bharath Katha”- a marketing app among the farmers for direct selling of agricultural products

**Principal Scientist, Central Institute of Brackish water Aquaculture**

- Rainfall data of 30 years should be collected by KVK and low cost “NICRA” intervention should be promoted among farmers.

**Professor and Head, TANUVAS, Thiruvannamalai.**

- KVK should give importance in Backyard poultry farming among the farmers.
- KVK should encourage the low-cost concentrated feed for livestock.

**The General Manager, District Industrial Centre, Thiruvannamalai**

- KVK may conduct training in collaboration with DIC for the benefit of farmers.

**Forest Extension Officer, Forest Extension Centre, Thiruvannamalai.**

- KVK has to give more importance for tree farming in collaboration with forestry department.

**Farmer Members****Mr.V.Vasudevan, Farmer, Vazhur, Vandavasi.**

- The KVK may promote the organic farming in the operational villages.

**Mr.D.Manivannan, Farmer, Sathupperipalayam, Arni**

- KVK has promote advanced technologies on rat management in the farmer fields.

**List of members participated in the SAC meeting:      **Annexure-I****

## 2. DETAILS OF DISTRICT (2020)

### 2.0. Operational jurisdiction of KVKs

District	New districts governed by the KVK after division of the district, if applicable	Taluks/Tehsils and/or Mandals under the KVKs jurisdiction
Thiruvannamalai	-	Details given here under:

1. Geographical Position :  
*North Latitude Between* : *11° 55' and 13° 15' N*  
*East Longitude Between* : *78°20' and 79°50' E*
2. Total Geographical area : 6188 Sq. Km
3. District Headquarters name : Thiruvannamalai
4. No. Taluk details : 12
5. No. of Block : 18
6. No. of Village panchayats : 860
7. No. of Revenue villages : 1067
8. Taluk and block wise village details of the district:

S. No	Name of the taluk	Taluk HQ	Name of Blocks covered	No. of Village Panchayat	No. of Revenue villages
1	Thiruvannamalai	Thiruvannamalai	Thiruvannamalai	69	78
			Thurinapuram	47	57
2	Kilpennathur	Keelpennathur	Keelpennathur	45	77
3	Thandampattu	Thandampattu	Thandampattu	47	63
4	Chengam	Chengam	Chengam	44	64
			Pudupalayam	37	43
5	Kalasapakkam	Kalasapakkam	Kalasapakkam	45	52
6	Polur	Polur	Polur	40	73
7	Jamunamarathur	Jamunamarathur	Jamunamarathur	11	34
8	Chetpet	Chetpet	Chetpet	49	76
9	Arni	Arani	Arani	38	26
			West Arani	37	23
10	Vandavasi	Vandavasi	Vandavasi	61	61
			Thellar	61	61
			Peranamallur	57	57
11	Cheyyar	Cheyyar	Cheyyar	53	70
			Anakavur	55	61
12	Vembakkam	Vembakkam	Vembakkam	64	91
<b>Total</b>				<b>860</b>	<b>1067</b>

### 2.1. Major farming systems/enterprises

S. No	Farming system/enterprise
1	Irrigated : Paddy – Paddy-Paddy
2	Irrigated : Paddy-Groundnut - Vegetables
3	Rainfed : Groundnut-Pulses
4	Irrigated : Vegetable-Vegetables

### 2.2. Description of Agro-climatic Zone & major agro ecological situations

S. No	Agro-climatic Zone	Characteristics
1	North Eastern Zone, Vellore	The Mean average temperature is 28.62°C. Hot during summer(35 - 37°C). Cool during winter periods (24 - 26°C). The temperature regime is hyper thermic.
2	<b>Agro ecological situation:</b> Eastern ghats - (TN uplands) and Deccan plateau	Hot semi-arid eco region with red loamy soils.

### 2.3. Soil types in the jurisdiction

Sl.No.	Soil type	Characteristics	Area(ha)
1	Red Loam	The texture varies from sand to clay and the majority being loam. Porous and friable structure, absence of lime free from carbonates.	78256
2	Red sandy loam	Contain enough clay materials, dominated by sand particles, having visible particles and having very gritty structure.	63160
3	Black Loamy	Consist of mixture of sand clay and decaying organic matter having high nutritive value.	18793

### 2.4. Area, Production and Productivity of major crops cultivated in the district for 2020. (Season: Kharif, Rabi and Summer )

S. No	Crop	Area (ha)	Production ('000'tonnes)	Productivity (kg/ha)
1	Paddy	161679	602.74	3728
2	Cumbu	4063	9.78	2407
3	Cholam	35	0.026	740
4	Ragi	3877	9.44	2435
5	Samai	4825	6.08	1260
6	Maize	749	2.22	2967
7	Blackgram	35944	15.85	441
8	Greengram	1962	1.26	641
9	Redgram	1351	1.32	979
10	Groundnut	81214	137.33	1691
11	Gingelly	2525	0.778	308
12	Coconut	591	4218 (Nuts)	7137 (nuts)
13	Sugarcane	12709	991.3 (can)	78 ton/ha.
14	Turmeric	341	2.34	6870
15	Tapioca	1530	64570.6	42203
16	Cotton	393	91 lint	231 (Lmt)
17	Tomato	717	9354.7	13047



18	Brinjal	991	10236.0	10329
19	Bhendi	653	4290.2	6570
20	Chillies	1443	2.83	1961
21	Banana	2682	85.58	31908
22	Mango	405	2217.0	5474
23	Onion	103	0.891	8652
24	Mulberry	600	25.33 (Cocoons)	42.22
25	Others	29625	-	-
<b>Total Cropped area (ha)</b>		<b>351007</b>	-	-

## 2.5. Weather data

Month	Rainfall (mm)	Temperature °C		Relative Humidity (%)
		Maximum	Minimum	
January 2020	5.70	27.50	20.50	61.10
February	3.00	30.10	23.40	61.25
March	2.30	35.30	25.00	48.00
April	1.80	33.40	27.00	50.70
May	0.00	34.20	27.40	67.50
June	186.4	35.20	28.00	53.80
July	142.3	33.40	27.70	50.70
August	132.1	34.20	27.30	67.50
September	166.7	33.30	26.60	34.20
October	141.70	30.30	24.20	69.60
November	135.30	28.50	22.50	73.30
December	117.20	28.10	22.10	69.20
<b>Average/Total</b>	<b>1034.0</b>	<b>31.96</b>	<b>25.14</b>	<b>58.90</b>

## 2.6. Production and productivity of livestock, Poultry, Fisheries etc. in the district (2020)

Category	Population	Production	Productivity
<b>Cattle</b>			
<i>Crossbred</i>	694856	505260	6.86
<i>Indigenous</i>			
<b>Buffalo</b>	74741	104355	4.30
<b>Sheep</b>			
<i>Crossbred</i>	177712	424140	-
<i>Indigenous</i>			
<b>Goats</b>	248410	341440	-
<b>Pigs</b>			
<i>Crossbred</i>	5361	17200	-
<i>Indigenous</i>			
<b>Rabbits</b>	89	-	-
<b>Poultry</b>			
Hens	242311	8834000	-
<i>Desi</i>			
<i>Improved</i>			
Ducks			
Turkey and others			
Domestic dogs	4545	-	-

## 2.7. Details of Adopted Villages (2020)

Sl. No.	Taluk/ Mandal	Name of the block	Name of cluster villages	Year of Adoption	Major crops & Enterprises	Major problems identified in each crop/enterprise	Proposed type of interventions
1	Arni, Vandavasi, Vembakkam, Polur	<b>Arni:</b> Sathupperipalayam	Sathupperipalayam, Vazhur, Padavedu, Kilnelli, Athapur and Kilsembedu	2016-17	Paddy	Cultivation of old varieties, lack of awareness on season specific varieties, High infestation of pest & diseases BPH, Stem borer, Tungro, BLB and Blast, High incidence of pest and disease, Yield reduction. Lack of knowledge on value addition.	FLD, Field day, Training, Method Demonstration
2		<b>West Arni :</b> Athapur		2016-17	Little Millet	Cultivation of old varieties, Lack of awareness on high yielding & drought tolerant variety, High incidence of Blast disease, Low yield, Lack of knowledge on value addition. Low market value for raw millets.	FLD, Field day, Training, Method Demonstration
3		<b>Polur :</b> Padavedu		2017-18	Groundnut	Lack of awareness on the new varieties, less drought tolerant, Cultivation of VRI 2, Incidence of Root rot, leaf spot, rust and Spodoptera, poor yield. Lack of knowledge on value addition.	FLD, Field day, Training, Method Demonstration
4		<b>Vandavasi:</b> Vazhur, Kilsembedu		2017-18	Greengram	Prolonged cultivation of age-old varieties, Non-synchronized maturity, Incidence of YMV, Aphids, and Powdery mildew. More labour required for grading and, winnowing of pulses.	FLD, Field day, Training, Method Demonstration
5		<b>Vembakkam :</b> Kilnelli		2016-17	Bhendi	Low yield, Imbalanced nutrition, Non-adoption of improved technologies, YVMV. Lengthy time consuming and Crucial process during harvest.	FLD, Field day, Training, Method Demonstration

6	Arni, Vandavasi, Vembakkam, Polur	<b>Arni:</b> Sathupperipalayam	Sathupperipal ayam, Vazhur, Padavedu, Kilnelli, Athanur and Kilsembedu	2016-17	Brinjal	Low yield, Flower drop, Lack of application of growth regulators, Lack of adoption of improved technologies, Incidence of shoot & fruit borer and little leaf, Wilt, Imbalanced nutrition, Poor quality seedlings and field establishment.	FLD, Field day, Training, Method Demonstration
7		<b>West Arni :</b> Athanur		2018-19	Poultry	Less number of egg production, Low hatchability, Chick mortality, Less feed efficiency	FLD, Field day, Training, Method Demonstration
8		<b>Polur :</b> Padavedu		2018-19	Goat	Low body weight, High mortality, High morbidity.	FLD, Field day, Training, Method Demonstration.
9		<b>Vandavasi:</b> Vazhur, Kilsembedu		2018-19	Quail	Less number of egg production, Low hatchability, Chick mortality, Less feed efficiency.	FLD, Field day, Training, Method Demonstration
		<b>Vembakkam :</b> Kilnelli					

## DFI villages

Sl. No.	Taluk/ Mandal	Name of the block	Name of cluster villages	Year of Adoption	Major crops & Enterprises	Major problems identify in each crop/enterprise	Proposed type of interventions
1	Vandavasi	Vandavasi	Kilsembedu (Maruthadu Cluster)	2016-17	Paddy	Cultivation of old varieties, lack of awareness on season specific varieties, High infestation of pest & diseases BPH, Stem borer, Tungro, BLB and Blast, High incidence of pest and disease, Yield reduction, Lack of knowledge on value addition.	Trainings, MD and Awareness camp
2					Groundnut	Lack of awareness on the new varieties, less drought tolerant, Cultivation of VRI 2, Incidence of Root rot, leaf spot, rust and Spodoptera, poor yield. Lack of knowledge on value addition.	OFT, MD, Training, Awareness camp
3					Snakegourd Ridgegourd	Low fruit set, Maleness, Lack of adoption of location specific hybrids, Imbalanced nutrition, Lack of adoption of improved technologies, fruit fly, Sucking pests' Downy mildew and powdery mildew.	Trainings and Awareness camp.
4					Brinjal	Low yield, Flower drop, Lack of application of growth regulators, Lack of adoption of improved technologies, Incidence of shoot & fruit borer and little leaf, Wilt, Imbalanced nutrition, Poor quality seedlings and field establishment.	FLD, Training, MD, Field day
5					Poultry birds	Less number of egg production, Low hatchability, Chick mortality, Less feed efficiency.	OFT, Trainings, MD

6	Arni	West Arni	Athapur (Sathupperipal ayam cluster)	2017-18	Paddy	Lack of awareness on season specific varieties, High infestation of pest & diseases BPH, Stem borer, Tungro, BLB and Blast, High incidence of pest and disease, Yield reduction.	FFS, FLD, Field day, MD, Trainings and Awareness camp
7					Bhendi	Low yield, Imbalanced nutrition, Non-adoption of improved technologies, Yellow vein Mosaic Virus. Lengthy time-consuming process, crucial process during harvest.	FLD, Field Day, Training, Method demonstrations .
8					Groundnut	Lack of awareness on the new varieties, less drought tolerant, Cultivation of VRI 2, Incidence of Root rot, leaf spot, rust and Spodoptera, poor yield. Lack of knowledge on value addition	FLD, Field Day, Training, Method demonstrations .
9					Poultry birds	Less number of egg production, Low hatchability, Chick mortality, Less feed efficiency.	FLD, Field Day, Training, Method demonstrations .

## 2.8. Priority/thrust areas

<b>Crop/Enterprise</b>	<b>Thrust area</b>
Paddy, Groundnut, Blackgram, Millets, Colacasia, Brinjal, Chillies, Bhendi, Cucurbits.	Integrated Crop Management
Greengram, Groundnut, Chillies	Varietal assessment
Paddy, Groundnut, Finger millet, pearl millet, Snakegourd, Bhendi	Demonstration of high yielding hybrids/varieties
Paddy, Groundnut, Blackgram, Vegetables	Integrated Nutrient and weed Management
Paddy, Groundnut, Maize, Pulses, Sugarcane, Snakegourd, Banana, , Brinjal, Watermelon	Integrated Pest and Disease Management
Paddy, Groundnut, Millets and Blackgram	Quality seed production
Paddy	Conservation of traditional varieties
Paddy, Groundnut, Pulses, Coconut	Farm Mechanization
Banana, Vegetables	Precision farming
Brinjal, Chilli, Tomato	Scientific nursery management
Paddy, Banana and vegetables	Organic farming
Paddy, Pulses, Fruits and Vegetables	Post harvest management
Crops and livestock	Integrated Farming System, Poultry farming
Field crops, Fruits, Vegetables, Milk	Value addition, Drudgery reduction

### 3. Salient Achievements

#### Achievements of Mandated activities (1<sup>st</sup> January 2020 to 31<sup>st</sup> December 2020)

S.No	Activity	Target	Achievement
1.	Technologies Assessed and refined(No.)	-	-
2.	On-farm trials conducted (No.)	7	7
3.	Frontline demonstrations conducted (No.)	13	13
4.	Farmers trained (in Lakh)	0.017	0.01525
5.	Extension Personnel trained (No.)	175	173
6.	Participants in extension activities (in Lakh)	6000	5968
7.	Production and distribution of Seed (in Quintal)	25.0	25.68
8.	Planting material produced and distributed (in Lakh)	0.05	0.05467
9.	Live-stock strains and finger lings produced and distributed (in Lakh)	0.025	0.02698
10.	Soil samples tested by Mini Soil Testing Kit (No)	100	57
11.	Soil samples tested by Traditional Laboratory (No)	600	502
12.	Water, plant, manure and other samples tested (No.)	50	72
13.	Mobile agro-advisory provided to farmers (No.)	24	23 (85742)
14.	No.of Soil Health Cards issued by Mini Soil Testing Kits (No.)	100	57
15.	No. of Soil Health Cards issued by Traditional Laboratory (No.)	600	502

#### Salient Achievements by KVK during the year in bullet points:

- Climate smart millet crops viz., Pearl millet, finger millet, little millet, foxtail millet, kodo millet, proso millet, banyard millet have been promoted in the district over an area of 11241 hectares, which increased the income of the farmers to the tune of rupees 34950/ha.
- Quality seeds of improved high yielding new varieties viz., VBN-8 (Black gram) 13.46Qtl and Co-51 (Paddy) 8.84qtl and fodder seeds like, hedge leucerne, subabul, COFS 31, etc (2.34 qtl) were supplied to the farmers and the varieties have spread over an area of 23,1420 ha in the district.
- With a view to increase the productivity of the vegetables by 20-30 %, foliar nutrition has been promoted by KVK. Total quantity of 294 kg of IIHR vegetable special (Micronutrient formulation) has been produced and distributed to farmers. At present the technology has spread over an area of 1132 ha in the district.
- As an alternative income generation activity, the beekeeping has been promoted in the district by KVK. Total no of 12 small scale bee farms have been established in the district and 125 farmers directly benefited through KVK mandated activities.
- Total no of 21 Integrated Farming System models have been established and maintained under the KVK's technical support. They serve as model farms in the district.

- Five Subject Matter Specialists of KVK received the best extension worker award from the District Collector, Thiruvannamalai during the republic day celebration 2020 for their outstanding work in implementation of Jal Shakti Abhiyan Programme.
- Three of the KVK progressive farmers received best farmer awards from Centre of Excellence in millet, Athiyandal for millet production and millet entrepreneurship activity on 07.03.2020 at CEM, Thiruvannamalai.

#### 4. TECHNICAL ACHIEVEMENTS

##### Details of target and achievements of mandatory activities by KVK during 2020

##### OFT (Technology Assessment)

No. of OFTs		Number of technologies		Number of locations (Villages)		Total no. of Trials/ Replications/ beneficiaries	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
7	7	13	13	7	7	45	45

##### FLD (crop/enterprise/CFLDs)

No of Demonstrations		Area in ha		Number of Farmers/Beneficiaries/Replications	
Targets	Achievement	Targets	Achievement	Targets	Achievement
13	13	36	36	130	130

##### Training including sponsored, vocational and other trainings

Number of Courses			Number of Participants	
Clientele	Targets	Achievement	Targets	Achievement
Farmers and Farm Women	90	87	1350	1241
Rural youth	10	8	150	144
Extn. Functionaries	7	7	175	173
Vocational	4	1	60	15
Sponsored training	5	5	125	125

##### Extension Activities

Number of activities		Number of participants	
Targets	Achievement	Targets	Achievement
375	368	6000	5207

##### Seed Production (q)

Target	Achievement	Distributed to no. of farmers
25	25.68	245

##### Planting material (Nos.)

Target	Achievement	Distributed to no. of farmers
5000	5467	232

##### Bio Products (Kgs.)

Target	Achievement	Distributed to no. of farmers
6000	6346	928



#### 4.1. Technology Assessments (OFTs) in Detail

##### 4.1.1. Assessment of Maize Fall Army worm management in Maize

1. **Thematic area** : Integrated Pest Management
2. **Title** : Assessment of Maize Fall Army worm management in Maize.
3. **Scientists involved** : Subject Matter Specialist (Plant Protection)
4. **Details of farming situation :**

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Sandy loam	L	M	M	213.40	8

#### 5. Problem definition / description:

Severe incidence of Fall Army Worm (FAW) in maize (60.21%) with reduction of yield (44 %). The fall armyworm causes serious leaf feeding damage as well as direct injury to the ear and it can damage maize plants in nearly all stages of development. The adult moth is a fast flyer and can cover 100 km a night and poor knowledge on management practices lead to severe yield loss. Indiscriminate application of chemical pesticides results in higher cost, hazardous to the environment and residual effect edible product.

#### 6. Technology Assessed:

##### TO1 :

- Summer ploughing.
- Seed treatment with Fortezaduo (Cyantraniliprole + Thiamethoxam) @ 4 ml/Kg.
- Border crop with grain sorghum as trap crop (advance sowing) & legume intercrop.
- (cowpea) to promote natural enemies (few rows at intervals).
- Collection and destruction of Egg masses.
- Installation of *S. frugiperda* pheromone traps @ 4 no's/ac (PCI or Hyderabad chemicals).
- Azadiractin 10000 ppm spray 10 to 15 DAS.
- EPN or Bt @ 2g/lt 15 – 21 DAS.
- Spray of Insecticide – 21 -28 & 36-42 DAS.
- Spray of *Metarhizium anisopliae* (1x10<sup>7</sup>) @ 2ml/lt 30-35 DAS.
- Poison baiting @ 45 -65 DAS Thiodicarb 75WP @ 2g/lit.

**FP :** 4-5 Application of Chlorpyrifos 3 ml/l + Chlorantraniliprole @ 0.3 ml/l.

## 7. Critical inputs given:

Name of the input	Quantity	Value in Rupees
Metarhizium	5 Lit.	3000.00
Neem Oil	5 Lit.	5000.00
<i>Pheromone trap Funnel</i>	20 Nos	420.00
Fall Army Worm lure	20 Nos	708.00
Entopathogenic	5 kg	2844.00
Fodder seeds	1 kg	600.00
Chlorontriliniprole	200 ml	3680.00
Thiometharam	500 ml	1200.00
Cow pea seed	1 kg	200.00
Field Board	5 Nos	1000.00
<b>Total Rs.</b>		<b>18652.00</b>

## 8. Results :

**Table 1 : Performance of the technology**

Technology Option	No. of trials	Yield (q/ha)	Net Return (Rs./ ha)	BCR	Pest incidence of FAW (%)
<b>FP:</b> IPM Practices	5	39.46	20148.00	1.43:1	54.71 %
<b>TO1:</b> Pesticide application		51.78	44817.00	2.04:1	26.12 %

**Table 2 : Data on other performance indicators\***

Parameters observed	TO 1	TO 2
Pest Infestation (%)	26.62	54.71
Yield(q/ha)	51.75	39.46
Gross Cost (Rs./ha)	43212/-	46934/-
Gross Income (Rs./ha)	88029/-	67082/-
Net income (Rs./ha)	44817/-	20148/-
BCR	2.04	1.43

### Description of the results:

In maize, fall army worm is the major problem for the farmers. The farmers mostly rely on the pesticide for the management, despite of array of alternate methods available. Keeping in this view, assessed integrated maize fall army worm management technologies in Andampallam village of Thiruvannamalai block. The results revealed that the yield increased and pest incidence reduced in IPM technology implemented plots. The TO1 recorded higher yield (51.75 q/ha) as compared with farmers' practice (39.46 q/ha). Besides, average increase in yield to the tune of 31.22 percent with higher BCR of 2.04 and very low incidence of FAW (26.62 %) were recorded in TO1 as compared to other technological options. The farmers reacted that IPM package was good with an additional income of Rs. 24669.00 per ha compared to farmers practice.

9. **Constrains** : The availability of latest pesticides and bio control agents are ensured.

10. **Feed back of the farmers involved:**

The farmers felt that cultivation of maize with IPM package has given higher yield and economic returns with low incidence of fall army worm (FAW) compared to normal practice.

11. **Feed back to the scientist who developed the technology**

Maize Fall Army Worm resistant variety may be developed with high yield potential.

4.1.2. **Assessment of Groundnut varieties for rainfed condition**

1. **Thematic area** : Varietal evaluation
2. **Title** : Assessment on performance of Groundnut varieties for rainfed condition
3. **Scientists involved** : Subject Matter Specialist (Agronomy)
4. **Details of farming situation** :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Sandy loam	M	H	M	25.8	5

5. **Problem definition / description:**

Groundnut is a major oilseed crop cultivated in larger area in Thiruvannamalai District. The groundnut has been cultivated by farmers' mainly during two seasons viz., Kharif(June-July), Rabi (September - October). Farmers are getting the low yield and market price due to cultivation of very age-old variety VRI-2 in large area. The groundnut variety VRI-2 is less drought tolerant and highly susceptible to early and late leaf spot, rust diseases resulting in low crop yield and higher production cost per hectare due to application of massive amount of pesticides.

6. **Technology Assessed:**

**TO1** : Cultivation of Groundnut variety CO-7

**TO2**: Cultivation of Groundnut variety TCGS 1043

**FP** : Cultivation of Groundnut variety VRI 2

7. **Critical inputs given:**

Name of the input	Quantity	Value in Rupees
Groundnut CO7 (Kernel)	175 kg	16625.00
Groundnut ICGV03043 (Kernel)	175 kg	14875.00
<i>Trichoderma viride</i>	14 kg	1750.00
Field board	7	1400.00
<b>Total Rs.</b>		<b>34650.00</b>

## 8. Results :

**Table 1 : Performance of the technology**

Technology Option	No. of trials	Yield (q/ha)	Net Return (Rs./ha)	BCR	Other performance indicators*
FP : Groundnut variety VRI 2	7	16.58	45102/-	1.98 : 1	<ul style="list-style-type: none"> <li>▪ Number of plants/sqm</li> <li>▪ Plant height (cm)</li> <li>▪ Number of pods/plant</li> <li>▪ Yield (q/ha)</li> <li>▪ BCR</li> </ul>
TO 1 :Groundnut variety CO-7		21.65	73487/-	2.61 : 1	
TO 2 :Groundnut variety TCGS 1043		24.59	89002/-	2.92 : 1	

**Table 2 : Data on other performance indicators\***

Parameters observed	Groundnut CO-7	Groundnut TCGS 1043	Groundnut VRI 2
Number of plants/sqm	30	29	30
Plant height (cm)	40	46	35
Number of pods/plant	24	27	16
Yield(q/ha)	21.65	24.59	16.58
Gross Cost (Rs./ha)	45595/-	46259/-	46064/-
Gross Income (Rs./ha)	119082/-	135261/-	91166/-
Net income (Rs./ha)	73487/-	89002/-	45102/-
BCR	2.61	2.92	1.98

### Description of the results:

The Groundnut varietal assessment trials were conducted in seven locations covering seven farmers, during Rabi season (2019-20). During the varietal assessment various parameters were observed and recorded. The number of pods per plant recorded very low in farmers practice VRI 2 (16 nos.) followed by CO-7 (24 nos.) and highest pods per plant (27 nos.) were recorded in TCGS1043 groundnut variety.

The mean average yield (24.59 Qtl/ha) was recorded in TCGS1043 Groundnut variety, which is 32.57% higher compared to VRI 2 (16.58 Qtl/ha) followed by CO-7 groundnut variety (21.65 Qtl/ha). Farmers have obtained the highest net income of Rs. 89002/ha in groundnut variety TCGS1043 followed by CO-7 (Rs.73487/ha) and lowest net income was recorded in farmers practice VRI-2 (Rs.45102/ha). The highest benefit cost ratio of 2.92 was recorded in TCGS1043 and lowest was recorded in VRI-2 (1.98).

**9. Constrains:** Availability of quality seeds throughout the year may be ensured from the research stations/universities.

### 10. Feed back of the farmers involved:

The Groundnut variety TCGS1043 has recorded higher yield and getting higher market price compared to VRI-2. This variety is highly suitable for Rabi season.

### 11. Feed back to the scientist who developed the technology:

Based on the assessment of groundnut varieties at field level, this TCGS 1043 variety is performed well and highly suitable for rainfed condition.

#### 4.1.3. Assessment of Improved hybrids for higher productivity in Chilli

1. **Thematic area** : Varietal evaluation
2. **Title** : Assessment of Improved hybrids for higher productivity in Chilli
3. **Scientists involved** : Subject Matter Specialist (Horticulture).
4. **Details of farming situation :**

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Sandy loam	H	M	M	265	12

5. **Problem definition / description:**

The farmers were not aware of the improved high yielding Chilli hybrid suitable for their location. As a result, low yield (28%) and income were obtained as compared to potential yield and income levels of improved hybrids.

6. **Technology Assessed:**

**TO1** : Cultivation of CO1 Chilli hybrid.

**TO2** : Cultivation of Arka Khyati Chilli hybrid.

**TO3** : Cultivation of private hybrids (Farmers' practice).

7. **Critical inputs given:**

Name of the input	Quantity	Value in Rupees
CO1Chilli hybrid seeds	0.240 kg	5760.00
<b>TO2:Arka Khyati Chilli hybrid seeds</b>	0.240 kg	4800.00
Vegetable Special	24 kg	4200.00
Field board	8 Nos	1600.00
<b>Total Rs.</b>		<b>16360.00</b>

8. **Results** :

**Table 1 : Performance of the technology**

Technology Option	No.of trials	Yield (q/ha)	Net returns (Rs./ha)	B:C	Data on Other performance indicators*
<b>FP:Private hybrids</b>	8	215.02	187431.90	2.30	<ul style="list-style-type: none"> <li>▪ Days to 50%flowering</li> <li>▪ Average fruit weight(g)</li> <li>▪ Average fruit length(cm)</li> </ul>
<b>TO1:CO1 Chilli hybrid</b>		246.42	256541.40	2.77	
<b>TO2:Arka Khyati Chilli hybrid</b>		276.61	271741.30	2.90	

**Table 2 : Data on other performance indicators\***

Parameters observed	Farmers practice	Technology 1(CO1 Chilli hybrid)	Technology 2(Arka Khyati Chilli hybrid)
Days to 50% flowering	44.5	43.37	44.25
Average fruit weight(g)	4.34	4.46	4.64
Average fruit length(cm)	8.76	9.49	11.36

**Description of the results:** The Arka Khyati (TO1)chilli hybrid has given 28.64% higher yield as compared to check. Most suitable for the locality. An additional net return of Rs.84309.4 per hectare was recorded.

**9. Constraints:** Seeds of improved varieties are not available throughout the year. It resulted in delayed crop raising.

**10. Feed back of the farmers involved:** Arka Khyati chilli hybrid yields higher but the market preference has been good for CO1 chilli and fetches good market price. Income point of view both hybrids are equal.

**11. Feed back to the scientist who developed the technology:** Arka Khyati given 28.64% higher yield as compared to check. Fruits are less pungent. Improved dual purpose hybrids with resistance to chillies leaf curl virus with higher pungent fruits similar to Arka Khyati may be developed.

#### 4.1.4. Assessment of Improved hybrids for higher productivity in Ridge gourd

- 1. Thematic area** : Varietal evaluation
- 2. Title** : Assessment of Improved hybrids for higher productivity in Ridge gourd
- 3. Scientists involved** : Subject Matter Specialist (Horticulture)
- 4. Details of farming situation :**

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Sandy clay loam	M	H	M	291	14

**5. Problem definition / description:**

The farmers were not aware of the improved high yielding ridge gourd hybrid suitable for their location. As a result, low yield (30%) and income were obtained as compared to potential yield and income levels of improved hybrids.

**6. Technology Assessed:**

**TO1** : Cultivation of Ridge gourd COH1.

**TO2** : Cultivation of Arka Vikram Ridge gourd.

**FP** : Cultivation of private hybrids (Farmers' practice).

## 7. Critical inputs given:

Name of the input	Quantity	Value in Rupees
Ridge gourd COH1 seeds	1.2 kg	3600.00
Arka Vikram Ridge gourd seeds	1.2 kg	3600.00
Pheromone trap	16 Nos	1440.00
Lures	48 Nos	1432.00
Vegetable Special	8 kg	1400.00
Field board	8 Nos	1600.00
<b>Total Rs.</b>		<b>13072.00</b>

## 8. Results :

**Table 1 : Performance of the technology**

Technology Option	No.of trials	Yield (q/ha)	Net returns Rs./ha)	B:C ratio	Data on Other performance indicators*
FP:Private hybrids	8	327.62	340930.00	2.26	<ul style="list-style-type: none"> <li>▪ Days to 50%flowering</li> <li>▪ Average fruit weight(g)</li> <li>▪ Average fruit length(cm)</li> </ul>
TO1:COH1 Ridge gourd hybrid		419.57	506946.60	2.97	
TO2:Arka Vikram Ridge gourd hybrid		377.23	402332.00	2.50	

**Table 2 : Data on other performance indicators\***

Parameters observed	Farmers practice	Technology 1(COH1 Ridge gourd hybrid)	Technology 2(Arka Vikram Ridge gourd hybrid)
Days to 50% flowering	45.12	44.12	43.75
Average fruit weight(g)	327.62	393.39	351.55
Average fruit length(cm)	38.93	45.63	42.46

**Description of the results:** The COH1 (TO1) Ridge gourd hybrid has given 28.06% higher yield as compared to check. Most suitable for the locality. An additional net returns of Rs.166016.6 per hectare was recorded.

9. **Constrains:** Seeds of improved varieties are not available throughout the year. It resulted in delayed crop raising.
10. **Feed back of the farmers involved:** The COH1 ridge gourd hybrid yields higher and market preference has been good.
11. **Feed back to the scientist who developed the technology:** The COH1 ridge gourd hybrid has given 28.06% higher yield as compared to check. Varieties with resistance to fruit fly and viral diseases may be developed.

#### 4.1.5 Assessment of Green gram varieties for higher productivity

1. **Thematic area** : Varietal evaluation
2. **Title** : Assessment of Greengram varieties for higher Productivity
3. **Scientists involved** : Subject Matter Specialist (Agronomy)
4. **Details of farming situation :**

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Rainfed	Kharif	Sandy loam	M	H	M	328.70	21

#### 5. Problem definition / description:

Greengram is a major pulse crop cultivated in Thiruvannamalai District. It is cultivated mainly during two seasons viz., Kharif (June-July), Rabi (September - October). Farmers cultivating the small seeded and non-shiney greengram variety VRM (Gg)1 in large area, But it is getting the low market price. The small seeded greengram variety VRM (Gg)1 is highly susceptible to Yellow mosaic virus, Powdery mildew diseases which affect the yield. And production cost also higher due to application of massive amount of pesticides.

#### 6. Technology Assessed:

- TO1** : Greengram variety CO (Gg) 8  
**TO2** : Greengram variety CO (Gg)7  
**FP** : Greengram variety VRM(Gg) 1 (Farmers' practice)

#### 7. Critical inputs given:

Name of the input	Quantity	Value in Rupees
Greengram variety CO-8	28 kg	3080.00
Greengram variety CO (Gg)7	28 kg	3640.00
Field board	7 Nos	1400.00
<b>Total Rs.</b>		<b>8120.00</b>



## 8. Results

**Table 1 : Performance of the technology**

Technology Option	No. of trials	Yield (q/ha)	Net Return (Rs./ ha)	BCR	Other performance indicators*
FP :Greengram variety VRM(Gg)1	7	5.05	10609/-	1.42 : 1	<ul style="list-style-type: none"> <li>▪ Number of plants/sqm</li> <li>▪ Number of pods/plant</li> <li>▪ Yield (q/ha)</li> <li>▪ BCR</li> </ul>
TO 1 :Greengram variety CO (Gg)8		8.16	31887/-	2.27: 1	
TO 2 :Greengram variety CO 7		6.20	18628/-	1.75 : 1	

**Table 2 : Data on other performance indicators\***

Parameters observed	Greengram CO-8	Greengram CO 7	Greengram VRM(Gg) 1
Number of plants/sqm	31.65	29.95	26.44
Number of pods/plant	28.27	18.48	15.74
Yield(q/ha)	8.16	6.20	5.05
Gross Cost (Rs./ha)	25204	24771	25504
Gross Income (Rs./ha)	57120	43400	35400
Net income (Rs./ha)	31887	18628	10609
BCR	2.27	1.75	1.42

**Description of the results:** The greengram varietal assessment trials were conducted in seven locations covering seven farmers, during kharif 2020-21. During the varietal assessment various parameters were observed and recorded. The number of pods per plant recorded low in farmers practice VRM (Gg) 1 (16 nos.) followed by CO-7 (18 nos.) and highest pods per plant (28 nos.) were recorded in CO 8 greengram variety.

The mean average yield (8.16Qtl/ha) was recorded in CO 8 greengram variety, which 24.01% higher compared to CO 7 (6.20Qtl/ha). Farmers have obtained the highest net income of Rs. 31887/-/ha in greengram variety CO 8 followed by CO-7 (Rs.18628/ha) and lowest net income was recorded in farmers practice VRM (Gg) 1 (Rs.10609/ha). The highest benefit cost ratio of 2.16 was recorded in CO 8 and lowest was recorded in VRM (Gg) 1 (1.44).

**9. Constrains:** Availability of sufficient quantity of seeds from the research stations/universities need to be improved.

### 10. Feed back of the farmers involved:

The Greengram variety CO 8 shown moderate resistance to yellow mosaic virus. This variety produced higher yield and fetches higher market price compared to VRM (Gg)1. This variety is highly suitable for kharif season.

### 11. Feed back to the scientist who developed the technology:

Based on the assessment of greengram varieties at field level the variety CO 8 is highly suitable for kharif season. Resistant to yellow mosaic virus. This variety produced higher yield compared to VRM(Gg) 1. However, an improved variety with higher yield potential and immunity to YMV may be developed.

#### 4.1.6 Assessment of technological modules against stem weevil (*Odoiporus longicollis*) in banana

1. **Thematic area** : Integrated Pest Management
2. **Title** : Assessment of technological modules against stem weevil (*Odoiporus longicollis*) in banana.
3. **Scientists involved** : Subject Matter Specialist (Plant Protection).

#### 4. Details of farming situation:

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Sandy loam	L	M	M	0.80	0

#### 5. Problem definition / description:

The incidence of stem weevil in Banana was 35.42 percentage. The Banana stem weevil attacks the plant during flowering and bunch formation stages and causes severe yield loss (22 %) by preventing bunch development. The early symptom which indicates weevil and grub activity is the presence of jelly exudation on the banana stem. Due to feeding by grubs, the pseudostem becomes hollow and can even break at the apical region after a gush of wind.

The grubs cause more damage by making long tunnels in the pseudostem. This results in yellowing and withering of leaves, exudation of sap from leaf sheaths, decaying of peduncles and immature ripening of fruits. Indiscriminate application of chemical pesticides results in higher cost and hazardous to the environment and edible product. So the stem weevil of banana is one of the major problem to the banana growing farmers.

#### 6. Technology Assessed:

**TO 1** :Inject Azadirachtin1500 ppm @ 4 ml/Plant (2 ml at 45 cm from the ground level another 2 ml 150 cm from the ground level) in the pseudostem at monthly interval from 5th to 8th month.

**TO 2**: Banana pseudostem trap @ 100/ha. Swabbing the cut surface of the traps with *Beauveria bassiana* or *Heterorhabditis indica* @ 20g trap

**FP**:Soil application of Carbofuron granules during the incidence(Farmers' practice).

#### 7. Critical inputs given:

S.No	Name of the input	Quantity	Value (Rs.)
1	Banana Corm Injector	10 Nos	6490.00
2	Beaveria bassiana	15 kg	5880.00
3	<i>Azadiractitin</i>	10 Lit	7840.00
4	Field board	5 Nos	1000.00
<b>Total</b>			<b>21210.00</b>

## 8. Results

Technology Option	No. of trials	Yield (q/ha)	Net Return (Rs./ ha)	BCR	Other performance indicators
					Percent Disease Incidence (%)
FP		477.62	270635/-	2.13 : 1	23.51
TO 1	5	549.92	369348/-	2.69 : 1	3.92
TO 2		529.95	355520/-	2.68 : 1	4.49

**Description of the results:** Among the stem weevil management practice assessed viz., TO1 (TNAU) and TO2 (NRCB) against farmers' practice, the TO1 recorded higher yield (549.92 q/ha) as compared to TO2 (529.95 q/ha) and farmers' practice (477.62 q/ha). Besides, average increase in yield to the tune of 15.13 percent with higher BCR of 2.77 and very low incidence of stem weevil (3.92 %) were recorded in TO1 as compared to other technological options.

Overall, the TNAU developed stem weevil management practice (TO1) had been found effective management of pest in Banana and also the technological practices performed well in terms of yield and net income (Rs.369348.00) as compared to NRCB technology (TO2) and farmers' practice.

**9. Constrains:** The availability of critical inputs as major constrain as found during the assessment.

**10. Feed back of the farmers involved:**

The farmers felt that cultivation of Banana with IPM package (TO1) has given higher yield and higher economic returns with low incidence of stem weevil compared to other technologies.

**11. Feed back to the scientist who developed the technology:**

Pest resistant cultivars may be developed with high yield potential and suitable to Thiruvannamalai district.

### 4.1.7. Assessment of different types of herbal powder in preparation of millet cookies

1. Thematic area : Value addition
2. Title : Assessment of different types of herbal powder in preparation of millet cookies
3. Scientists involved : Subject Matter Specialist (Home science).
4. Details of farming situation : Not applicable

**5. Problem definition / description:**

Nowadays consumption of refined flour cookies with artificial flavor and colours are rapidly increasing in our daily lives. Refined flour products and artificial taste makers are tempting but they are not healthy, but it is becoming a part of our diet and it impacts our health drastically. Refined flour based products may be connected to weight gain, metabolic problems, cardiovascular disease, and even cancer.

## 6. Technology Assessed:

**TO 1** :Millet cookies with addition of Thulasi powder @ 20g/kg (2%) + Whole Wheat flour + Millets – Jowar (UAS Dharward – 2017).

**TO 2** : Millet flour cookies with addition of Thuthuvalai powder @ 20g/kg (2%) + Whole wheat flour + Millets – Ragi (CS & RI – 2015).

**FP** : Refined wheat flour cookies. (Farmers' practice).

## 7. Critical inputs given:

S.No	Name of the input	Quantity	Value (Rs.)
1	Sealing machine	1 No.	1050.00
2	Thulasi powder	320 gm	120.00
3	Thuthuvalai powder	200 gm	100.00
4	Wheat	20 kg	700.00
5	Ragi	8 kg	288.00
6	Sorghum	8 kg	280.00
7	Sugar	20 kg	760.00
8	Plastic container	300 Nos	1800.00
9	Margarine	18 kg	3600.00
10	Demo board	1	200.00
<b>Total</b>			<b>8898.00</b>

## 8. Results:

**Table 1: Performance of the technology**

Technology Option	No. of trials	Production (kg)	Net Return (Rs.)	BCR	Data on Other performance indicators	
					Consumer acceptability	Shelf life
<b>FP</b>	5	50	6600.00	2.94 : 1	3.5	30 days
<b>TO1</b>		50	11200.00	3.95 : 1	4.0	60 days
<b>TO2</b>		50	13600.00	4.40 : 1	4.2	60 days

**Description of the results:** The selected entrepreneurs had been demonstrated on preparation of different types of cookies using millet cookies (Ragi) with Thuthuvalai powder and millet cookies (Jowar) with Thulasi powder. The Thuthuvalai incorporated cookies (TO2) has received higher consumer acceptability, market price resulting in higher income.

## 9. Constrains: -

## 10. Feed back of the farmers involved:

Millet cookies (Ragi) with Thuthuvalai powder are highly acceptable based on the high shelf life (60 days), Consumer acceptability (based on texture, flavor and colour) and its therapeutic properties and this programme was an eye-opener for all.

## 11. Feed back to the scientist who developed the technology :

Consumer acceptability of Millet cookies (Ragi) with Thuthuvalai powder has been found most preferred by consumers and highly remunerative.

#### 4.1.2. Frontline Demonstrations in Detail

##### A. Follow-up of FLDs implemented during previous years

S. No.	Crop/ Enterprise	Thematic Area	Technology demonstrated as a follow-up from OFT	Feedback sent to the Research System	Details on the performance of the technology sent to the Extension Department	Horizontal spread of technology		
						No. of villages	No. of farmers	Area in ha
1	Paddy	Varietal demonstration	Demonstration of CO51 paddy	<ul style="list-style-type: none"> <li>Variety which is resistant to light rain without lodging may be develop</li> </ul>	<ul style="list-style-type: none"> <li>Supply of seeds at low cost.</li> <li>Conduction of training, demonstration and Mass media coverage.</li> </ul>	752	29990	24800
2	Paddy	IPDM	Integrated pest and disease management in paddy	<ul style="list-style-type: none"> <li>High yielding pest (Stem borer) and disease (False smut) resistant variety may develop.</li> </ul>	<ul style="list-style-type: none"> <li>Trainings, Demonstration, Exhibition, Advisory service, Mass media coverage</li> </ul>	65	2560	2350
3	Paddy	Drudgery reduction	Direct sown paddy drum seeder	<ul style="list-style-type: none"> <li>Efficient weed control tools may be introduced in area which direct sown paddy drum seeder is used</li> </ul>	<ul style="list-style-type: none"> <li>Supply of drum seeder at nominal cost.</li> <li>Conduction of training, demonstration, Exhibition and Mass media coverage.</li> </ul>	451	15937	12750
4	Blackgram	Varietal demonstration	Demonstration of VBN- 8 blackgram	<ul style="list-style-type: none"> <li>Powdery mildew resistant variety may be develop.</li> </ul>	<ul style="list-style-type: none"> <li>Supply of seeds at low cost.</li> <li>Conduction of training, demonstration, Exhibition and Mass media coverage.</li> </ul>	157	1080	432
5	Greengram	Varietal demonstration	Demonstration of CO 8 Greengram	<ul style="list-style-type: none"> <li>Resistant variety to yellow mosaic disease may be develop.</li> </ul>	<ul style="list-style-type: none"> <li>Supply of seeds at low cost rate.</li> <li>Conduction of training, demonstration, Exhibition and Mass media coverage.</li> </ul>	84	442	306

6	Groundnut	Varietal demonstration	Demonstration of TCGS1043 groundnut	<ul style="list-style-type: none"> <li>High yielding varieties suitable for both seasons may developed.</li> </ul>	<ul style="list-style-type: none"> <li>Supply of seeds at low cost rate.</li> <li>Conduction of training, demonstration and Mass media coverage.</li> </ul>	286	5242	6378
7	Chilli	Varietal demonstration	Demonstration of CO(CH)1 Chilli hybrid	<ul style="list-style-type: none"> <li>Higher yielder. Improved hybrids with resistance to Leaf curl virus may be developed.</li> </ul>	<ul style="list-style-type: none"> <li>Report on results given. Suggested popularisation methods viz., Supply of seeds at subsidized rate, Conduction of training, demonstration and Mass media coverage.</li> </ul>	41	575	110
8	Bittergourd	ICM	Integrated Crop Management in Bittergourd	<ul style="list-style-type: none"> <li>ICM technologies are economically viable and yielding best results at field level.</li> </ul>	<ul style="list-style-type: none"> <li>Report on results given. Suggested popularisation methods viz., Supply of technological inputs at subsidized rate, Conduction of training, demonstration, Exhibition and Mass media coverage.</li> </ul>	20	328	115
9	Bitter gourd	IPDM	Integrated pest and disease management.	<ul style="list-style-type: none"> <li>High yielding viral disease and fruit fly resistant hybrid may develop.</li> </ul>	<ul style="list-style-type: none"> <li>Trainings, Demonstration, Exhibition, Advisory service, Mass media coverage.</li> </ul>	16	204	52
10	Brinjal	Varietal demonstration	Demonstration of VRM(BR)1 Spiny brinjal with ICM practices	<ul style="list-style-type: none"> <li>Higher yielder. Keeping quality is low compared to local variety.</li> </ul>	<ul style="list-style-type: none"> <li>Report on results given. Suggested popularisation methods viz., Supply of seeds at subsidized rate, Conduction of training, demonstration and Mass media coverage.</li> </ul>	45	471	145

11	Banana	ICM	Integrated Crop Management in banana	<ul style="list-style-type: none"> <li>ICM technologies are economically viable and yielding best results at field level.</li> </ul>	<ul style="list-style-type: none"> <li>Report on results given. Suggested popularisation methods viz., Supply of technological inputs at subsidized rate, Conduction of training, demonstration, Exhibition and Mass media coverage.</li> </ul>	19	295	152
12	Turmeric	ICM	Integrated Crop Management in turmeric	<ul style="list-style-type: none"> <li>ICM technologies are economically viable and yielding best results at field level. A micro nutrient formulation may be developed especially for Turmeric.</li> </ul>	<ul style="list-style-type: none"> <li>Report on results given. Suggested popularisation methods viz., Supply of technological inputs at subsidized rate, Conduction of training, demonstration, Exhibition and Mass media coverage.</li> </ul>	15	113	55
13	Chilli	ICM	Integrated Crop Management in Chilli	<ul style="list-style-type: none"> <li>ICM technologies are economically viable and yielding best results at field level.</li> </ul>	<ul style="list-style-type: none"> <li>Report on results given. Suggested popularisation methods viz., Supply of technological inputs at subsidized rate, Conduction of training, demonstration, Exhibition and Mass media coverage.</li> </ul>	26	224	46

14	Bhendi	Varietal demonstration	Demonstration of CO4 Bhendi hybrid	<ul style="list-style-type: none"> <li>Higher yielder. Highly resistant to Yellow Vein Mosaic Virus disease.</li> </ul>	<ul style="list-style-type: none"> <li>Popularisation methods viz., Supply of seeds at subsidized rate, Conduction of training, demonstration and Mass media coverage.</li> </ul>	9	156	39
15	Brinjal	IPDM	Integrated pest and disease management.	<ul style="list-style-type: none"> <li>Shoot and fruit borer resistant spiny Brinjal hybrid may develop.</li> </ul>	<ul style="list-style-type: none"> <li>Trainings, Demonstration, Exhibition, Advisory service, Mass media coverage.</li> </ul>	19	321	74
16	Millet	Value addition	Preparation of convenience food (Health mix, Adai mix, Laddu mix, Muruku mix)	<ul style="list-style-type: none"> <li>District wise marketing avenues may develop for farmer's level value added products.</li> </ul>	<ul style="list-style-type: none"> <li>Trainings, Demonstration, Exhibition, Mass media coverage.</li> </ul>	15	85	-



## B. Details of FLDs implemented during the reporting period

### 1. Demonstration of ADT-53 Paddy variety for higher productivity

Crop : Paddy  
Thematic area : Varietal demonstration

#### Technology demonstrated :

- Seed treatment with Azospirillum and Phosphobacteria each 2 kg/ha.
- Soil application of Pseudomonas fluorescens 2.5 kg/ha.
- Soil application of Paddy Micronutrient mixture 25 kg/ha.
- Soil application of ZnSo<sub>4</sub> at 25kg/ha.
- Foliar application of TNAU PPFM spray 2.5 lit/ha.
- Foliar application Cartap Hydrochloride 50% SP1000 gm/ha.

Season and year : Rabi 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Clay loam	M	L	M	25.8	2

Source of fund : ICAR

No of locations (Villages) : 1 (Athapur)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
10	2	8	4	4	-

**Feedback from farmers** :The paddy variety ADT53 performed well against the existing paddy variety ADT-45 during rabi season. Recorded an average yield of 62.42 q/ha which is 18% higher than local check. Non lodging nature helped in easy mechanical harvesting.

**Feedback of the Scientist** :The paddy variety ADT53 given higher yield and income. It is non lodging in nature.

#### Extension activities on the FLD:

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	-
2	Farmers Training	2	08.12.20 21.12.20	30	-
3	Media coverage	1	21.12.20	-	-
4	Training for extension functionaries	-	-	-	-

## 2. Varietal Features of Pearl millet CO 10

Crop : Pearl millet  
Thematic area : Varietal demonstration

### Technology demonstrated :

- High protein content (12.07%)
- Area of adoption entire state of Tamil Nadu
- Suitable for Rainfed and Irrigated condition
- Resistant to downy mildew disease

Season and year : Rabi 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Sandy loam	M	H	M	4.7	0

Source of fund : ICAR

No of locations (Villages) : 1 (Padavedu)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
15	4	11	6	6	-

**Feedback from farmers** :The pearl millet CO10variety given higher yield and income.

**Feedback of the Scientist** :The Pearl millet variety viz., CO10 is more suitable for the locality. Easy ravage of seeds. Recorded an average yield of 32.43 q/ha which is 32 % higher than the local variety.

### Extension activities on the FLD:

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	Due to Covid not conducted.
2	Farmers Training	3	05.03.20	15	-
3	Media coverage	1	05.08.20	-	-
4	Training for extension functionaries	-	-	-	-

### 3. Demonstration of finger millet variety KMR 340

Crop : Finger millet  
Thematic area : Varietal demonstration

#### Technology demonstrated :

- Demonstration of Finger millet variety KMR-340.
- Seed treatment with *Trichoderma viride* 4 gm/kg
- Soil application of *Azospirillum* and *Phosphobacteria* each 2 kg/ha.
- Soil application of *Pseudomonas fluorescens* 2.5 kg/ha.
- Soil application of Millet Mn mixture 5 kg/ha
- Foliar application of TNAU PPFM spray 2.5lit/ha.

Season and year : Rabi 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Sandy loam	M	L	M	4.7	0

Source of fund : ICAR

No of locations (Villages) : 1 (Sathupperipalayam)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
15	3	12	6	6	-

**Feedback from farmers** : Finger millet KMR 340 showed a very good plant population of nearly 37 plants/m<sup>2</sup>. It also gave more productive tillers and also possess more yield i.e., nearly 24.75 qtl/ha. Cultivation of this particular variety will automatically increase the net income of the farmer Rs.35667 when compared to the local variety.

**Feedback of the Scientist** : Finger millet KMR 340 showed higher plant population (37 plants/m<sup>2</sup>) when compared to the local variety (32 plants/m<sup>2</sup>) and it gave nearly 5 productive tillers/plant which automatically increase the yield.

Percent Disease Index (finger blast) also very less in KMR 340(3.89%) when compared to the local variety (5.91%). It gives more yield nearly 24.75 qtl/ha. The yield of local check variety is only 20.63 qtl/ha. Hence Finger millet KMR 340 increases the net income of the farmers and also the B:C ratio from 1.97 (local variety) to 2.36.

**Extension activities on the FLD:**

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	-
2	Farmers Training	2	11.3.20 19.11.20	38	-
3	Media coverage	1	11.03.20	-	-
4	Training for extension functionaries	-	-	-	-

**4. Demonstration of Little millet variety ATL-1.**

Crop : Little millet  
Thematic area : Varietal demonstration

**Technology demonstrated :**

- Seed treatment with *Trichoderma viride* 4 gm/kg.
- Soil application of Azospirillum and phosbacteria each 2 kg/ha.
- Soil application of *Pseudomonas fluorescens* 2.5 kg/ha.
- Soil application of Millet MN mixture 5 kg/ha.
- Foliar application of TNAU PPFM spray 2.5lit/ha.

Season and year : Rabi 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Rainfed	Rabi	Sandy loam	H	M	M	25.8	2

Source of fund : ICAR

No of locations (Villages) : 1 (Athapur)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
10	2	8	4	4	-

**Feedback from farmers** : The little millet variety viz., ATL1 is more suitable for mechanical harvesting, it has high milling recovery. Recorded an average yield of 30.3 q/ha which is 32 % higher than the local variety.

**Feedback of the Scientist** : The ATL1 little millet variety given higher yield and income.

**Extension activities on the FLD:**

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	-
2	Farmers Training	2	06.12.19, 05.03.20, 11.03.20	40	-
3	Media coverage	1	11.03.20	-	-
4	Training for extension functionaries	-	-	-	-

**5. Demonstration-Bhendi hybrid CO 4**

Crop : Bhendi  
Thematic area : Varietal demonstration

**Technology demonstrated :**

- Demonstration of CO4 Bhendi hybrid
- Soil application of *Trichoderma viride* @ 2.5kg/ha
- Soil application of neem cake – 250 kg/ha.
- Vegetable special Spray @ 0.1 %
- Spraying of Neem, Pongamia soaps @ 1%
- Installation of Pheromone traps @ 12/ha.
- Installation of Yellow sticky traps @ 25/ha.
- Spraying of Imidacloprid 17.8% SL 80ml/ac.

Season and year : Kharif 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Kharif	Clay loam	M	H	M	393	18

Source of fund : ICAR

No of locations (Villages) : 1 (Sathupperipalayam)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
10	2	8	2	2	-

**Feedback from farmers** :The bhendi hybrid CO4 has recorded higher yield (15%) as compared to private hybrids(local check). It has high resistance to yellow vein mosaic virus

(3.25%) as compared to local check (15.58%). The market preference is very good for the variety.

**Feedback of the Scientist** : The bhendi hybrid CO4 given higher yield and income. It is highly resistant to YVMV disease.

#### Extension activities on the FLD:

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	1	04.03.21	25	-
2	Farmers Training	2	08.01.20 23.10.20	24	-
3	Media coverage	1	04.03.21	-	-
4	Training for extension functionaries	-	-	-	-

#### 6. Integrated Crop Management in Bitter gourd

Crop : Bitter gourd

Thematic area : Integrated Crop Management

#### Technology demonstrated :

- NPK application based on soil test.
- Soil application of *P. fluorescens* @2.5kg/ha.
- Vegetable special Spray @ 0.1 %.
- Soil application of neem cake – 250 kg/ha.
- Spraying of Ethrel @ 250 ppm.
- Spraying of Neem, Pongamia soaps @ 1%.
- Installation of Pheromone traps @ 12/ha.
- Installation of Yellow sticky traps @ 25/ha.

Season and year : Kharif 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Kharif	Red Sandy loam	H	L	M	250	28

Source of fund : ICAR

No of locations (Villages) : 1 (Sirunathur)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
10	-	10	2	2	-

**Feedback from farmers** : The adoption of ICM technologies resulted in 29% higher yield (420.88 Q/ha) as compared to farmer practice. The produce fetched higher market price due to better quality. Farmers obtained higher income. The BCR recorded was 2.12.

**Feedback of the Scientist** : The adoption of ICM technologies given higher yield and income. The quality of the fruits improved and fetched good market price.

**Extension activities on the FLD:**

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	1	25.3.20	20	-
2	Farmers Training	2	29.08.19, 18.12.19	27	
3	Media coverage	1	25.03.20	-	-
4	Training for extension functionaries	-	-	-	-

**7. Integrated Pest & Disease Management in Snake Gourd**

Crop : Snake gourd

Thematic area : Integrated Pest and Disease Management

**Technology demonstrated :**

- Soil Application of Neem cake @ 100kg/acre.
- Soil application of Pseudomonas fluorescens @ 1kg/ac.
- Soil application of Paecilomyces @ 1kg/ac.
- Installation of Pheromone traps and lures for fruit fly @ 12/ha.
- Installation of yellow sticky trap @ 12/ha.
- Foliar application of Neem & Pongamia soaps @1%.
- Azoxystrobin 25 SC @ 200 ml/ac (Foliar diseases), Imidacloprid 17.8% SL 80ml/ac.

Season and year : Kharif 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Kharif	Sandy loam	L	M	M	530.6	14

Source of fund : ICAR

No of locations (Villages) : 1 (Kilsembedu)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
10	2	8	4	4	-

**Feedback from farmers** : The IPDM Technologies reduced the pest and diseases incidence viz, Fruit fly (9.45%), mosaic (8.43 %). Technologies found increasing the yield (18.41%) and higher net return (432688.00/ha).

**Feedback of the Scientist** : The farmers felt that IPDM technologies in Snake gourd increased the yield, reduced the requirement of chemical pesticides and fungicides with better control of pest and diseases.

#### Extension activities on the FLD:

Sl. No.	Activity	No. of activities organized	Date	Number of participants	Remarks
1	Field days	1	10.3.20	17	-
2	Farmers Training	1	23.09.20	13	-
3	Media coverage	2	23.09.20, 10.03.20	-	-
4	Training for extension functionaries	-	-	-	-

### 8. Demonstration on IPDM technologies in Watermelon

Crop : Watermelon

Thematic area : Integrated Pest and Disease Management

**Technology demonstrated** :

- Soil application of Neem cake @250kg/ha.
- Soil application of *P. fluorescens* @2.5kg/ha.
- Soil application of *Trichoderma viride* @2.5kg/ha.
- Installation of fruit fly Pheromone traps @12/ha.
- Installation of Blue sticky traps @ 25/ha.
- Foliar application of micronutrients @ 1 %.
- Foliar application of Neem soap and Pongamia soap @ 1%.

Season and year : Rabi 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Sandy loam	M	H	M	0.70	0

Source of fund : ICAR

No of locations (Villages) : 1 (Kilsesamangalam)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
10	2	8	4	4	-



**Feedback from farmers** : The IPDM Technologies reduced the pest and diseases incidence viz, Fruit fly (8.21%), mosaic (10.28 %). Technologies found increasing the yield (26.70%) and higher net return (138397.00/ha).

**Feedback of the Scientist** : The farmers felt that IPDM technologies in Watermelon increased the yield, reduced the requirement of pesticides with better control of pest and diseases.

**Extension activities on the FLD:**

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	-
2	Farmers Training	1	2.3.20	10	-
3	Media coverage	1	2.3.20	-	
4	Training for extension functionaries	-	-	-	-

**9. Popularization of TANUVAS Aseel chicken under backyard condition**

Crop/Enterprises : Poultry birds (Aseel)  
 Thematic area : Production and Management  
**Technology demonstrated** : TANUVAS Aseel chicken under backyard condition.  
 Season and year : Rabi 2019-20  
 Farming situation : -  
 Source of fund : ICAR  
 No of locations (Villages) : 1 (Kilnelli)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (No of birds)	Actual area (No of birds)	Justification for shortfall if any
10	2	8	250	250	-

**Feedback from farmers** : The TANUVAS Aseel chicken laying dark brown shelled eggs with thick shell hence it is easy sell. Family laborers who are not able to perform other works like old family members or children can look after the poultry farming. Poultry farming acts as an ATM, because as per family need the birds and eggs can be sold at any time with cash in hand. It provides additional income for the family.

**Feedback of the Scientist** : It is concluded that performance of TANUVAS Aseel in terms of age at first egg laying, egg production and body weight was much better in comparison to local variety under backyard system of poultry rearing. So farmers from rural areas can rear TANUVAS Aseel birds for their livelihood and nutritional security.

**Extension activities on the FLD:**

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	-
2	Farmers Training	2	20.11.19, 14.02.20	28	-
3	Media coverage	1	14.02.20	-	-
4	Training for extension functionaries	-	-	-	-

**10. Demonstration on ready to cook foods from cereals, millets & pulses**

Crop/Enterprises	:	Value Addition-Instant mix
Thematic area	:	Processing and value addition
<b>Technology demonstrated</b>	:	Preparation of beverage mix, uppma mix, Pongal mix, adai mix.
Season and year	:	Rabi 2019-20
Farming situation	:	-
Source of fund	:	ICAR
No of locations (Villages)	:	1 (Karikalampadi)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	proposed (Units)	Actual (Units)	Justification for shortfall if any
1	2	8	1	1	-

**Feedback from farmers** : Consumer acceptability of ready to cook foods has been found most preferred by consumers and highly remunerative.

**Feedback of the Scientist** : Shelf life to be extended upto six months with good taste.

**Extension activities on the FLD:**

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	-
2	Farmers Training	3	06.12.19, 27.02.20 20.3.20	48	-
3	Media coverage	1	-	-	-
4	Training for extension functionaries	-	-	-	-

## 11. Demonstration on IRRI Super bag for paddy

Crop/Enterprises	:	IRRI Super bag
Thematic area	:	Farm Mechanization
<b>Technology demonstrated</b>	:	Post harvest management
Season and year	:	Rabi 2019-20
Farming situation	:	-
Source of fund	:	ICAR
No of locations (Villages)	:	1 (Athapur)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	proposed (Units)	Actual (Units)	Justification for shortfall if any
1	5	-	1	1	-

**Feedback from farmers** : Extended germination life up to 9 months and it controls insect pest.

**Feedback of the Scientist** : Without application of pest controller it preserves the seed quality.

### Extension activities on the FLD:

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	-
2	Farmers Training	2	21.11.20, 23.11.20	23	-
3	Media coverage	1	21.11.20	-	-
4	Training for extension functionaries	-	-	-	-

## 12. Integrated Pest and Disease management in paddy

Crop	:	Paddy
Thematic area	:	Integrated Pest and Disease Management
<b>Technology demonstrated</b>	:	

- *Pseudomonas fluorescens* - Seed treatment @ 10 g/k.
- Soil application @ 1kg/acre.
- Seedling root dip @ 1kg/acre.
- Foliar application of *Lecanicillium lecanii* @ 1 lit/acre.
- Release of *Trichogramma japonicum* @ 2 cc.
- Release of *Trichogramma chilonis* @ 2 cc.
- Installation of solar light trap @ 1/acre.
- Installation of Stem borer pheromone trap @ 10/acre.

- Installation of Yellow sticky trap @ 5/acre .
- Need based application of Neem oil @ 3%.
- Foliar application of Cartop Hydrochloride 50% SP@ 400 g/ac (Stem borer & Leaf folder) or Azoxystrobin 25 SC @ 200 ml ac<sup>-1</sup>

Season and year : Rabi 2019-20

Farming situation :

Farming situation	Season	Soil type	Fertility status			Seasonal rain fall (mm)	No. of rainy days
			N	P	K		
Irrigated	Rabi	Clay loam	M	M	H	0.72	0

Source of fund : ICAR

No of locations (Villages) : 1

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	Area proposed (ha)	Actual area (ha)	Justification for shortfall if any
10	5	5	4	4	-

**Feedback from farmers** : The farmers felt that IPDM technologies in paddy increased the yield and net income, reduced the application of pesticides with effective management of pest and diseases.

**Feedback of the Scientist** : The IPDM Technologies reduced the pest and diseases incidence viz, Stem Borer (3.12%), Tungro (3.45%), Blast (8.42), BLB (7.29 %). Technologies found increasing the yield (17.48 %) and higher net return (47075.00/ha).

#### Extension activities on the FLD:

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	1	23.11.2020	31	-
2	Farmers Training	2	23.07.2020	13	-
3	Media coverage	1	24.11.2020	-	-
4	Training for extension functionaries	-	-	-	-

### 13. Demonstration on Nutritional garden

Crop/Enterprises	:	Nutrigardem
Thematic area	:	Women Empowerment
<b>Technology demonstrated</b>	:	Nutrigarden
Season and year	:	Rabi 20-21
Farming situation	:	-
Source of fund	:	ICAR
No of locations (Villages)	:	1 (Kilnelli)

No. of demonstrations	No of SC/ST Farmers	No of Farmers and women farmers	proposed (Units)	Actual (Units)	Justification for shortfall if any
1	1	4	1	1	-

#### Feedback from farmers :

- Ensure fresh vegetables without inorganic mix.
- Facilitate the availability of vegetables at the doorstep 104 kg vegetables and greens per season.
- Reduce the expenditure on vegetable purchase by the members from Rs.85.00 to 45.00/day.

**Feedback of the Scientist** : Increased family-consumption (from 80 gm/person/day to 130 gm/day/person).

#### Extension activities on the FLD:

Sl. No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	-	-	-	-
2	Farmers Training	3		44	-
3	Media coverage	1	08.10.20	-	-
4	Training for extension functionaries	3	17.09.20, 08.10.20, 23.10.20	103	-

**5. Technology Week Celebration:** Nil

**6. Training/workshops/seminars etc. attended by KVK staff**

<b>Name of the staff</b>	<b>Title</b>	<b>Dates</b>	<b>Duration</b>	<b>Organized by</b>
T.Margaret, SMS Home Science	COVID-19 Lockdown : Lifestyle for Health & Livelihood	22-24.06.2020	3 days	College of Community Science A.N.D.U.A&T, U.P
P.Narayanan, SMS – Plant Protection	Pesticide Application Techniques & Safety Measures	1 -5 June 2020	5 days	NIPHM, Hyderabad
T.Margaret, SMS Home Science	Value added food Products for Present And predicted Covid -9 scenario	06.07.2020 to 10.07.2020	5days	Department of Food Science and Nutrition, Nutrition Association and Nutrition Society of India, Coimbatore.
T.Margaret, SMS Home Science	International Webinar on Food Safety and Naturally Occurring Toxicants	21.07.2020	One day	Department of Food Science and Nutrition, Nutrition Association and Nutrition Society of India, Coimbatore.
P.Narayanan, SMS – Plant Protection	IPM in Maize special reference to Fall Army worm	21 -22 July 2020	2 days	IIMR, Hyderabad &FAO, UN
P.Narayanan, SMS – Plant Protection	The potential of bacilli rhizobacteria for bio protection and agriculture sustainability	22 <sup>nd</sup> July 2020	1 day	RVS agriculture college, Thanjavur
T.Margaret, SMS Home Science	Value addition and entrepreneurship development in banana	22.07.2020	One day	NRCB, Trichy.
V.Suresh	Export challenges and mitigation strategies For fresh and processed food	08.08.20	1 day	NIFTM, Haryana

T.Margaret, SMS Home Science	Approaches and Strategies for Augmenting Export of Bananas from India	21.08.2020	One day	NRCB, Trichy.
T.Margaret, SMS Home Science	“Dietary Diversity, Nutritional Knowledge & Behavioural Changes during Lockdown Period COVID -19”	27.08.2020	One day	KVK Neemuch of RVSKVV, Gwalior (M.P.)
P.Narayanan, SMS – Plant Protection	Bio Security strategies for sustainable plant Health: Protect domestic plant health and promote export	29 <sup>th</sup> August2020	1 day	NIPHM, Hyderabad
T.Margaret, SMS Home Science	E learning programme on Basic programme on farmers producers company	08.09.2020 To 10.09.2020	3 days	BIRD, Mangaluru.
V.Suresh	Farmer Producer Organisation	12.09.20 to 14.09.20	3 days	BIRD, Mangaluru
T.Margaret, SMS Home Science	Fortification of edible oil	25.09.2020	One day	Form Commitment to Action
P.Narayanan, SMS – Plant Protection	Soil spectroscopy An emerging technique for rapid soil health test	1 <sup>st</sup> October 2020	1 day	IISR Bhopal & ICRAF, Nairobi
P.Narayanan, SMS – Plant Protection	6 <sup>th</sup> National Tamil Conference	21-22 December 2020	2 days	Agricultural scientific Tamil Society, New Delhi & TNAU, Coimbatore

### 7. Details of sponsored projects/programmes implemented by KVK

S. No	Title of the programme / project	Sponsoring agency	Objectives	Duration (Days)	Amount (Rs)
1	Skill Training of Rural Youth on Bee Keeping	ATMA-STRY, Thiruvannamalai	<ul style="list-style-type: none"> <li>▪ To enhance the knowledge and promote the farmers on Organic farming, Soil fertility management, Green and green leaf manures, Bio fertilizers and its application procedures, Compost production technologies, Water Management technologies, Organic pest and diseases management in field and horticultural crops, Value addition and post harvest management.</li> </ul>	6	42000.00
2	Capacity Building of Farmers and Village Level Functionaries on Disaster Management and Drought Mitigation Measures.	TNAU-Coimbatore	<ul style="list-style-type: none"> <li>▪ To develop training modules for training farmers/Village level functionaries on disaster management and drought mitigation measures.</li> <li>▪ To conduct training programmes to build the capacity of farmers/VLF on disaster management and drought mitigation measures.</li> </ul>	1	21340.00



3	Improved Nursery Management in Horticultural Crops under MEDP	NABARD Thiruvannamalai	<ul style="list-style-type: none"> <li>▪ To enhance the knowledge of farmers especially farmers' club members on nursery management in horticultural crops.</li> <li>▪ To ensure the availability of quality planting materials of horticultural crops to farmers in the locality.</li> <li>▪ To increase the per capita income of the farmers.</li> </ul>	5	25000.00
4	Value added Products from Banana under CAT	NABARD Thiruvannamalai	<ul style="list-style-type: none"> <li>▪ To enhance the knowledge of farmers especially farmers' club members on value addition in banana.</li> <li>▪ To enhance self-life of banana by processing it into a value added dry fruit using Osmo-solar drying technology and thereby increase the shelf-life of the product.</li> <li>▪ To increase the per capita income of the banana growers and sustain the production.</li> </ul>	3	107250.00
5	Scientific Goat rearing under CAT	NABARD Thiruvannamalai	<ul style="list-style-type: none"> <li>▪ To impart training on scientific goat rearing.</li> <li>▪ To impart knowledge on fodder cultivation techniques.</li> <li>▪ To make awareness on insurance coverage.</li> <li>▪ To rise over all profitability.</li> </ul>	3	103500.00

**\* Report of each project/programme in Annexure**

## 8. Success stories

### 1. A New farmers' choice Blackgram variety in Thiruvannamalai district

#### Situation analysis/Problem statement:

Blackgram is one among the major pulse crops cultivated in Thiruvannamalai district during Kharif and Rabi Seasons in an area of 34856 ha with an average productivity of 441 kg/ha. The productivity of the crop was very low due to less awareness towards high yielding varieties, non-availability of quality seeds and non-adoption of integrated crop management practices in blackgram. The average yield obtained by farmers was 5.6 qtl/ha which was 37.7 % lower than the potential yield. And the income of the farmers (Rs. 36400/ha) was not satisfactory.



#### Plan, Implementation of activities and Support:

To address these problems faced by the farmers the KVK Thiruvannamalai had implemented CFLD on blackgram in Kazhikulam, Kaveripakkam villages in Vandavasi block during Kharif 2019-20. The scientists of KVK analyzed the problems of farmers through group meetings in the villages prior to the implementation of cluster Front Line Demonstration programme under National Food Security Mission. The KVK had selected 50 progressive farmers for implementing the cluster front line demonstration programme. The KVK has demonstrated the new high yielding disease resistant black gram variety VBN-8.



of yellow sticky trap (5 nos/acre) for controlling the sucking pests in blackgram crop.

Soil application of bio fertilizer *Rhizobium* and *Phosphobacteria* 1 kg each, soil application of *Trichodermaviride* and *pseudomonas fluorescence* 2 kg each for control the root rot diseases and avoid plant population losses. Foliar application of TNAU pulse wonder (2kg/acres) during the peak flowering and pod formation stage for enhancing the yield and increase the quality and size of blackgram seeds. Demonstration

Foliar application of Nuclear Polyhedrosis virus (250 ml/acre) for the control of pod borer damage in black gram crop. All these technologies were demonstrated in an area of 25 ha in the said villages. The details of various activities implemented are detailed hereunder:

Sl. No.	Particulars	Title	Total	No. of participants
1.	Trainings	Integrated Crop Management in blackgram	1	50
		Integrated Pest and Disease Management in blackgram	1	50
2.	Method demonstration	Demonstration of soil sample collection and seed treatment techniques	1	50
		Demonstration of soil application bio control agents	1	47
		Demonstration of Foliar application of TNAU pulse wonder	1	52
3.	Advisories	Filed visit and Advisory services	22	50
4.	literature	Integrated crop management in Blackgram	100	100
5.	Field day	Integrated crop management in blackgram	1	52

### Output:

- The farmers obtained the average yield of 704 kg/ha it was the 64.12% higher than the district average productivity (441 kg/ha).
- Pest and disease incidence was reduced drastically due to adoption of pest and disease management practices.
- The average gross income was recorded as Rs. 58,734/ha and net income was Rs, 23020/ha.

### Outcome:

The New blackgram variety VBN-8 has spread to the neighboring blocks in Thiruvannamalai district with the help of KVK and the variety has spread to more than 15 blocks covering 912 ha in 120 villages so far. In addition, the seeds were supplied to other districts i.e Vilupuram, Vellore, Kanchipuram, Thiruvallur, Pudukottai, Trichy in Tamilnadu and Kannur and Palakad districts in Kerala state. Total number of 1108 farmers has been cultivating this VBN8 variety at present.



### Impact:

After the implementation of various activities by KVK including CFLD programmes, the farmers are showing real interest in cultivating VBN8 blackgram for seed purpose. The state department of agriculture is procuring seeds from farmers at very good rate.

As a result, the farmers are getting very good income. Moreover, with the technical back up of KVK pulse seed clubs are formed in various villages of the district which act as quality seed supply centers. So far, the seed clubs have supplied 402 qtl of quality blackgram seeds.

## 2. Improved Ridge gourd cultivation in Pandal System

**Name of the farmer** : **Mr.N.Govindasamy**  
 S/O Narayanasamy  
 Kazhikulam, Vazhuthalangunam post,  
 Kilpennathur taluk,  
 Thiruvannamalai Dist – 604601  
 Mobile No.: +91 6383205580

### Background

Shri. Govindasamy S/o. Narayansamy, aged 41 is a vegetable farmer in Periyakuppam village of Vandavasi taluk in Thiruvannamalai district. He owns 4 acre of land. Vegetables like snake gourd, bitter gourd, Ribbed gourd have been cultivated on commercial scale in 3 acre of land and the remaining 1acre has been allotted for paddy cultivation to meet out his family's food requirement.

He depends mainly on vegetables, especially gourds for his family's income. But, the productivity of gourds started declining and the cost of cultivation was on increasing trend which was mainly due to severe incidence of pest and diseases and nutrition problems. It was during the time, his village selected as operational village for the KVK interventions.

### Intervention process

The KVK team inspected his vegetable growing field and selected him as one of the beneficiary farmers for the FLD on Integrated Crop Management in bitter gourd and COH1 ridge gourd. Various improved technologies were demonstrated in his field by the KVK team. The critical inputs were also provided to him.

In addition, he participated in trainings conducted by KVK on Cucurbits cultivation in pandal system and strengthened his knowledge and confidence. He also visited various Horticultural Research Stations, Universities in Tamil Nadu and interacted with eminent scientists on cucurbits cultivation by participating in the educational tour organized by KVK.



### Intervention technology

By keeping the confidence on the advanced technologies gained from KVK, he cultivated Ridge gourd (COH1 hybrid) in one acre of his land. He adopted new technologies viz., Integrated Plant Nutrition System with major focus on foliar nutrition, IPM with major emphasis on usage of Pungam and Neem soaps, Pheromone traps, Yellow sticky traps, sex regulation etc., with the technical back up of KVK team.

As a result of adoption of improved technologies, effective utilization of resources and market demand driven production approach, he succeeded in ridge gourd cultivation by obtaining an yield of **445.37** Q/ha which was 29.10 percent higher when compared to average yield obtained by other farmers in the locality.

### **Impact of horizontal spread**

After seeing the effectiveness of improved technologies adopted by Mr.Govindasamy, other vegetable growers in the locality have started adopting the same. At present 265 acres of land is under cultivation in the locality and it is expected to increase further.

### **Impact of economic gains**

He obtained an income of Rs.7,68,042 ha<sup>-1</sup> in ridge gourd cultivation. An additional net gain of Rs. of Rs.186016.6 ha<sup>-1</sup> was accrued by him with a higher B:C ratio of 2.97 : 1.

### **Impact of employment generation**

After realizing the economic benefits obtained by this farmer, other farmers in the locality have started cultivating gourds on large scale. As a result, 486 man days of additional employment is generated for each hectare increase in area.

## **3. Promotion of Apiculture to enhance the crop yield through pollination and entrepreneurship creation in Thiruvannamalai district**

### **A. Situation analysis/ Problem statement:**

Agriculture is an age old practice in India. Present day's agriculture should be sustainable as well as commercial and scientific based. Thiruvannamalai district is known for diversified crop growing viz., Paddy, Pulses, Groundnut, Brinjal, chillies, gourds, tomato, Banana, Coconut etc. are cultivated in considerable areas.

The farmers are getting low yield and income because of mono cropping, high cost of agricultural inputs, non-availability of labour, deficit rainfall, non-adoption of advanced technologies and devastation of natural pollinators by indiscriminate application of chemical pesticides. In this situation bee keeping is an alternative sustainable agriculture practice to fulfil the over growing employment problem in the district and also bee keeping is a very profitable entrepreneurship in rural areas.

### **B. Plan, implementation of activities and support by KVK**

Keeping this in view, the KVK Thiruvannamalai had taken it as a prime role in implementing bee keeping in farmers' fields for enhancing the yield through cross pollination and create the alternate income generation to the unemployed rural youth. The details of activities implemented by the KVK are detailed hereunder.



### 1. Training conduction :

One off campus training and Three number of on campus training programme were conducted by the KVK for the knowledge updation of farmers. During the training programmes, the trainees are exposed to hands on practices on different aspects of bee keeping. Totally 64 farmers participated in the programme.

### 2. Conduction of sponsored programme:



To create awareness on bee keeping the KVK Thiruvannamalai had conducted six days residential training programme from 16.02.2020 to 22.02.2020 held at KVK campus. The training programme was sponsored by Skill Training to Rural Youth – ATMA, Thiruvannamalai. In this training programme 15 rural youth participated and among them 6 participants started the bee keeping in their fields.

### 3. Mass Media coverage:

For the wider coverage of farmers, the KVK Thiruvannamalai had recorded a programme on bee keeping technologies and the programme was telecasted in Makkal TV.

### 4. Distribution of technical literature:

The technical literature on bee keeping technologies were distributed to farmers for the wider coverage of technical information.

### 5. Bee box supply and advisory service:

Demonstration on profitability of beekeeping, the KVK supplied 31 bee boxes with bee colonies to farmers. The KVK scientists have made the need based visits to the bee farming fields and addressed their problems.

### C. Output:

As a result of the successful intervention through technological support by the KVK Thiruvannamalai 12 farmers had started bee keeping in their farms. Which resulted in productivity enhancement through pollination and also created small scale employment.

S. No	Farmer Name	Village	No. of hives	Crops	Yield increase (%)	Additional income* (Rs./ha)
1	Mr.Paranjothi	Perungattur, Vembakkam	4 box	Sapota & Vegetables	10.21	8160.00
2	Mr. Boobalan	Enathavadi, Cheyyar	5 box	Coconut & Vegetables	9.27	7400.00

3	Mrs.Rekha	Iyyampalayam, Arni	14 box	Coconut & Vegetables	9.86	11300.00
4	Mr.Vijayan	Vedanthavadi, Thiruvannamalai	2 box	Vegetables	8..54	6500.00
5	Mrs.Sumathi	Thellar, Vandavasi	3 box	Flower & vegetables	7.93	7500.00
6	Mr.Dhanasekar	Mangalam, Turinjapuram	2 box	Fruits & Vegetables	9.12	3550.00
7	Mr.Vasudevan	Vazhoor, Vandavasi	2 box	Vegetables	10.41	8700.00
8	Mr.Parthasarathi	Athanoor, Arni	4 box	Fruit Orchard	12.34	12500.00
9	Mr.Govindasamy	Athanoor, Arni	1 box	Coconut & Vegetables	10.12	8700.00
10	Mr.Jeyakumar	Athipadi, Thiruvannamalai	4 box	Vegetables	9.42	5400.00
11	Mr.Gandhi	Barathanthangal, Cheyyar	4 box	Vegetables	8.21	6500.00
12	Mr.Varathan	Tiruvadirayapuram Vembakkam	2 box	Coconut & Vegetables	8.45	7200.00

**Note :** \* Income from crops and bee hives/year

#### **D. Outcome:**

By seeing the economic benefits accrued by the bee keeping farmers, other farmers are also showing interest in bee keeping in their fields. Due to positive result of the technology, bee keeping has spread to 145 farmers with the support of State department of Horticulture and Non-Governmental Organisation. Mrs.Parthipan from Jawaduhills now acts as resource person (Participated in STRY – ATMA) in the bee keeping training conducted by the KVK and other agencies of Thiruvannamalai. It is one of the significant achievements of KVK.

#### **E. Impact:**

The requirement of pure honey has been increasing year by year due to high nutritional properties of honey and very good demand in market. Honeybee is playing vital role in cross pollination and it increases the crop yields in an area of 2 Km surroundings from the bee hives. As the farmers are much interested in bee farming, the state department of Horticulture, NGOs and private organization have been supporting the farmers by providing free trainings, supplying bee hives, and creation of marketing facilities to the farmers. Adoption of this bee keeping technologies in Thiruvannamalai district can significantly increase the district yield in upcoming years and also reduce the migration of people through developing small scale entrepreneurship among unemployed rural people.

#### 4. Economic upliftment through Millets and pulses based entrepreneurial activity

##### A. Situation analysis/Problem statement:

Mrs.S.Bhuvaneshwari, 45 aged, a dedicated and women farmer cum entrepreneur, from the village Chithathur of Vembakkam block, Thiruvannamalai district in Tamil Nadu. Her husband is a private bank employee. She completed her Twelfth standard and chosen agriculture as profession and started devoting her time focusing on a better farming. She is having 3.0 acres of land. Though she was cultivating paddy, groundnut and pulses in her farm regularly, she was not getting the expected income in all crops. But she was not satisfied with the monthly income, so she was decided other alternative regular income generation activities. She is also an active member of Cheyyar Farmers Producers company from 2015.

From 2003 onwards, she is having close contacts with the KVK for the technical help, up gradation of new components and guidance. She has been attending lot of trainings, seminars, workshops conducted by the KVK.

##### B. Plan, implementation of activities and support by KVK:

In this situation Mrs.S.Bhuvaneshwari approached KVK team and got detailed explanation from the Scientist about the millet and pulses based convenience foods. The SHG group consist of fourteen members have attended five days training programme on millet based convenience foods, millet and pulses based instant mix preparation trainings organized by KVK during the year 2015 and 2016. After completion of trainings, she started collecting all the information through SMS-Home Science and finally she has decided to start millet based products production unit as a group in her own house on trial basis.

Our KVK Scientist continuously motivating their group for the expansion of the production unit by visiting on regular basis. Initially they were facing the problems on purchase of packing materials, obtain FSSAI license, labeling and marketing. The KVK provided technical support to the group for sourcing packing materials, licensing and branding. Moreover, linkage to suppliers (KVK farmers), traders and licensing authorities was also established by KVK for running business effectively by the group.

After making all arrangements, they started the production unit in their village during March 2017. Initially they sold their products Uzhavar Sandhai and other meetings conducted by Line Departments regularly. Whenever they find marketing avenues at their nearing areas they supplied samples to them. Now they standardized all their products by use of quality raw materials during processing, preparation under hygienic condition, packing and labeling. This unit is entirely maintained by the group members. They procure millets and pulses from pulses from nearby areas and districts on need basis. Cheyyar Farmers Producers Company also given supports to arrange marketing facilities in Thiruvannamalai District





### C. Output:

Initially they started to prepare 25 kg of flour and instant mix per month. Now they have regularly preparing 150 kg/month of Instant mix, 50 kg of millet cookies/month, 30 kg of millet murukku/month and 25 kg pulses laddu/month and selling their entire products to the Farmers producers company and Uzhavarsandhai regularly. They are getting the net income of Rs. 35,150.00/month by spending Rs.26,100.00 towards input, packing materials, transportation and labour costs.

### D. Outcome:

By hearing and seeing the economic return obtained by this group other neighbors in the locality have also started convenience foods production units with the guidance of group. At present, there is one unit initiated and functioning effectively in Cheyyar block and it is expected that more units will be established in the forthcoming years.

### E. Impact

The group's production unit has become a very good business model for millets in this district. All the line departments have come forward and supporting lot of interventions of this group as well as other groups on millets through their schemes. More number of processing units will be established in the district soon and millet processing will become a viable agribusiness in the district.

## 5. TANUVAS Aseel Poultry rearing under backyard condition

### Situation analysis/Problem statement:

Poultry is an imperative factor for improving nutritional security to the rural poor. Rural poor rear natty type of chicken with low egg and meat production in backyard system, poor hatchability and increase mortality. In poultry sector impressive growth has been achieved in intensive poultry meat production in India but rural poultry sector remained restricted due to less research and low production potential nature of native breeder chicken.



### Plan, Implement and Support:

ICAR KVK Thiruvannamalai implemented a FLD on Demonstration of TANUVAS Aseel Chicken rearing under backyard condition. Also KVK had organised one day on campus training on Backyard poultry farming on selection, handling and brooding, feeding, disease management, hatchery operation and chick management including scientific method of backyard poultry farming with TANUVAS Aseel chicken.

**Output:**

Mr.Chandrabose an innovative farmer from Kilnelli village of Vembakkam Block, Thiruvannamalai District, Tamil Nadu was successful in backyard poultry farming with



TANUVAS Aseel chicken. He is 30 years old, qualified in 10th standard, he used to rear local bird for the regular source of income and he could able to get very low income. Mr.Chandrabose was unaware about of improved poultry variety (TANUVAS Aseel) for higher income generation than local variety, KVK, Thiruvannamalai has selected him one of the FLD farmer and trained on scientific management of backyard poultry rearing. Input like TANUVAS Aseel one month old chicks (20+5) was supplied.

As a result of technological intervention by the KVK, Thiruvannamalai the farmer had obtained good revenue. Backyard poultry rearing with TANUVAS Aseel with 20+5 numbers along with improved rearing technologies of poultry farmer can get Rs. 46,000.00 /year. Small and marginal farmer can get more income through backyard poultry rearing with improved varieties of chicken.

**Outcome:**

In Kilnelli village of Thiruvannamalai district. A total of 45 farm families are rearing TANUVAS Aseel chicken under backyard condition. And In the district, more than 500 farmers are rearing TANUVAS Aseel chicken under backyard condition.

**Impact:**

TANUVAS Aseel chicken is significantly effective in the prevention of poverty in rural poor concerning difficult environmental conditions and unemployment, rural youth can better engage in backyard poultry farming for higher income generation and nutritional support.

## **9. Details of innovative methodology, innovative technology and transfer of Technology developed and used during the year by the KVK**

### **Video dial out Conference**

The Krishi Vigyan Kendra in Collaboration with Reliance Foundation regularly organizing the video dial out conference focusing on providing critical information to farmers across the district to improve their livelihoods. Crucial information such as how to tackle the pest and diseases attack on crop species, preventive measures against livestock diseases could help to safeguard the crops and livestock.

This practice enables the farmers to adopt better decisions on crop management, nutrient deficiencies, pest and disease management practices. Need based video dial out conferencing will be arranged by the messengers at the village level whenever the farmers facing issues during crop cultivation. The farmers were given chance to interact with the

scientists directly for the better management practices and solution to the problems. This methodology helps the farmers to overcome their problems instantly.

**10. Details of indigenous technology practiced by the farmers in the KVK operational area which can be considered for technology development.**

S. No.	Crop / Enterprise	ITK Practiced	Purpose of ITK
1	Paddy	7kg rice bran + 1.5 kg jaggery or molasses + 1.5 lit kerosene are mixed thoroughly and placed in plastic glasses in the BPH affected paddy crop. It helps in repelling the BPH population completely. This is for 1 acre	To control BPH
		Vasambu (Acotus calamus) powder and cow urine are mixed in the water that has been boiled and cooled over night and the seeds are soaked in the solution. The floating seeds are removed. The remaining seeds are used for sowing. Tying of rope and plastic covers in field	This serves the dual purpose of seed selection and treatment of seed borne disease. For avoiding bird problem and wild boar damage.
		A mixture of coconut water and buttermilk is used to increase the number of flowers in paddy. A mixture of 5 liters of coconut water and 5 liters of buttermilk is kept in a mud pot. This pot is buried in the soil for 5-7 days, after that one liter of solution is mixed with 10 liters water to spray on the crop	For increasing number of flowers in the crop
2	Pulses	Coating the pulse seeds with Arappu leaf powder	To protect the seeds from ants and birds
		Drying of blackgram seeds during new moon time	To protect from pulse beetle infestation
3	Millet	Millet grains were mixed with red soil	For avoiding storage pest damage.
4	Millets Vegetables	Millet grains were mixed with neem leaves	For avoiding storage pest damage.
		Planting of seeds during no moon day	For better germination of seeds.
		Spraying of Cow Urine	For avoiding pest damage and better growth of the plants
5	Fruits and vegetables	Spraying of butter milk	For flower induction and control flower drop.

**Photographs for ITK Technologies**



**Tying of rope and plastic covers in field for avoiding bird problem and wild boar damage.**



**7kg rice bran + 1.5 kg jaggery or molasses + 1.5 lit kerosene are mixed thoroughly and placed in plastic glasses in the BPH affected paddy crop for 1 acre**



**Millet grains were mixed with red soil for avoiding storage pest damage.**

### 11. Impact of KVK activities

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs./Unit)	After (Rs./Unit)
Introduction of paddy variety ADT 53	746	63	72430.00	86600.00
Introduction of little millet ATL-1	86	78	69000.00	90900.00
Introduction of Blackgram Vamban8	100	92	37500.00	53600.00
Precision farming in cucurbits	286	69	720588.00	927322.00
Protray Seedlings Production in Solanaceous Vegetables.	993	71	170250.00	258650.00
Cultivation of CO1 chilli hybrid	564	65	414400.00	489700.00
Precision farming in banana	297	62	570350.00	655550.00
Integrated Nutrient Management in cucurbits	109	83	380500.00	599450.00
Cultivation of improved bhendi hybrid CO4	203	69	325265.00	374542.00
Foliar Nutrition in vegetables	1930	85	586200.00	772750.00
Integrated Pest and Disease Management in paddy	1421	59	65230.00	81750.00
Management of maize fall army worm (FAW)	275	65	71820.00	85290.00
Integrated Panama wilt management in Banana	134	71	503549.00	570787.00
Integrated Pest and Disease Management in Brinjal	192	60	203490.00	255600.00
Integrated Pest and Disease Management in snakegourd	186	63	174577.00	221192.00
Mushroom production	176	28	4500.00/ Month	7600.00/ Month
Beekeeping technologies	275	42	6500.00/ Month	9800.00/ Month
Fruits and vegetable preservation	582	28	Rs.6,400.00/ Month	Rs.22,000.00/ Month
Value addition in milk	232	27	Rs.8,500.00/ Month	Rs.21,000.00/ Month
Preparation Instant mix	216	22	Rs.6,000.00/ Month	Rs.26,000.00 /Month

**12. Impact of five select technologies assessed/demonstrated/popularized by the KVK in the district (in QRT format)**

Sl. No.	Name of specific technology/skill transferred	Source of technology	No. of farmers	Extent (ha)	Increase in net return Rs/ha	Economic Impact /benefit (Rs) (5X6)	KVK Intervention OFTs/FLDs/ Trainings	Convergence /Partners involved in up scaling of technology	Remarks
1	2	3	4	5	6	7	8	9	10
1	Direct Seeded Rice technology	TNAU	67500	45174	25471	115,06,26,954	Three Front Line Demonstration conducted covering 12 ha and 30 farmers. Organized 26 trainings covering 426 farmers.	State Department of Agriculture, Thiruvannamalai	Yield increased 23.10%
2	Integrated pest and disease management in paddy	TNAU	12467	5326	15705	8,36,44,830	Conducted five front line demonstration covering 50 farmers and organized 17 training programme with 263 famers	State Department of Agriculture, Thiruvannamalai	Yield increased 21.65%
3	Demonstration on Blackgram Variety VBN 8	TNAU	2948	1700	23599	4,01,18,300	Four Front Line Demonstration conducted covering 85 ha and 220 farmers. Organized 34 trainings covering 680 farmers.	State Department of Agriculture, Thiruvannamalai	Higher yield - 23.07 %

4	Improved spiny brinjal VRM1	TNAU	1134	265	87679	2,32,34,935	Two Front Line Demonstrations conducted covering 4 ha and 20 farmers. Organized 9 trainings covering 195 farmers.	State Department of Horticulture, Thiruvannamalai	Yield increased by 31.06%
5	Improved Chilli hybrid CO1	TNAU	453	94	87853	82,58,182	Two Front Line Demonstrations conducted covering 4 ha and 20 farmers. Organized 11 trainings covering 174 farmers.	State Department of Horticulture, Thiruvannamalai	Yield increased by 24.54%
6	Fruit and vegetables preservation for income generation	TNAU	21	12 units	17400/unit/month	2,08,800	One Front Line Demonstration and one OFT conducted covering 25 farmers. Organized 26 trainings covering 361 farmers.	State Department of Agriculture and SST NGO, Padavedu	Annual income of the farmers increased .
7	Millet and pulses based instant mix preparation for income generation	TNAU	7	7 units	3350/unit/month	23,450	One Front Line Demonstration conducted covering 10 farmers. Organized 16 trainings covering 288 farmers.	State Department of Agriculture and SST NGO, Padavedu	Annual income of the farmers increased .

### 13. Cases of large scale adoption/impact of specific technologies

#### Direct sown paddy cultivation using Drum Seeder in Thiruvannamalai district

##### **Problem Statement:**

Paddy is an important food crop grown in 93636 ha in almost all the part of Thiruvannamalai district. The farmers were following conventional methods of paddy cultivation. The conventional method leads to high investment cost, non availability and higher costs on labour at the critical crop stages like transplanting, weeding and harvesting. This leads to higher cost on cultivation and delaying in carry out the required operations resulted in yield reduction. Besides delay or no seasonal rainfall and unequal distribution of rain is affecting the regular operations in paddy cultivation. The area under paddy cultivation is decreasing annually mainly due to labour constraints.

##### **Plan, Implement & Support:**

There is lot of awareness created on machineries used in paddy cultivation by the KVK as well as the State Department of Agriculture. Mechanization in Paddy cultivation can be possible at all the stages of the crop i.e from sowing to harvesting. The various implements were used to cultivate the paddy are laser leveller, Puddlers, Paddy Drum Seeder, Cono weeder, paddy thresher cum harvester, etc. In Thiruvannamalai district the paddy growers are intensively using the above said implements with the subsidies from agriculture and allied departments for the past five years.



Among the implements, the Paddy Drum Seeder plays a vital role in bringing the true mechanization in paddy cultivation. As there is no need for nursery preparation, the farmers can save the costs on nursery raising, transplanting and weeding. It also reduces the seed cost when compared to the traditional method as the seed required is less(12kgs/acre).

The KVK had introduced the low cost and manually operated KSNM Direct Paddy Seeder to paddy growers of Kaliyur village during Kharif 2012 & kharif 2013 as On Farm Testing (OFT) and Front line Demonstration (FLD). Paddy Drum Seeder is one of the revolutionary equipments that changed the face of sowing paddy seeds in wetland field. Direct paddy drum seeder has eliminated the need of transplantation and hours of manual work nursery raising. At one stretch with single operator effort, it covers 8 rows with 20 cm row to row spacing at a time. Made up of plastic material which makes the operation easy.

By seeing its benefits, the demand for the paddy drum seeder increased slowly and the KVK help the farmers to procure the Direct Paddy Seeder on demands. The KVK extent the demonstrations of paddy drum seeder with the help of state department of agriculture to other parts of the district. The KVK has sold out a total quantity of 374 drum seeders so far based on the requirement.



## **Output**

- Farmers stated that the sowing with Paddy Drum Seeder drastically reduced the man power in raising the nursery and transplanting. The labour required for direct seeding in one acre area is only 2 against 30 manpower required in normal transplanting method of cultivation.
- The method proved to be one of the most important costs saving technologies in the district by reducing required quantity of seeds to the minimum. The average seed cost (12.5 kg) involved in drum seeder per acre is about Rs.500.00 against 30 kg of seed worth of Rs. 1200.00 in the traditional method of cultivation.
- The crop duration reduced by 6-7 days when compared to the traditional cultivation methods.
- The cost of cultivation was also reduced by 20% and the net income increased by 30%
- It is the effective method of cultivating paddy during drought periods as it required less quantity of water when compared to normal cultivation practices.



## **Outcome**

- The direct sowing of paddy using drum seeder technology has spread over an area of 13050 hectares in Thiruvannamalai district due to the effort taken by KVK in collaboration with State Department of Agriculture.
- The technology has given good relief to the paddy growers from labour shortage during the peak seasons.

### **Labour savings & Yield improvement in paddy by direct sowing with drum seeder**

Technology	Crop Duration (CO 51)	Labour requirements			% saving on labour costs	Average yield (q/ha)	% increase in yield
		Nursery	Transplanting	Weeding			
Direct sown paddy using Drum Seeder	94 days	–	2	8	20.83	54.2	8.18
Conventional Method	110 days	2	30	16		50.1	

The table reveals that the direct sowing of paddy with the drum seeder reduced the labour costs during nursery raising, transplanting and weeding operations by 20.83% thus reduced the cultivation cost of the farmers and the technology also increased the yield by 8.18% which means the farmers can earn additional income.

### **Impact:**

- With the effective involvement of KVK along with state department of agriculture, the drum seeding technology has become very popular among the farmers in the district. The technology has spread in an area of 13050 ha in 2019-20 as per the assessment made by the department of agriculture.
- After seeing its huge demand by the farmers, the state department of agriculture planned to promote the drum seeder on subsidised cost involving the KVK and other NGO's in the district.

#### **14. Details of impact analysis of KVK activities carried out during the reporting period**

##### **❖ Impact Analysis of Black gram VBN 8 variety in Thiruvannamalai district**

To replace the old varieties in blackgram, the KVK has introduced VBN 8 blackgram variety in the year 2017, it fetches good market price in the local market. Owing to the short duration nature, resistant to Yellow Mosaic Vein and few pests, higher yield, this variety has earned very good response and name from the farmers.

As a result of the intensive efforts of KVK in collaboration with line departments for the past three years, this variety has spread over an area of 912 hectares in Thiruvannamalai district. The average yield obtained by farmers cultivating VBN 8 blackgram is 702 kg/ha which is 64.12% higher than the district productivity compared to other old varieties. The average net income obtained by the farmers was Rs.23,020/- per hectare.

##### **❖ Impact analysis of IIHR- vegetable special in Thiruvannamalai district.**

The KVK has demonstrated foliar application of vegetable special, a micro nutrient formulation developed by IIHR (Indian Institute of Horticultural Research), Bengaluru. About 6482 farmers have gained knowledge on the technology directly through various activities of KVK viz., training, demonstrations and extension activities. In order to make the technology (Vegetable special) locally available to the farmers, the KVK has acquired the vegetable special technology from IIHR and supplied to farmers at nominal cost.

It has been recorded that adoption this technology has improved the yield to an extent of 25 to 30 % in almost all the vegetable crops it was applied. The technology has been adopted in an area of about 1120 hectares in Thiruvannamalai district and it is expected to reach all the vegetable growing area of the district very soon.

## **15. Linkages**

### **Functional linkage with different organizations**

<b>Name of organization</b>	<b>Nature of linkage</b>
District collector office	Technical assistance during monthly Farmers Grievance and Skill trainings
State Dept. of Agriculture	Trainings and Demonstrations in various blocks under ATMA project. Conduction of field days under FLD, Farm Advisory Services.
State Dept. of Horticulture	
Department of Agri Business and Agri Marketing.	Trainings and Demonstrations in fruits and vegetable preservations, Marketing linkage of FPO.
State Department of Animal husbandry	The FMD audio CD developed by KVK were distributed to all the block officials, trainings & Advisory services.
NABARD	Establishment of Farmer Producer company, MEDP and CAT training programmes.
ICDS	Conduction of Awareness programme, Poshan Maah, Training and Demonstration.
ICICI foundation	Training to the farmers, Technical convergence and other field activities.
Centre for Indigenous Knowledge system. (CIKS)	
Tamil Nadu Rural Transformation Project (TNRTP)	Assessment and Training to CRP's, Skill development programmes
Mivipro Pvt Ltd, Gobichettipalayam	Demonstration on wild boar, rat and other wild animals at the farmers field.
Garuda Aerospace Limited, Chennai	Demonstration on Spraying of pesticides using agridrones in the farmers field.
Marutham FPCL	Skill trainings, quality seed supply
Hand in Hand NGO	Farmer training, field visit and promotion of organic farming.
Coconut Development Board	Training and demonstration on friends of coconut tree

### **16. List of special programmes undertaken by the KVK and operational now, which have been financed by State Govt./Other Agencies**

<b>Name of the scheme</b>	<b>Date/ Month of initiation</b>	<b>Funding agency</b>	<b>Amount (Rs.)</b>
Food Processing Training Centre	March 2015	Ministry of Food Processing Industries, New Delhi.	15,00,000.00
Farmer Producer Company	December 2019	NABARD	1144000.00

## 17. Important Visitors to KVKs during 2020

### Visitor Photographs



**Dr.A.Bhaskar, Principal Scientist along with TNBRD Chairman visited the traditional paddy Kullakkar cultivation at the KVK Campus on 06.03.2020**



**Mr.B.R.Muthamizhselvan, Director, TNRTP visited the KVK and interacted with KVK staff for collaborative skill training to CRP's.**



**Dr.Jawaharlal, DEE, TNAU visited the KVK and interacted with SAC members on 17.03.21**