



AGRICULTURE DEPARTMENT

POLICY NOTE

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**GOVERNMENT OF TAMILNADU
2020**

Policy Note 2020-2021

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INTRODUCTION

“சுழன்றும்ஏர்ப் பின்னது உலகம் அந்நால்
உழந்தும் உழவே தலை”

(திருக்குறள்: 1031)

Agriculture, though laborious, is the most excellent (form of labour); for people, though they go about (in search of various employments), have at last to resort to the farmer.

Tamil Nadu is the 11th largest State in India by area and the 6th most populous State. In Agriculture front, the State Government has set on to **usher in Second Green Revolution for doubling the crop production and tripling the farmers' income** and formulated policies and innovative steps to achieve equitable,

competitive and sustainable growth in agriculture. To increase their income and to provide **“Food Security”**, the Government initiated various measures especially in planning to prepare road maps through **“Tamil Nadu Vision 2023”**, Food Grain Mission, District Agricultural Plan, State Agricultural Plan and Agricultural Infrastructure Development Programme under RKVY and District and State Irrigation Plan under PMKSY etc. Such initiatives helped in drawing implementable action plans, convergence of efforts and focus the constraints in a better tactical and strategic level.

Genesis of Agriculture Department

Based on the recommendations of the Indian Famine Commission, 1880, the Department of Agriculture was established in 1882. The Directorate of Agriculture was carved out as an independent unit with Director of Agriculture and necessary supporting staff in 1904. The Agricultural College, which was under

the control of Directorate of Public Instructions, was annexed to the Department of Agriculture in 1905 and presently functioning as Tamil Nadu Agricultural University. Several changes took place in its organizational setup owing to bifurcation of the State, Districts and Taluks.

Agriculture Scenario of Tamil Nadu

The total geographical area of Tamil Nadu is 130.33 Lakh Ha which constitutes 4 percent of the National geographical area and falls in Semi and Dry sub humid climate.

Tamil Nadu is the State with 6 percent of the Nation's population (2011 Census). As per the 2012-13 survey of NSSO, the estimated number of Agricultural House holds in Tamil Nadu is 32.44 Lakh numbers (Source: Agriculture Statistics of GOI 2018). According to the 10th Agriculture Census, 2015-16, the number of operational land holders in the State is 79.38 Lakh, operating culturable land of 59.73 Lakh Hectare. Small (2 Ha) and Marginal (1 Ha) land holders account for 93% of the total land holdings operating 62% of the total

culturable land. The remaining 38% of the total land holdings are occupied by 7% of semi medium, medium and large farmers. The average size of the land holding in the State is 0.75 hectare which is less than the average size of land holding of the country (1.08 Hectare).

The Tamil Nadu land use pattern as per the latest statistical report (2018-19) is given below:

Table 1.1: Land Use Pattern in Tamil Nadu 2018-19 (Provisional)

S. No	Details	Area (Lakh Ha)	% with reference to total Geographical area
1	Forest	21.57	16.55
2	Net Cropped Area (*)	45.82	35.16
3	Area under Misc. Tree crops	2.26	1.73
4	Permanent Pastures	1.08	0.83
5	Current fallow	10.47	8.03
6	Other fallows	19.30	14.81
7	Culturable Waste	3.23	2.48
8	Land put to non agricultural use	22.02	16.90
9	Barren and Unculturable land	4.58	3.51
	Total Geographical Area	130.33	100.00
	Cropping Intensity (%)		124

() Difference between Gross Cropped Area (56.72 Lakh Hectare) and Area sown more than once (10.90 Lakh Hectare)*

Source: Department of Economics and Statistics, Government of Tamil Nadu

Trend in Land use pattern: The Total geographical area of the State is 130.33 Lakh Ha. The Barren and unculturable land area which was around 7.05 Lakh Ha in 70's has come down to 4.58 Lakh Ha in 2018-19. Thus, there was a reduction of about 2.47 Lakh Ha of cultivable land in 4-5 decades. The area under culturable waste which was 4.17 Lakh Ha in 70's, also came down to 3.23 Lakh Ha in 2018-19.

Other fallow lands, have shown an alarming uptrend. While it was 5.31 Lakh Ha in 70's, it was almost 19.30 Lakh Ha in 2018-19. The area under current fallows which was 16.18 Lakh Ha during 80's has been reduced to 10.47 Lakh Ha during 2018-19. This was due to judicious use of water and adoption of water saving technology like Micro Irrigation to bring more area under irrigation. Further reduction of current fallows is quite possible by the modernization of irrigation systems and adoption of water harvesting

techniques, in addition to other moisture conservation measures combined with Micro Irrigation. The net sown area has reduced considerably from 61.36 Lakh Ha in 70's to 45.82 Lakh Ha in 2018-19. This might be due to marked increase in lands put to non-agricultural uses, due to rapid industrialization and urbanization. However, double or triple cropping is being taken up in the existing area through revamping of the existing irrigation systems and judicious use of irrigation water including promotion of Micro irrigation. The cropping intensity for the State as a whole had shown marginal increase from 121.53 per cent in 70's to 124 per cent in 2018-19.

Tamil Nadu with 6 per cent of population in the country is endowed with only 3 per cent of the water resources of India. The State's water resources are dependent on rainfall and release of water from neighbouring State. The per capita

availability of water in the State stood at 900 cubic meters only as against the all India level of 2200 cubic meters. Hence, the Government focuses on creating more number of water harvesting structures and emphasizing the need for utmost efficiency in water utilization through massive promotion of Micro Irrigation and water conservation technologies *viz.*, Direct sowing, System of Rice Intensification, System of Pulses Intensification, machine planting, Summer ploughing etc.

Rainfall

The State's average annual rainfall is around 947.4 mm which is less than the National average rainfall of 1,200 mm. The quantum of rainfall received during Winter (January- February), Summer (March - May), South - West Monsoon (June – September) and North - East Monsoon (October - December) is 3%, 14%, 36% and 47%, respectively. The

amount and distribution of rainfall influence the cropping pattern and crop growth in a locality. The agricultural production mainly depends on the timely onset of South-West and North-East monsoons and spatial & temporal distribution of such rainfall across the months. Relatively a higher amount of rainfall is received during the months of September, October, November and December. Nevertheless, marked variations were observed between the normal (947.4 mm) and the actual rainfall received [Minimum 545.1 mm (2016); Maximum 1313.5 mm (2008)].

Irrigation Potential

The total water potential of the State including groundwater is 46,540 Million Cubic Meter (MCM). The total surface water potential of the State is 24,864 MCM, (source: http://tnenvis.nic.in/Database/TN-ENVIS_791.aspx) including the contribution from neighbouring States of Andhra Pradesh, Karnataka and Kerala.

Ground water is, the only alternative source available for further Agriculture development. However, the recent developments in the status of availability of ground water across the regions are of great concern. The ground water availability is found to be in safe condition only in 429 firkas (38 per cent) of Tamil Nadu State.

Sources of Irrigation:

The details of net area irrigated using various sources of irrigation across the State (2017-18) are as follows:

Table 1.2: Water Source wise Net Area Irrigated 2018-19 (Provisional)

Source	Availability (Nos)	Net Area Irrigated (Lakh Ha.)	% with reference to Net Area Irrigated
Canals	2,248	6.36	24.80
Tanks	41,124	3.22	12.55
Wells and Bore wells	18,69,660	16.03	62.49
Others	133	0.04	0.16
Total		25.65	100.00

Source: Department of Economics and Statistics, Government of Tamil Nadu

The area irrigated by wells and borewells accounted for 62% followed by Canals (25%) and Tanks (13%).

Trend in source of Irrigation: The percentage of canal area irrigated has come down from 34% in 1970-71 to 24.80% in 2018-19. Similarly, the percentage of area irrigated by tanks declined from 35% in 1970-71 to 12.55% in 2018-19. On the contrary, wells have shown a constant rise from 30% in 1970-71 to 62.49% in 2018-19. The other sources of irrigation had shown a constant declining trend.

The percentage of net area irrigated to net area sown had shown an upward trend with a fall in 1990-91 and 2005-06. The same phenomenon was observed in the case of gross area irrigated to total gross cropped area. The percentage of gross area-irrigated to total gross

area sown was 46.20 percent and 56.12 percent respectively during 1970-71 and 2018-19.

Agro Climatic Zones of Tamil Nadu

Tamil Nadu State has been classified into seven distinct agro-climatic zones based on rainfall distribution, irrigation pattern, soil characteristics, cropping pattern and other physical, ecological and social characteristics including administrative divisions.

Table 1.3 Agro Climatic Zones of Tamil Nadu

Sl. No	Agro Climatic Zones	Districts covered	Soil Type	Avg.Rain fall (mm)
1	North Eastern Zone	Kancheepuram, Tiruvallur, Cuddalore, Vellore, Villupuram and Tiruvannamalai	Red sandy loam, clay loam, saline coastal-alluvium	1,105
2	North Western Zone	Dharmapuri, Krishnagiri, Salem and Namakkal (Part)	Non-calcareous red, non-calcareous brown, calcareous black	875
3	Western Zone	Erode, Coimbatore, Tiruppur, Theni, Karur (Part), Namakkal (Part), Dindigul, Perambalur and Ariyalur (Part)	Red loam, black	715

Sl. No	Agro Climatic Zones	Districts covered	Soil Type	Avg.Rain fall (mm)
4	Cauvery Delta Zone	Thanjavur, Nagapattinam, Tiruvarur and parts of Tiruchirapalli, Karur, Ariyalur, Pudukkottai and Cuddalore	Red loam (new delta), alluvium (old delta)	984
5	Southern Zone	Madurai, Pudukkottai Sivagangai, Ramanathapuram, Virudhunagar, Tirunelveli and Thoothukudi	Coastal alluvium, black, red sandy soil, deep red soil.	857
6	High Rainfall Zone	Kanyakumari	Saline coastal alluvium, deep red loam.	1,420
7	Hilly Zone	The Nilgiris and Kodaikanal (Dindigul)	Laterite	2,124

Cauvery Delta Districts declared as Protected Special Agricultural Zone

The Cauvery delta region is the rice bowl of Tamil Nadu. It also accounts for a large part of production of food grains and other agricultural produce in the State and ensure food security for the State. The multivarious farming activities also ensure a decent standard of living of farmers and agricultural labourers. In order to protect the delta zone and to increase production and productivity of crops by adoption

of improved technologies, integrated farming system, integrated pest management practices and augmenting water resources, creation of water storage structures, improving soil health and to improve the livelihood of farmers by formation of farmers market outlets for FPOs and also for promotion of adequate employment opportunities for agricultural labourers, **the Hon'ble Chief Minister** made an announcement on 09.02.2020 that Thanjavur, Nagapattinam, Tiruvarur districts and some parts of Pudukkottai and Cuddalore districts will be converted into "**Protected Special Agricultural Zone**". As per the announcement, a bill was passed on 19.02.2020 in the Tamil Nadu Legislative Assembly and enacted "**Tamil Nadu Protected Agricultural Zone Development Act, 2020**" and published in the Tamil Nadu Government Gazette on 21.02.2020.

1. AGRICULTURE

1.1. Highlights of achievements in Agriculture

The initiatives to reinvigorate Agriculture sector have yielded the following results.

- Tamil Nadu **Crossed 100 LMT of Food Grain production six times in the past 8 years period.**
- Tamil Nadu was conferred **5 times with Krishi Karman award** in 7 years (**2 times for food grain production; 1 time for Cereals; 1 time for Pulses; 1 time for Oilseeds**). It is a prestigious **National award** for Agriculture and given to the State for its commendable performance in increasing production and productivity of various agricultural crops.
- **Collective farming**, an innovative programme for the upliftment of Small and Marginal farmers by federating them into

“Farmers Interest Groups” (FIG) and “Farmer Producer Groups” (FPG) is under implementation. 30,000 Farmers Interest Groups have been formed and federated into 6,000 Farmers Producer Groups. 110 Farmer Producer Organisations have already been federated. Formation of 10 FPOs is under process.

- **Mission on Sustainable Dry Land Agriculture**, another land mark scheme with a perspective vision to support and to increase the income of dryland farmers besides increasing the productivity of Rainfed crops, is under implementation since 2016-17. Under this programme, 1,000 clusters covering 25 Lakh acre have been formed with formation of Water Harvesting Structures, “Village level” Custom Hiring Centres, Value Addition units

besides health, reproductive and udder health care of the cattle of dryland farmers.

- Tamil Nadu stands top at the National level in Promoting of judicious use of water through Micro Irrigation for which the Government continues to provide 100% subsidy to Small & Marginal farmers and 75% subsidy to other farmers by extending State additional Subsidy. The Government has programmed to bring the entire Well and Bore Well irrigated area under Micro Irrigation in a phased manner.
- In addition to bring the entire Sugarcane area under Micro Irrigation, the **State has also extended additional subsidy for other essential parts** not covered under MI subsidy.
- Tamil Nadu is one among the leading States in India in implementing **Pradhan Mantri Fasal Bima Yojana (PMFBY)**.

A sum of Rs.1,994 crore has been released by the State Government as State share of premium subsidy to the Insurance Companies since inception and a huge sum of Rs.7702.46 crore has been sanctioned as compensation to 37,31,476 Lakh farmers.

- The State was conferred with **Order of Merit Certificate** from **Skoch groups** for the initiatives viz., Collective Farming, Mission on Sustainable Dry Land Agriculture, Micro Irrigation, etc., during 2019-20.
- Tamil Nadu bagged **Best Agriculture State award** from **Global Agricultural Award 2019 of** Indian Chamber of Food and Agriculture.
- Tamil Nadu Won National **e-Governance Gold Award, two times** in the recent past.

- **The Hon'ble Chief Minister has launched Uzhavan Mobile application** with 16 vital personalized Agricultural Information which has won the confidence of more than 6 lakh Farmers.
- CII and IT Department felicitated the IT initiative, Uzhavan App of Agriculture Department.
- The Government of India, Ministry of Electronics and Information technology is in the process of replicating Uzhavan App developed by TN Agriculture Department across the country.

Goals and Strategies

Production Trend & Goal

The Department of Agriculture has resorted to farmer oriented Good Agricultural Practices (GAP) viz., System of Rice Intensification, Direct sowing of Paddy, System of Pulses Intensification, Improved Agronomic practices for Coarse Cereals and Nutri cereals,

implementation of schemes such as Integrated Farming System, Collective Farming, Mission on Sustainable Dry land Agriculture, Judicious water usage by implementation of Micro irrigation on a large scale, etc. Due to the implementation of various schemes, the production of Agri crops is in the increasing trend. The production trend in multitude of agricultural crops is as follows:

Table 1.4: Production Trend & Goal in Agricultural Crops
(Unit:LMT)

S. No.	CROPS	2017-18	2018-19	2019-20 (Programme)	2020-21 Target
1.	Rice	66.38	61.32	72.00	75.00
2.	Millets	35.19	37.07	36.00	42.00
3.	Pulses	5.56	5.51	7.00	8.00
	Total Food grains	107.13	103.90	115.00	125.00
4.	S.Cane **	171.53	170.96	230.00	240.00
5.	Oilseeds	10.38	9.41	12.84	13.52
6.	Cotton (L.bales) *	4.386	3.20	4.57	4.80

* bales of 170 kg,

** Sugarcane Production in terms of cane

Source: Department of Economics & Statistics, *Government of Tamil Nadu*

STRATEGIES FOR ACHIEVING PRODUCTION GOAL IN 2020-21

The following strategies will be adopted to achieve the production goals in 2020-21:

A. Strategies for increasing Rice Production

1. Adoption of Water conservation and labour saving technique viz., SRI, Direct sowing and Machine planting
2. Location specific and new high yielding varieties for different agro-climatic zones
3. Plant health management through Agro Eco System Analysis (AESA)
4. Nutrient conservation and soil preservation in low productivity areas
5. Artificial intelligence in Pest management
6. Encouraging entrepreneurial activity of FIGs/FPGs/FPOs
7. Management of post harvest losses

B. Strategies for increasing Millets Production

1. Transforming fallow land to cultivable land
2. Conjunctive use of water through drip irrigation
3. Proliferation of newly released varieties/Market Preferred varieties
4. Nutrient conservation and soil preservation in low productivity areas
5. Intensifying crop diversification from high water intensive crop to less water intensive crop
6. Labour saving through mechanized sowing
7. Effective management of Fall Army Worm in Maize
8. Management of birds and wild animals menace

C. Strategies for increasing Pulses Production

1. Promotion of quality, high yielding variety seed production & usage of certified quality seed.
2. Assistance for Integrated Nutrient Management - Bio fertilizer, MN mixture & TNAU Pulse wonder
3. Massive Promotion of 2% DAP foliar spray to enhance yield in pulses.
4. Promotion of transplantation in Redgram cultivation
5. Disseminating improved crop production technologies through demonstration
6. Encouraging the practice of inter cropping/ Bund cropping of pulses in all agricultural crops to get additional income.
7. Promotion of System of Pulses Intensification to increase area, production

& productivity of pulses by adopting improved technologies.

D. Strategies for increasing Oilseed Production

1. Encouraging the farmers to Produce seeds of newly released, high yielding varieties of less than 10 years and maintain seed supply chain.
2. Encouraging line sowing through seed drill sowing.
3. Adoption of Integrated Nutrient Manangement & Integrated Pest Management practices.
4. Application of Gypsum for Grountnut and Manganese sulphate for Gingelly for increasing yield.
5. Use of **TNAU Groundnut Rich** for increasing Ground nut production.
6. Promotion of use of Ground Nut harvester.

E. Strategies for increasing Sugarcane Production

1. Breeder seeds of new varieties from TNAU/Sugarcane Breeding Institute for Varietal replacement and increased Sugar Recovery.
2. Disease-free Tissue Culture seedling distribution
3. Promotion of Bud Chip seedling planting
4. Assistance for Intercropping of pulses in Sugarcane
5. Promotion of Bio-control Measures for effective control of pests.
6. Assistance for Trash shredding and mulching.
7. Promotion of Drip Irrigation by providing Additional Cost Assistance

F. Strategies for increasing Cotton Production

1. Incentive for High yielding varietal cotton seed production
2. Promotion of Micro Irrigation and Fertigation.
3. Foliar application of Magnesium sulphate to increase Photosynthesis.
4. Assistance for Critical inputs to control invasive weeds and pests
5. High Density Planting System to achieve 25% Yield Enhancement.
6. Promotion of Intercropping of Pulses in cotton.

Area, Production and Productivity Programme for 2020-21

Food Grain Mission, a Mission Mode Approach is under implementation in Tamil Nadu to bring in an exemplar shift to food surplus,

through bouquet of frontier technologies to bridge the yield gap and achieve a quantum jump in food grain production. The Department of Agriculture has resorted to **farmer oriented Good Agricultural Practices (GAP)** viz., System of Rice Intensification, Direct sowing of Paddy, System of Pulses Intensification, Improved Agronomic practices for Coarse Cereals and Nutricereals, implementation of schemes such as Integrated Farming System, Collective Farming, Mission on Sustainable Dryland Agriculture, Judicious water usage by implementation of Micro irrigation on a large scale, etc., combined with favourable good monsoon and sufficient water in reservoirs. All these measures are expected to achieve the Food Grain Production of more than 115 LMT during 2019-20.

Table 1.5: Food Grain Production in the past 4 years

Crop	Food Grain production (Lakh Metric Tonne)			
	2016-17	2017-18	2018-19	2019-20 (Programme)
Rice	35.54	66.38	61.32	72.00
Millets	13.45	35.19	37.07	36.00
Pulses	3.39	5.56	5.51	7.00
Total Food Grains	52.38	107.13	103.90	115.00

In anticipation of favourable monsoon rains during 2020-21, the **Government of Tamil Nadu has programmed to achieve 125 Lakh Metric Tonne of Food grain production** and increased production in other crops. This achievement is possible by adoption of farmer friendly approaches and schemes besides focusing on timely availability of quality inputs and technologies to farmers at their door steps.

Table 1.6: Programme for 2020-21

Crop	Area (Lakh Ha)	Production (Lakh MT)	Productivity (Kg/Ha)
Rice	18.75	75.00	4000
Millets	9.50	42.00	4421
Pulses	9.50	8.00	842
Total food grains		125.00	
Oilseeds	5.40	13.62	2522
Cotton (*)	1.90	4.80	430
Sugarcane (**)	2.00	240.00	120
Total	47.05		

(*) Production in Lakh Bales; 170 Kg of lint for each bale;

(**) Sugarcane Production in terms of cane; Productivity (Metric Tonnes/Ha)

The following steps will be taken during 2020-21 for the holistic development in Agriculture

- 1. Ensuring availability of quality seeds** to farmers through increased Seed Replacement Rate (SRR).
- 2. Ensure quality input availability** to farmers.

3. Massive **adoption of INM and IPM** technology with emphasis on ecofriendly Agricultural practices.
4. Encouraging farmers to adopt site specific macro and micro nutrient recommendations on the basis of soil test based fertility Index.
5. Focus on **restoration of Soil Health** through organic farming approach and to promote vermi composting, compost making through pleuorotus, green manuring etc.
6. Massive Promotion of water saving technologies like Summer ploughing, Direct sowing, System of Rice Intensification, machine planting, System of Pulses Intensification, Sustainable Sugarcane Initiative etc., to maximize water use efficiency besides focus on Micro Irrigation.
7. Collectivization of farmers to form more crop specific groups to increase on-farm income

- through adoption of technologies, input mobilization, mechanization to reduce work load of farmers, produce aggregation, focus on value addition for better price realization.
8. Site Specific Crop management technologies to increase the yield of food grain, Oilseeds and Commercial crops.
 9. Holistic approach for dry land agriculture through creation of water harvesting structures, massive implementation of rain water harvesting techniques, enabling easy access to dry land machineries, judicious use of water, bringing cropping in dryland area, Green cover in dryland and Animal health care activities for increasing household income, value addition for better remuneration for farm produce etc.,
 10. Massive promotion of Integrated farming system practices by integrating crop production combined with allied sector

activities such as cattle rearing, goat rearing, backyard poultry etc., for increasing the income of the farmers and also for ecological protection, diversification, soil health improvement and increasing the per unit productivity.

11. Increasing the household income by focusing on generating off-farm income opportunities by extending assistance for setting up Farm and Value addition Machinery, leasing out of farm machineries, Dealership on micro irrigation system, Dealership for Input distribution, Kudimaramathu works, Work order for creation of Rain Water Harvesting structures, etc., to active Farmer Producer Groups formed under Collective Farming.
12. Reinvigoration Extension coupled with Information Technology for effective transfer of technologies by integrating all stakeholders in agriculture.
13. **“My Farm Guide”** services in Uzhavan app for guiding the farmers in cultivation aspects.

14. Artificial Intelligence (AI) that provides remedy for pest and disease problems.
15. Handholding support to the farmers from income loss due to natural calamities by rigorous implementation of crop insurance scheme.

1.2. Seasonal condition and crop prospects

The Agricultural situation in Tamil Nadu largely depends on the quantum of rains received during seasonal rainfall of South West and North-East monsoon. Comfortable storage in Mettur reservoir coupled with uniform distribution of monsoon rains bring good crop in delta region.

The details of rainfall received during 2019-20 are as follows:

Table 1.7: Season wise Rainfall-2019

S. No	Season	Rainfall (mm)			% of deviation	
		Normal	2018	2019	Normal	2018
1	Winter (Jan-Feb)	31.3	16.7	4.9	-84.3	-70.7
2	Summer (March-May)	128.5	154.1	50.8	-60.5	-67.0
3	S.W. Monsoon (June-Sept)	341.9	282.9	396.3	+15.9	+40.1
4	N.E. monsoon (Oct-Dec.)	445.7	336.5	453.5	+1.8	+34.8
	Total	947.4	790.2	905.5	-4.4	+14.6

Source: Indian Meteorological Department

1.3. Crop Status

Based on soil type, rainfall distribution, irrigation pattern, cropping pattern and other socio- ecological characteristics, variety of food grain crops such as Paddy, Millets, Pulses, Oilseeds, and other crops Cotton and Sugarcane are predominantly cultivated in different parts of

Tamil Nadu. However, the onset of monsoon, storage position in all the reservoirs and sufficient ground water position are the influential factor for successful cultivation of Crops.

1.3.1. Paddy

Tamil Nadu Agriculture is the most overriding sector in the economy of the State and it is one of the major means of livelihood. Government of Tamil Nadu leads all the other States in introducing Special and Innovative Agriculture Technological initiatives to augment area, production and productivity of major crops. Among the Food Grains, Rice plays a vital role in ensuring food security, as rice is the staple food of the people of Tamil Nadu. Paddy occupies 30% of the gross sown area. In the gross area irrigated of the State, 50% of the area is occupied by paddy. Paddy is cultivated in a normal area of 17.58 Lakh hectare with

normal production of 63.30 Lakh metric tonne under 3 major seasons viz., Kar / Kuruvai / Sornavari (April to July), Samba / Thaladi / Pishanam (August to November) and Navarai / Kodai (December to March). About 36% of the paddy area is cultivated in the delta districts comprising of Thanjavur, Nagapattinam, Tiruvarur, Trichy, Pudukkottai, Karur, Ariyalur and Cuddalore.

During 2018-19, the Rice production is 61.32 Lakh Metric Tonne in an area of 17.21 Lakh Hectare. In the year 2019-20, as per 2nd advance estimate, Paddy is cultivated in an area of 18.04 Lakh Hectare with production of 63.08 Lakh Metric Tonne and during 2020-21, it is programmed to cover an area of 18.75 Lakh Hectare with production of 75 Lakh Metric Tonne in Tamil Nadu.

**Table 1.8: Paddy Area and Production
(Top 10 districts)-2018-19**

S. No	District	Area (Lakh Hectare)	S. No	District	Production (Lakh Metric Tonne)
1	Tiruvavarur	1.887	1	Thanjavur	6.834
2	Thanjavur	1.856	2	Tiruvavarur	6.564
3	Nagapattinam	1.682	3	Nagapattinam	5.681
4	Cuddalore	1.334	4	Cuddalore	4.996
5	Ramanathapuram	1.256	5	Villupuram	4.962
6	Villupuram	1.105	6	Tiruvannamalai	3.908
7	Tiruvannamalai	0.970	7	Tiruvallur	3.809
8	Tiruvallur	0.889	8	Tirunelveli	3.620
9	Tirunelveli	0.830	9	Kancheepuram	3.282
10	Pudukkottai	0.749	10	Tiruchirapalli	2.337

(Source: Department of Economics and Statistics, Government of Tamil Nadu-provisional)

State Government is also steadfast in increasing the production of Rice through promoting high yielding varieties in different agro-climatic zones, water conservation and labour saving techniques, conjunctive use of water through direct sowing and providing awards to encourage the farmers for adoption of SRI technology and for cultivation of traditional varieties.

1.3.1.1. High yielding Paddy varieties

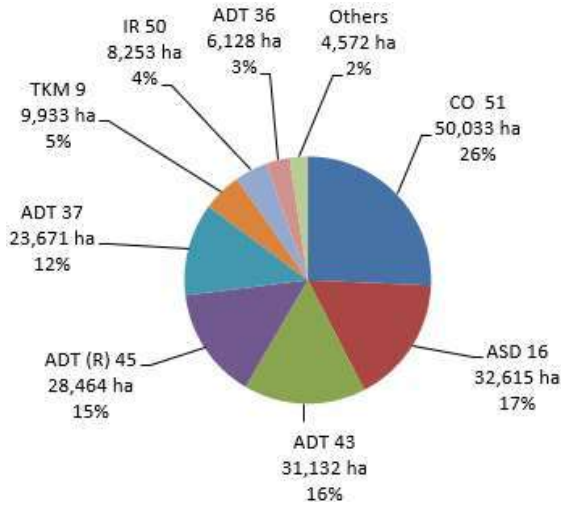
The quality, production and productivity of high yielding Paddy varieties determine the market value. Therefore, Government is ensuring availability of quality seeds to the farmers at appropriate time and affordable price.

Table 1.9: Season wise Popular Paddy Varieties

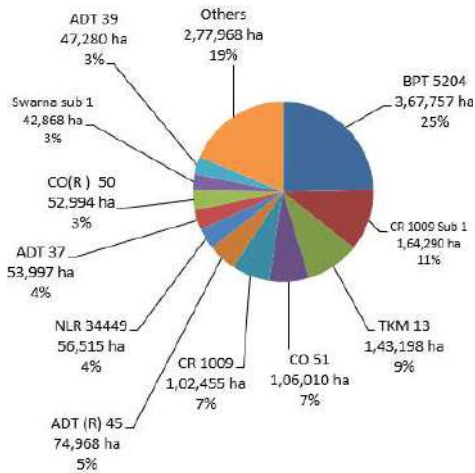
Season	Varieties
Kar/Kuruvai/Sornavari	CO 51, ADT 36, ADT 37, ADT 43, ADT(R) 45, ASD 16, IR 50, TKM 9, TPS-5.
Samba/Thaladi/Pishanam	BPT 5204, CR 1009, CR 1009 Sub 1, NLR 34449, ADT 38, ADT 39, TKM 13, CO(R) 50, JGL 1798, IWP, Swarna sub 1, TRY 3.
Navarai/Kodai	CO 51, ADT 36, ADT 37, ADT 43, ADT(R) 45, ASD 16, IR 50, TKM 9.

The graphical representation of season wise and variety wise area coverage during 2019-20.

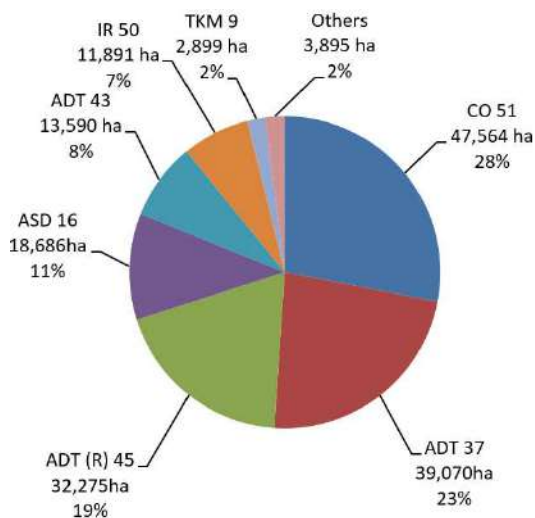
Paddy Area coverage- Kar/Kuruvai/Sornavari Season



Paddy Area coverage- Samba/Thaladi/Pishanam Season



Paddy Area coverage- Navarai/Kodai Season



1.3.1.2. New varieties in Paddy

The Government is also taking up necessary steps to promote newly released high yielding paddy varieties. During 2019, VGD 1, a medium duration variety, mildly scented rice and ADT 53, a short duration variety were released by Tamil Nadu Agricultural University. These varieties will be introduced for

multiplication and distribution to the farmers during 2020-21.

During 2020, CO 53, a drought tolerant short duration variety and ADT 54, a medium duration variety were released and these varieties will be taken up in the seed production chain after due notification from Government of India.

1.3.1.3. Water conservation and labour saving techniques

System of Rice Intensification (SRI), a technology capable of substantially increasing the rice productivity, increasing water use efficiency, minimizing inputs and labour requirement thus saving cost of cultivation by 25 to 30%. This technology includes the critical steps of

- a. Use of quality certified / Hybrid seed of 3Kg/acre to be raised in 1 cent raised bed nursery

- b. 14 days old seedlings are to be transplanted.
- c. The main field should be levelled perfectly and 14 days old 1-2 seedlings per hill as square planting with spacing of 22.5 cm x 22.5 cm to be planted
- d. Alternate wetting and drying to be ensured.
- e. Conoweeder should be used for weeding from 10th day onwards at 10 days interval for four times.
- f. Need based application of Nitrogenous fertilizer.

This technology was promoted in an area of 10.78 Lakh Hectare during 2019-20. It is programmed to cover 11 Lakh Hectare under SRI method of Paddy cultivation during 2020-21.

Table 1.10: SRI area coverage 2019-20

S. No	Districts	Area covered (in Lakh hectare)
1	Thanjavur	1.306
2	Villupuram	1.125
3	Tiruvannamalai	1.040
4	Tiruvarur	0.858
5	Cuddalore	0.857
6	Nagapattinam	0.814
7	Tiruvallur	0.610
8	Tirunelveli	0.572
9	Kancheepuram	0.493
10	Tiruchirapalli	0.379
11	Pudukkottai	0.366
12	Vellore	0.328
13	Madurai	0.302
14	Erode	0.226
15	Krishnagiri	0.179
16	Ariyalur	0.175
17	Salem	0.152
18	Sivagangai	0.135
19	Thoothukudi	0.121
20	Dharmapuri	0.119
21	Virudhunagar	0.110

S. No	Districts	Area covered (in Lakh hectare)
22	Karur	0.101
23	Namakkal	0.090
24	Tiruppur	0.079
25	Kanyakumari	0.070
26	Theni	0.061
27	Dindigul	0.055
28	Perambalur	0.051
29	Coimbatore	0.006
30	Ramanathapuram	0.003
	Total	10.783

1.3.1.4. Direct sowing method of Paddy cultivation, an alternate method of Paddy cultivation with advantages of increased water use efficiency and early maturity than transplanted crop was promoted in an area of 4.14 Lakh Hectare during 2019-20. This technique will also be promoted in an area of 4.5 Lakh Hectare during 2020-21.

**Table 1.11: Direct sown area coverage
(Top 10 districts)2019-20**

S. No.	District	Area covered (in lakh hectare)
1	Ramanathapuram	1.271
2	Tiruvarur	0.735
3	Nagapattinam	0.674
4	Sivagangai	0.542
5	Pudukkottai	0.410
6	Cuddalore	0.183
7	Thanjavur	0.093
8	Virudunagar	0.077
9	Kancheepuram	0.041
10	Tiruvallur	0.024

To motivate the farmers to adopt direct sowing Paddy, the **Hon'ble Chief Minister ordered on 23.08.2019 to provide ploughing subsidy** to the farmers in delta districts and also to farmers cultivating paddy using local irrigation possibility in non delta regions and implemented with the subsidy of Rs.600 per acre to an area of 5 lakh acre with the total financial allocation of Rs.30 Crore.

To maintain optimum plant population with reduced seed rate, the **Government provided assistance for direct sowing with seed drill** to an area of 17,956 hectare with an assistance of Rs.2.69 Crore during 2019-20. This programme will be implemented during 2020-21 also.

1.3.1.5. Assistance for Machine Transplanting of Paddy

This technology involves planting of young seedlings using transplanter with the advantages of less labour, optimum plant population maintenance, profuse tillering and productivity enhancement, was promoted in 40,000 hectare with an assistance of Rs.20.32 Crore during 2019-20. This programme will be implemented during 2020-21 also.

1.3.1.6. National Agricultural Development Programme (NADP)

Government provides assistance through National Agricultural Development Programme (NADP) to increase the area, production and productivity of Paddy and this programme was implemented with a budget outlay of Rs.40.50 Crore for providing incentive for Certified Seed production, distribution subsidy for High yielding certified Paddy seeds, Paddy Micro Nutrient mixture and Biofertilizer, assistance for weedicide application, popularization of machine planting, seed drill sowing, Assistance to FIGs or FPGs for Popularisation of SRI or Machine Planting, assistance for Conoweeder and Movable threshing floor(Tarpaulin) during 2019-20. This scheme will be continued during 2020-21 also.

1.3.1.7. National Food Security Mission for Rice (NFSM-Rice)

With an objective to increase the production of Paddy through area expansion and increasing productivity, restore the soil fertility and thereby enhancing the farm level economy, this programme was implemented in eight identified districts viz., Pudukkottai, Tiruvarur, Nagapattinam, Ramanathapuram, Sivagangai, Thanjavur, Tiruvannamalai and Cuddalore with a budget outlay of Rs.11.29 Crore towards the components such as Cluster Demonstrations, Cropping System Based Demonstrations, Distribution of Certified Quality seeds of High Yielding Varieties, Production enhancing inputs, Integrated Nutrient and Plant Protection Measures, pumpsets besides Cropping System Based Trainings during 2019-20. This scheme will be continued during 2020-21 also.

1.3.1.8. Pest management in Paddy

The Agriculture department has taken various measures for effective management of Pest and disease. During 2019-20, the infestation of Gall midge and Brown Plant Hopper (BPH) were noticed in Paddy and various awareness programmes and control measures were taken for management of pest.

An expenditure of Rs.82 lakh was made under National Agriculture Development Programme for an extent of 16,400 hectare with a subsidy amount of Rs.500 per hectare for Tiruvarur, Thanjavur and Pudukkottai for Gall midge control. Due to the strenuous efforts taken by the Government, the pest damage in Paddy was under control and the normal production was assured in the affected area.

1.3.2. Millets

Millets grow well in dry zones can cope with relatively poor soils and require few external inputs. They are staple food with superior nutritional qualities compared to other cereals. Millets are cultivated as dual purpose crops (food and fodder) and they make strong economic sense in mixed farming systems. Millets are the most viable option in the dry land conditions as they require minimum water and can withstand adverse climatic conditions.

The commonly grown millets in Tamil Nadu are Coarse Cereals (Maize), Nutri Cereals-Sorghum, Pearl Millet, Finger Millet, and other minor millets such as Barnyard Millet, Foxtail Millet, Kodo Millet, Proso Millet and Little Millet.

Table 1.12. Predominant Millet Growing Districts in Tamil Nadu

S. No	Name of the Crop	Districts
1.	Sorghum	Salem, Coimbatore, Trichy, Karur, Tiruppur, Namakkal, Dindigul, Virudhunagar, Theni
2.	Cumbu (Pearl millet)	Villupuram, Thoothukudi, Madurai
3.	Ragi (Finger millet)	Dharmapuri, Krishnagiri, Salem
4.	Maize	Nammakal, Salem, Tiruppur, Erode, Theni, Perambalur, Ariyalur, Dindigul, Viruthunagar, Thoothukudi, Coimbatore
5.	Kudiraivali (Barnyard millet)	Madurai, Virudhunagar.
6.	Varagu (Kodo millet)	Cuddalore, Villupuram, Perambalur, Ariyalur
7.	Samai (Little millet)	Vellore, Tiruvannamalai, Dharmapuri, Krishnagiri
8.	Tenai (Fox tail millet)	Salem, Cuddalore, Namakkal
9.	Panivaragu (Proso millet)	Salem

Table 1.13. Millets Area, Production and Productivity at State level 2018-19

S. No	Crop	Area (Lakh Ha.)	Production (Lakh Metric Tonnes)	Productivity (Kg/Ha)
1	Maize	3.905	28.344	7257
2	Sorghum	3.859	4.645	1204
3.	Ragi	0.786	2.560	3257
3	Cumbu	0.469	1.180	2517
5	Samai	0.142	0.238	1680
6	Varagu	0.015	0.028	1898
7	Tenai	0.007	0.003	472
8	Other millets	0.059	0.081	1358
	Total	9.242	37.079	

(Source: Department of Economics and Statistics, Government of Tamil Nadu Provisional)

Table 1.14. Area and Production of Total Millets (Top Ten Districts) 2018-19

S. No	Name of the District	Area (Ha)	S. No	District	Production (Lakh MT)
1	Salem	93145	1	Perambalur	4.665
2	Namakkal	86523	2	Salem	4.344
3	Thoothukudi	76692	3	Thoothukudi	4.264
4	Dindigul	74219	4	Virudhunagar	2.970
5	Perambalur	63089	5	Dindigul	2.484
6	Tiruppur	57539	6	Krishnagiri	1.855
7	Dharmapuri	53860	7	Tiruchirapalli	1.764
8	Trichy	52056	8	Villupuram	1.613
9	Krishnagiri	51976	9	Tiruppur	1.610
10	Virudhunagar	47808	10	Erode	1.362

(Source: Department of Economics and Statistics, Government of Tamil Nadu)

Table 1.15 : Millet Varieties Cultivated in Tamil Nadu

S. No.	Crop	Varieties
1.	Maize	CO(H)M 4, CO(H)M 5, CO(H)M 6, NK 6240, Ankur 3034, RIL 009, S 6668.
2.	Cholam	Co(S) 30, Co(S) 28, K 12, K 11, CSV 20.
3.	Cumbu	CO 10, CO(Cu) 9, Dhansakthi, MPU 480.
4.	Ragi	CO 13, CO(Ra) 14, CO 15, Paiyur(Ra) 2, GPU 67, GPU 28, ML 365, KMR 301 (Gowri).
5.	Varagu	CO 3, APK 1, Vamban 1, TNAU 86.
6.	Samai	CO(Samai) 4, Paiyur 2, ATL 1.
7.	Tenai	CO 6, CO(Te) 7, ATL 1.
8.	Kudiraivali	CO 1, K 1, K 2, CO(KV) 2, MDU 1.

Millets are cultivated in a normal area of 8.65 Lakh Ha with a normal production of 31.28 Lakh Metric Tonne. Considering the importance of millets and its consumption, and to increase the millet production, various efforts were taken which resulted in area coverage of

9.24 Lakh Ha during 2018-19. During 2019-20 as per the second advance estimate an area of 9.74 Lakh Ha is expected to be covered with the estimated production of 32.28 Lakh Metric Tonne. During 2020-21 it is programmed to cover an area of 9.5 Lakh Ha with production of 42 Lakh Metric Tonne.

1.3.2.1. Newly Introduced Varieties in Millets:

The Tamil Nadu Government is taking appropriate measures to introduce newly released millet varieties and in Sorghum a dual purpose variety CO 32 and Tenai ATL 1 was released during 2020 and these newly released varieties will be taken up in seed chain after due notification from Government of India.

1.3.2.2. Nutri cereals:

For increasing the production through area expansion and productivity of Nutri-cereals in Tamil Nadu, National Food Security Mission

Scheme-Nutri Cereals is being implemented in 15 Districts of Tamil Nadu viz., Coimbatore, Tiruppur, Krishnagiri, Dharmapuri, Trichy, Dindigul, Thoothukudi, Erode, Karur, Madurai, Namakkal, Vellore, Salem, Villupuram and Virudhunagar.

During 2019-20, under NFSM Nutri Cereals an amount of Rs.14.50 Crore has been allotted and implemented with the components Viz., Cluster demonstration on improved technologies, Certified seed production and distribution, Hybrid seed distribution, Integrated nutrient management, Integrated pest management, Distribution of Manual sprayers, State & District level workshops, Awareness campaigns and farmers training. The scheme will be continued during 2020-21 also.

1.3.2.3. Coarse Cereals (Maize)

To enhance the production and productivity of Maize in Tamil Nadu, National Food Security

Mission-Coarse Cereals is being implemented in 9 Districts viz., Salem, Erode, Tiruppur, Perambalur, Dindigul, Thoothukudi, Villupuram, Virudhunagar and Cuddalore.

During the year 2019-20, under NFSM – Coarse Cereals an amount of Rs.3.26 Crore has been allotted and implemented with the components such as Cluster demonstration of improved packages, Demonstration of Inter cropping (Maize with Blackgram, Maize with Greengram) and Distribution of Hybrid seeds. The scheme will be continued during 2020-21 also.

1.3.2.4. National Agricultural Development Programme - Millets:

During 2019-2020, an amount of Rs.1.13 Crore has been allotted for the activities such as certified seed distribution, Incentives for certified seed production, Distribution of Micronutrient mixture and Distribution of Bio

fertilizers. The scheme will be continued during 2020-21 also.

1.3.2.5. Management of Fall armyworm in Maize:

Despite various activities taken by the Government to control Fall Army Worm in maize crop, an area of about 2.20 Lakh Hectare was affected by Fall Armyworm during 2018-19. Hence to compensate the loss occurred due to the infestation of Fall army worm and to protect the interest of maize cultivating farmers, an amount of Rs.186.25 Crore was released as compensation amount towards input costs from State Disaster Relief Fund and 2,93,424 farmers were benefitted.

In anticipation of the Fall Army Worm infestation in Maize crop during 2019-20, Precautionary measures such as **State level workshops, Campaigns, Training to the farmers and input dealers** were conducted by

the Department of Agriculture in all the Maize cultivating districts. A special scheme was announced by the **Hon'ble Chief Minister of Tamil Nadu viz., "Mass Ground Spraying" for the management of Fall Army Worm in Maize** with a financial sanction of **Rs.47.66 Crore** to undertake two sprays to control Fall Armyworm namely Spray of Neem based bio pesticides for 15 to 20 days old maize crop and Spray of chemicals for 40 to 45 days old Maize crop to manage the Fall Armyworm effectively.

Financial assistance was provided @ Rs.5,500/ha for Neem based bio pesticides and recommended chemicals at free of cost and including Rs.1000/ha as spraying cost. Spraying was carried out by the Farmers Interest Groups and service providers at the village level. Mass Ground Spraying was carried out in an area of 1,19,486 hectare. Timely and quickly

implementation of the scheme enabled effective control of Fall Army Worm and saved the Maize growing farmers. The scheme will be continued in 2020-21 also.

An amount of Rs.5 crore has been allocated in the Budget 2020-21 towards various research oriented activities on Fall Army Worm to Tamil Nadu Agricultural University.

1.3.3. Pulses

Pulses play a vital role in improving the soil health besides playing significant source of dietary protein. Red gram, Black gram, Green gram and Horse gram are the major pulses cultivated in Tamil Nadu covering a normal area of 8.46 Lakh Hectare and production of 5.59 Lakh Metric Tonne.

Table 1.16: Area, Production and Productivity of Pulses in Tamil Nadu 2018-19

S. No	Crop	Area (Lakh Ha)	Production (Lakh Metric Tonne)	Productivity (Kg/Ha)
1	Black gram	4.41	2.74	622
2	Green gram	1.70	0.77	451
3	Red gram	0.41	0.52	1248
4	Horse gram	0.77	0.54	691
5	Bengal gram	0.06	0.05	926
6	Other Pulses	1.15	0.89	780
	Total Pulses	8.50	5.51	648

(Source: Department of Economics and Statistics, Government of Tamil Nadu (Final Estimate))

Table 1.17: Production under Total pulses in Tamil Nadu. (Top 10 Districts) 2018-19

S. No	District	Area (Ha)	S. No	District	Production (Metric Tonnes)
1	Villupuram	1,08,682	1	Villupuram	84,499
2	Tiruvarur	84,465	2	Dharmapuri	43,553
3	Nagapattinam	74,458	3	Salem	43,460
4	Thoothukudi	66,094	4	Krishnagiri	42,212
5	Cuddalore	61,142	5	Thoothukudi	38,118
6	Tiruvannamalai	54,597	6	Cuddalore	35,276
7	Salem	54,089	7	Tiruvannamalai	34,026
8	Krishnagiri	52,935	8	Tiruvarur	29,134
9	Dharmapuri	49,394	9	Vellore	24,758
10	Tirunelveli	37,692	10	Nagapattinam	22,770

(Source: Department of Economics and Statistics, Government of Tamil Nadu (Provisional))

Table 1.18: High yielding Varieties of Pulses in Tamil Nadu

S.No	Crops	Variety Name
1	Redgram	BRG 1, BRG 2, CO 8, LRG 41, Co (Rg)7, BRG 4, VBN (Rg)3 & TJT501
2	Blackgram	VBN 3, VBN 4, VBN 5, VBN 6, VBN 7, VBN 8, CO 6, ADT 3, MDU 1, KKM 1, ADT 6, ADT 5 & TU 40 (BARC)
3	Greengram	VBN 3, VBN 4, CO 8, Co (Gg)7 & ADT 3
4	Bengal gram	JAKI 9218
5	Cow pea	CO (CP) 7 & VBN 3
6	Horse gram	Paiyur 2

.3.3.1 New varieties in Pulses

The Government is taking necessary steps to promote the newly released high yielding pulses varieties among farmers. During 2019, VBN 9 and VBN 10 of Blackgram and VBN 4 of Greengram were released by TNAU.

These varieties were already introduced for seed multiplication and will be distributed to the farmers during 2020-21. During 2020, VBN 11, a Blackgram variety is released by TNAU and

this will be taken up in the seed production chain after due notification from Government of India.

1.3.3.2 Scheme activities in Pulses:

Since Pulses is a short duration, less water consuming and less input intensive crop, it is cultivated in all the seasons throughout Tamil Nadu. With a view to achieve self sufficiency in pulses production and to increase the cropping intensity and thereby creating additional income to the farmers, introduction of new varieties, line sowing, foliar spray of 2% DAP are being taken up by the Government of Tamil Nadu.

As a result, the Area, Production and Productivity which was 6.37 Lakh Hectare, 2.45 Lakh Metric Tonne and 385 Kg/Ha respectively in 2010-11 have been increased to 8.50 Lakh Hectare, 5.51 Lakh Metric Tonne & 648 Kg/ Ha in 2018-19 (Final estimate) respectively.

The NFSM Pulses comes in a bigger way to attain the self sufficiency in Pulses production. Layout of Cluster demonstration plots, Cropping system based demonstration, Intercropping of Pulses, Providing incentive for the production of Certified seeds, Distribution of High yielding varieties of seeds at subsidized cost are the main components of NFSM Pulses. For soil and plant protection management, the components namely, Micro Nutrients, Biofertilizers, Gypsum and Plant Protection Chemicals are distributed at subsidized cost.

To carry out farming operations, Rotavators, Sprayers and efficient water application tools like Pipes carrying water from source to field are distributed at subsidized cost. For drying the harvested produce and to avoid post harvest losses, Tarpaulins are distributed under subsidy. A sum of Rs.40.12 Crore is allotted for this scheme during 2019-20.

This Scheme NFSM pulses will be continued during 2020-21.

1.3.3.3 Targeting Rice Fallow Area - Pulses:

In order to utilise the available moisture after harvesting of paddy in the delta districts, the government have sanctioned a new scheme Targeting Rice Fallow Area (TRFA) during 2019-20. This Scheme is being implemented in Thanjavur, Thiruvarur, Nagapattinam, Cuddalore and Tiruchirapalli districts over an area of 11,200 Hectare at a total cost of Rs.3.20 Crore, in villages, wherever regular NFSM Scheme is not implemented.

Layout of demonstration plots, distribution of high yielding variety seeds and other critical inputs, Plant Protection Chemicals, Pipes carrying water and Tarpaulin at a subsidised cost are the major components of this scheme.

This scheme will be continued during 2020-21 also.

1.3.3.4 Special Action Plan for Increasing Pulses Productivity:

In order to enhance the pulses production in low productivity districts, this scheme is

sanctioned under NFSM Programme during 2019-20. Distribution of high yielding variety seeds and assistance for seed drill sowing are the major components of the scheme and this scheme is being implemented in Villupuram, Thiruvannamalai, Tiruchirapalli, Thiruvallur, Erode and Salem districts over an area of 20,000 Hectare at a total cost of Rs.2.00 Crore during 2019-20.

1.3.3.5 Price Support Scheme through Tamil Nadu Agricultural Marketing Department.

In order to ensure remunerative price to Pulses, the Tamil Nadu Government, has taken the initiative and started procurement of Pulses in Regulated Markets of Tamil Nadu Agricultural Marketing Department under Price Support Scheme through NAFED from 2017 - 18.

Table 1.19: Procurement of Pulses made through Price Support Scheme during 2019-20

S. No	Name of the Crop (Kharif)	Minimum Support Price (Rs. per kg)	Total Quantity Procured (MT) (so far)	Total Amount (Rs. in Lakhs) (so far)
1	Redgram	58.00	268.30	155.61
2	Blackgram	57.00	6.85	3.90
3	Greengram	70.50	68.85	48.50
Total			344.00	208.01

This Scheme will be continued during Rabi 2019-20 and during 2020-21 also.

1.3.4. Oilseeds and Oil Palm

1.3.4.1. Oilseeds

In Tamil Nadu, Oilseed crops are grown with a normal area of 3.83 Lakh Hectare with normal production and productivity of 9.00 Lakh Metric Tonne and 2,350 Kg/Ha. Groundnut, Gingelly, Sunflower & Castor are the major Oilseed crops. The Tamil Nadu State has been lauded with **“Krishi Karman Award”** in

Oilseeds category for the year 2017-2018 for obtaining Production of 10.382 L.MT. Tamil Nadu retained the **first place at National level for Oilseed productivity (2,729 Kg/Ha)** which is 113 percent increase over all India average productivity of 1284 Kg/ha.

Table 1.20: Area, Production and Productivity of Oilseeds in Tamil Nadu- 2018-19 (Final Estimate)

S. No	Crop		Area (Lakh Ha)	Production (Lakh Tonne)	Productivity (Kg/Ha)
1.	Ground nut		3.355	9.112	2,716
2.	Gingelly		0.446	0.244	548
3.	Sunflower		0.050	0.035	689
4.	Castor		0.048	0.015	312
5.	Other Oilseeds		0.003	0.001	232
	Total		3.902	9.407	2,411

(Source: Department of Economics and Statistics, Government of Tamil Nadu (Final Estimate))

Table 1.21: Area and Production of Total Oilseeds in Major Districts of Tamil Nadu 2018-19

S. No	Districts	Area (Lakh Ha)	S. No	Districts	Production (Lakh Tonne)
1	Tiruvannamalai	0.754	1	Tiruvannamalai	2.007
2	Villupuram	0.455	2	Villupuram	1.204
3	Namakkal	0.339	3	Vellore	0.843
4	Vellore	0.334	4	Cuddalore	0.614
5	Erode	0.246	5	Kanchipuram	0.605
6	Salem	0.218	6	Namakkal	0.479
7	Kanchipuram	0.157	7	Erode	0.411
8	Krishnagiri	0.137	8	Krishnagiri	0.394
9	Cuddalore	0.124	9	Ariyalur	0.380
10	Pudukkottai	0.117	10	Salem	0.360

(Source: Department of Economics and Statistics, Government of Tamil Nadu (Provisional))

Table 1.22: Cultivated varieties in Tamil Nadu under Oilseeds

S.No	Crop	Variety
1.	Groundnut	TMV 14, VRI 8, CO(Gn 6),CO 7, VRI (Gn) 6, VRI (Gn) 7, Dharani, TMV 7, TMV 13, VRI 2, ICGV 350, ICGV 91114, Kadiri 6, Kadiri 9, GJG 9, GJG 31, GJG 32
2.	Gingelly	TMV 7, VRI 3, TMV 3, TMV 5, VRI 1, VRI 2, SVPR 1
3.	Sunflower	CO 1, CO 3, CO 4, TNAU SFHy 2, CO(SFV) 5, KBSH 1, DRSF 108, COH 3
4.	Castor	TMV 5, TMV 6, CO 1, YRCH 1, YRCH 2

1.3.4.1.1. New varieties in Oilseeds

The Government is taking necessary steps to promote the following newly released high yielding Oilseed varieties of Tamil Nadu Agriculture University. The varieties namely TMV 14, VRI 8, BSR 2 in Groundnut crop, VRI 3 in Gingelly, CO H3 in Sunflower and YRCH 2 in Castor crop were already introduced for seed multiplication and will be distributed to the farmers during 2020-21.

The Government is taking various measures to attain self sufficiency in Oilseed production by implementing following schemes

1.3.4.1.2. National Food Security Mission (NFSM)-Oilseeds

During 2019-20, **NFSM-Oilseeds** scheme is being implemented with a financial allocation of Rs.16.42 Crore for increasing production of Oilseeds. This scheme is implemented in all the

districts except Kanyakumari, Chennai and The Nilgris.

Under this scheme, seed components such as Purchase of Breeder seeds, Production and distribution of Foundation and Certified seeds, transfer of latest technologies through Block demonstrations (Groundnut), Biofertilisers distribution, Gypsum for Groundnut crop, distribution of Plant Protection Chemicals (weedicides) and distribution of Power Operated Sprayers are being carried out at subsidized cost.

The activities will be continued under NFSM – Oilseeds during 2020-21 also.

1.3.4.1.3. Targeting Rice Fallow Area-Oilseeds

In order to utilise the available moisture after harvesting of paddy, the Government have introduced a new scheme, Targeting Rice Fallow Area (TRFA), during 2019-20. This Scheme is

being implemented in the districts of Thanjavur, Tiruchirapalli and Erode with a financial allocation of Rs.48 Lakh.

Layout of Cluster demonstration, distribution of Micro Nutrient Mixture, Gypsum to Groundnut, Bio pesticides and Pipes carrying water from source to field are the major components under this scheme.

The scheme will be implemented in villages where regular NFSM activities are not carried out. The scheme will be continued during 2020-21 also.

1.3.4.2. Oil Palm

1.3.4.2.1. National Food Security Mission - Oil Palm

The main objective of implementing National Food Security Mission - Oil Palm in Tamil Nadu is attaining self sufficiency in edible oil production and reducing foreign import.

The mission focuses on promotion of Oil Palm cultivation by distribution of planting material, providing assistance for maintenance and intercropping, distribution of machineries and tools like pump set, borewell, motorised chisel, Oil Palm cutter, small tractor with trolley and providing Production incentive for the farmers producing more than 8 MT of Fresh Fruit Bunches per Hectare.

The scheme is being implemented with a financial allocation of Rs.4.76 Crore in the year 2019-20. This scheme will be continued during 2020-21 also.

Table 1.23: District wise area under Oil Palm in Tamil Nadu and Fresh Fruit Bunches Production during 2019-20 (Top 10 districts)

S. No	District	Area (Ha)	S. No	District	Fresh Fruit Bunches (Metric Tonnes)
1	Cuddalore	761	1	Thanjavur	1187.90
2	Villupuram	681	2	Villupuram	842.90

S. No	District	Area (Ha)	S. No	District	Fresh Fruit Bunches (Metric Tonnes)
3	Thanjavur	541	3	Cuddalore	768.30
4	Tiruvarur	180	4	Tiruvarur	200.80
5	Nagapattinam	148	5	Nagapattinam	110.80
6	Tiruvannamalai	142	6	Theni	91.79
7	Perambalur	122	7	Ariyalur	89.10
8	Tiruchirapalli	121	8	Tiruchirapalli	51.30
9	Ariyalur	117	9	Perambalur	45.30
10	Karur	100	10	Tiruppur	36.18

(Source: Approved Oil Plam entrepreneurs)

1.3.4.3. Tree Borne Oilseeds

1.3.4.3.1. National Food Security Mission - Tree Borne Oilseeds (TBOs)

The main objective of NFSM Tree Borne Oilseed crop in Tamil Nadu is, area expansion, under TBO to effectively use the available land resource. The scheme is being implemented in 22 districts viz., Kancheepuram, Cuddalore, Villupuram, Vellore, Tiruvannamalai, Salem, Namakkal, Dharmapuri, Krishnagiri, Coimbatore, Tiruppur, Erode, Karur, Pudukkottai, Madurai,

Theni, Dindigul, Ramanathapuram, Sivagangai, Virudhunagar, Tirunelveli and Thoothukudi.

The mission focuses on promotion of nurseries of Tree Borne Oilseeds and plantation of Neem and Pungam on waste lands and intercropping on already established plantations for four years. The scheme is being implemented with a financial allocation of Rs.0.99 crore in the year 2019-20.

This scheme will be continued in 2020-21 also.

1.3.5. Coconut

Coconut, a perennial crop is cultivated in Tamil Nadu in an extent of 4.40 Lakh Hectare with an annual production of about 52,140 Lakh nuts and productivity of 11,560 nuts per Hectare per year. The department strives for increasing the production and productivity of Coconut by

implementing various schemes under Coconut Development Board assisted schemes and National Agricultural Development Programme.

The details of major Coconut cultivating districts with their area and production are given below (top 10 districts):

Table: 1.24 Major Coconut cultivating districts with area and production-2018-19 (Top 10 districts)

S. No	District	Area (Ha)	S. No	District	Production (Lakh Nuts)
1	Coimbatore	87,702	1	Coimbatore	12,506
2	Tiruppur	61,249	2	Thanjavur	6,147
3	Thanjavur	38,116	3	Tiruppur	5,018
4	Dindigul	28,829	4	Vellore	2,769
5	Kanyakumari	24,574	5	Kanyakumari	2,759
6	Theni	21,444	6	Theni	2,126
7	Vellore	20,652	7	Krishnagiri	1,955
8	Tirunelveli	16,534	8	Dindigul	1,916
9	Krishnagiri	15,167	9	Dharmapuri	1,690
10	Erode	14,315	10	Virudhunagar	1,595

(Source: Department of Economics and Statistics, Government of Tamil Nadu (Provisional))

In 2019-20, Coconut Development Board has sanctioned a sum of Rs.14.50 Crore for

implementing various Coconut Development Board assisted schemes. The Coconut Development Board assisted schemes, will also be implemented in 2020-21.

1.3.5.1. Revival of the Coconut plantation in Gaja affected areas:

Two major schemes were implemented by the department for the revival of the Coconut plantation in Gaja affected areas namely

- (a) Gaja livelihood package for Rs.81.015 Crore
- (b) Special package to mitigate the loss incurred by Gaja cyclone for Rs.92 Crore (assisted by Coconut Development Board).

(a) Gaja cyclone- Livelihood package for Coconut:

1. Production and distribution of Coconut seedlings:

Under this component, it was programmed to produce and distribute 35 Lakh Coconut seedlings and so far, 30.22 Lakh Coconut seedlings were distributed to the farmers at free of cost. The balance 4.78 Lakh Coconut

seedlings are available in the State Horticulture farms which will be distributed shortly.

2. **Intercropping in Coconut with Millets, Pluses and Oilseeds:**

Seeds of millets like Maize, Ragi and Kuthiraivali, Pulse seeds like Blackgram and Greengram and Oilseeds like Gingelly along with critical inputs like Micro Nutrient Mixture, Bio-fertilizers, Bio-pesticides etc. were distributed to the Gaja affected farmers for 50,240 Hectare to take up inter cropping.

3. **Micro Irrigation:**

It was programmed to install Micro irrigation units for 15,000 Hectare of Gaja cyclone affected Coconut gardens and so far the installation has been completed in 7,781 Hectare. The scheme is in progress.

(b) **Special package to mitigate the loss incurred by Gaja cyclone:**

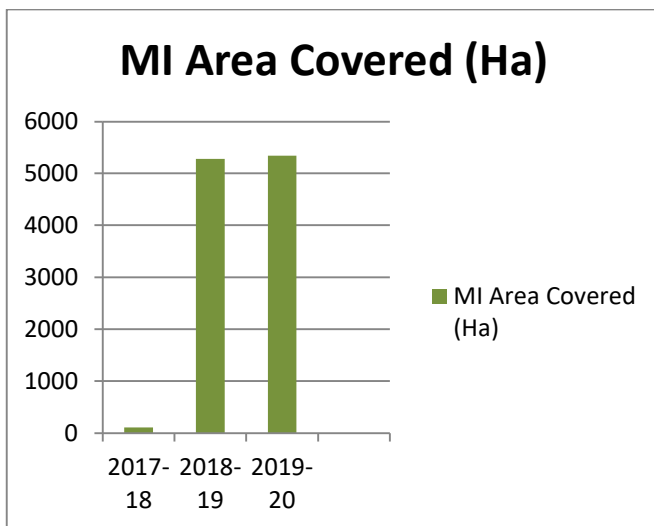
Coconut Development Board has sanctioned Rs.92 crore to mitigate the loss incurred by

Gaja cyclone by providing financial assistance for Cutting and Removal of damaged Coconut trees, Distribution of Coconut seedlings for replanting and Setting up of Small Coconut Nurseries.

1.3.5.2. Micro irrigation in Coconut Gardens:

Coconut is cultivated in an area of 4.40 lakh Hectare in the State. Under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) Scheme, focus is given for the cultivation of Coconut with drip irrigation and since 2017-18, drip irrigation was laid in coconut garden in an area of 10,727 Hectare. Due to various efforts taken by the Government, the Micro irrigation area under Coconut is increasing every year and the details are furnished below:-

Year	Coconut area covered Under Micro Irrigation (Ha)
2017-18	105
2018-19	5,278
2019-20	5,344
Total	10,727



The Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) scheme will be continued in 2020-21 also.

1.3.5.3. Control of Rugose Spiralling Whitefly in Coconut

Rugose Spiralling whitefly infestation is noticed in Coconut crop in Coimbatore, Tiruppur, Thanjavur, Cuddalore, Erode, Salem, Kanyakumari, Dindigul and Theni districts. The Department is making various efforts for the control and further spread of Whitefly in Coconut. The pest in Coconut is kept under

control and further spread is prevented by release of beneficial insects, Yellow sticky trap, installation of Yellow light trap and usage of jet water spray.

1.3.6. Sugarcane:

Sugarcane is a major commercial crop with a normal area of 2.14 Lakh Ha. cultivated in all the districts of Tamil Nadu except Kanyakumari, Chennai and The Nilgris with a normal production of 211 Lakh MT and an average productivity of 99 MT per Ha.

Table 1.25: Sugarcane area and Production (Top Ten Districts) – 2018-19

S. No.	District	Area (Lakh Ha.)	S. No.	District	Production (in Lakh MT)
1.	Villupuram	0.480	1.	Villupuram	48.748
2.	Cuddalore	0.181	2.	Cuddalore	19.975
3.	Tiruvannamalai	0.171	3.	Tiruvannamalai	16.865
4.	Erode	0.122	4.	Erode	15.808
5.	Namakkal	0.108	5.	Namakkal	12.687
6.	Vellore	0.056	6.	Vellore	5.597
7.	Salem	0.056	7.	Salem	5.345
8.	Thanjavur	0.055	8.	Thanjavur	4.530
9.	Tiruvallur	0.049	9.	Tiruvallur	4.528
10	Dharmapuri	0.048	10	Dharmapuri	4.481

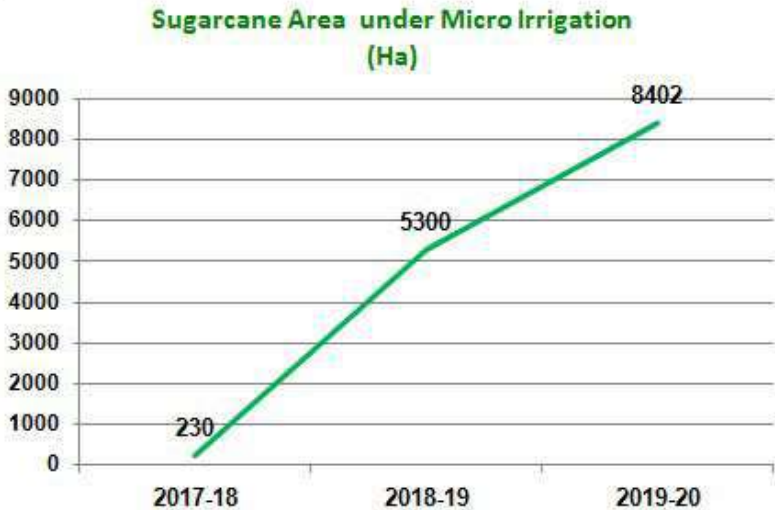
(Source: Dept. of Economics and Statistics, Government of Tamil Nadu (Provisional))

To increase the Sugarcane Production and Productivity in Tamil Nadu, farmers are encouraged to grow High yielding varieties like **Co 86032** and High yielding new varieties like **Co 0212, Co 06030, CoG 6, Co 09004, and Co 11015**. **As Co 11015 Sugarcane variety is a high yielding, high quality, short duration variety (Eight months duration), it has been cultivated in an area of 1050 Ha during 2019-20 and will be programmed to cover an area of 7,000 Ha during 2020-21.**

The Government encourages production of Sugarcane through various schemes. During 2019-20, a sum of Rs. 10.00 Crores has been sanctioned under NADP programme for Sugar Mills. The NFSM scheme-Mission mode approach on Sugarcane is based on Improved Cropping System and during 2019-20, the scheme is being implemented at a cost of Rs.75.90 Lakh.

As Sugarcane is a Water Guzzling Crop, installation of Micro Irrigation is promoted through PMKSY and SSI Schemes by the

Department. In order to reduce the burden of Sugarcane growers and to increase the Sugarcane area under Micro Irrigation, State Government has sanctioned Rs.68.35 Crores towards Assistance for Additional Components covering 16,000 Ha in addition to subsidy under PMKSY Scheme.



Due to various initiatives taken by the Government, the area under MI is in increasing trend from 2018-19 onwards.

During 2020-21, the activities under NADP will be continued through Sugar mills, NFSM through department and it has been programmed to provide **Assistance for Additional Components covering 34,000 Ha** in addition to subsidy under PMKSY Scheme with the **financial allocation of Rs.150 Crore.**

1.3.7. Cotton:

Cotton, the white gold, is the most important natural fibre and commercial crops cultivated in Tamil Nadu. Tamil Nadu has a pride of place in the National cotton scenario due to its location. This crop plays a major role in promotion of textile industries and ensures stable income to the Cotton growers. Cotton crop is normally cultivated in an area of around 1.60 Lakh Ha with an average production of 3.66 Lakh bales. The Government of Tamil Nadu is taking earnest efforts to promote area and production of cotton in Tamil Nadu.

**Table 1.26: Cotton Area And Production
(Top Ten Districts) 2018-19**

S. No	District	Area (Lakh Ha)	S. No	District	Production (in Lakh Bales)
1.	Virudhunagar	0.194	1.	Virudhunagar	0.328
2.	Perambalur	0.139	2.	Salem	0.318
3.	Salem	0.094	3.	Thiruvavur	0.306
4.	Ariyalur	0.093	4.	Perambalur	0.302
5.	Madurai	0.093	5.	Dharmapuri	0.230
6.	Dharmapuri	0.092	6.	Ariyalur	0.218
7.	Tiruchirapalli	0.089	7.	Tiruchirapalli	0.211
8.	Thiruvavur	0.067	8.	Madurai	0.171
9.	Thoothukudi	0.062	9.	Dindigul	0.161
10.	Cuddalore	0.059	10.	Nagapattinam	0.124

(Source: Department of Economics and Statistics, Government of Tamil Nadu
(Provisional))

1.3.7.1. Tamil Nadu Cotton Cultivation Mission

An ambitious Tamil Nadu Cotton Cultivation Mission was launched in 2014-2015 in the State to increase the productivity and production of cotton by expansion of cotton area. During 2019-20, this scheme is being implemented at a total cost of Rs.11.00 crores with a special focus on **Extra Long Staple Cotton Cultivation.**

Cotton crop not only provides fibre for the textile industry, but also plays a vital role in the

cattle feed and oil industries with its seeds rich in oil and protein. Thus, cotton has been a premier agricultural crop, playing a major role in the national economy both in rural and urban sectors. Hence as a source of natural fibre, cattle feed and oil, it is imperative to increase the Cotton production in the State.

Tamil Nadu is a pioneering State in producing Long and Extra Long Staple cotton in the country. Farmers are encouraged to grow high-yielding cotton varieties with superior fibre quality like SVPR 4, SVPR 5, Co 14, Surabhi, and Suraj to get better price for cotton. Moreover, TNAU has released the new cotton variety Co 17, which is a short duration, high yielding plant type with synchronized boll maturity for the benefit of cotton growers and this variety will be promoted during 2020-21 after due notification by Government of India.

In order to increase **high-quality cotton production** in Tamil Nadu and to give better remunerative price to farmers and to meet the growing demand of Cotton spinning mills, it is programmed to continue the Tamil Nadu Cotton Cultivation Mission during 2020-21 with a special focus on **Integrated Pest Management**.

The Government encourages Cotton cultivation through NFSM in Villupuram, Salem, Dharmapuri, Perambalur, Madurai, Dindigul, Tirunelveli, Virudhunagar, Thoothukudi and research stations of Tamil Nadu Agricultural University (TNAU). The interventions focused are Frontline Demonstration on Integrated Crop Management, Extra Long Staple Cotton production, Intercropping in cotton, and Trials on High Density Planting System for cotton crop are being implemented during 2019-20 at an outlay of Rs.68.79 lakh. This mission will be continued during 2020-21 also.

1.4. Special Schemes of Government of Tamil Nadu

1.4.1. Mission on Sustainable Dry land Agriculture (MSDA) - an eye opener in Dry Land Farming.

The State Government, with a focus to increase the income of farmers in dryland area, announced a special scheme **Mission on Sustainable Dry land Agriculture (MSDA)** in the Budget speech 2016-17 with a sanctioned amount of Rs.802.9 Crore, for 4 years from 2016-17 to 2019-20 in 25 districts with the main objective of developing 25 Lakh acre of dryland by forming 1000 dry land clusters of 2,500 acre each.

The scheme mainly focuses on soil and water conservation, easy access to the farm machinery there by increasing the area, production and productivity of rain fed millets, pulses, oilseeds and cotton, besides Value Addition to fetch better price for the farm

produce, besides focusing on Animal Husbandry activities, growing fruit seedlings, timber value tree seedlings and to promote Palmyra cultivation to supplement farm income are all the integral parts of this scheme.

In this scheme, activities of Agriculture and allied Departments namely Agriculture Engineering, Animal husbandry, Horticulture, Agricultural Marketing and Agri Business Department, Tamil Nadu Agricultural University & Tamil Nadu Veterinary and Animal Sciences University were integrated for comprehensive development of dry lands in a Mission mode approach.

During 2016-17 & 2017-18, the scheme was implemented with an expenditure of Rs.139.46 crore in 200 dry land clusters covering 5 Lakh Acre of dryland area which

benefitted 2.15 Lakh dry land farmers in 25 districts.

The Phase II of the scheme was implemented during 2017-18 & 2018-19 in 400 Clusters covering 10 Lakh Acre of dryland with a total expenditure of Rs.240.26 crore benefiting 3.59 Lakh dry land farmers.

The establishment of Water Harvesting Structures such as Check Dams, Farm ponds, community ponds and village ponds which are serving as micro catchment area increased the water table in the dry land area that helped to overcome the terminal drought of the standing crop.

Further, it has been observed that the total area of Millet increased by 22%, Pulses by 17% and Oilseeds by 17% during 2017-18 in the State compared to 2016-17. During the second year of implementation ie., during 2018-19, an

increase in area under millets of 25% and in pulses 19% was recorded over 2016-17, despite 24% deficit rain fall received.

During 2019-20, another 10 lakh acre of dry land has been targeted to benefit 3.70 lakh dry land farmers by forming another 400 dryland clusters and implementing the same welfare activities as done in previous years, at a total cost of Rs.264.96 crore, besides focusing on Palmyra tree cultivation which is the Tamil Nadu State Tree by distributing **2 crore Palmyra seed nuts, timber value tree seedlings namely Teak, Rose wood, Vengai, Mahagani, Neem, Eetti, Perumaram, Pala, Arasu, Poovarasu, Red sanders,** etc., by **distributing 20 lakh** seedlings and **horticultural fruit seedlings** namely Mango, Amla, Pomegranate, Jamun and Jack by distributing **14.88 lakh seedlings** at free of cost to the dryland farmers.

Table 1.27: Mission on Sustainable Dryland Agriculture- District wise dry land Clusters and Farmers benefitted

S. No	Districts	Phase I Clusters (No)	Phase II Clusters (No)	Phase III Clusters (No)	Total Clusters (No)	Total Farmers benefitted
1	Tiruvallur	0	2	0	2	2,359
2	Cuddalore	10	15	10	35	28,398
3	Villupuram	15	32	32	79	76,865
4	Vellore	10	18	18	46	58,998
5	Tiruvannamalai	18	12	18	48	55,149
6	Salem	13	32	26	71	86,507
7	Namakkal	10	25	24	59	46,640
8	Dharmapuri	10	28	28	66	81,420
9	Krishnagiri	15	30	32	77	61,734
10	Coimbatore	6	12	10	28	25,946
11	Tiruppur	5	12	18	35	22,109
12	Erode	6	13	13	32	30,794
13	Tiruchirapalli	5	12	16	33	35,113
14	Perambalur	6	10	15	31	26,117
15	Ariyalur	4	12	9	25	37,980
16	Karur	4	8	12	24	17,650
17	Pudukkottai	4	8	16	28	24,574
18	Thanjavur	3	0	0	3	2,714
19	Thiruvarur	4	0	0	4	4,178
20	Madurai	5	15	13	33	24,101
21	Theni	0	0	5	5	5,044
22	Dindigul	10	24	14	48	42,903
23	Ramnad	5	14	5	24	25,540
24	Sivagangai	4	10	5	19	18,297
25	Virudunagar	8	16	19	43	33,526
26	Tirunelveli	5	10	10	25	25,297
27	Thoothukudi	15	30	32	77	49,928
	Total	200	400	400	1,000	9,49,881

Note: 1 Cluster = 2500 acre

Important activities implemented upto 2019-20

- **977 Check dams, 81 community ponds, 17 Village ponds, formed and 219 village ponds deepened** under Entry Point Activity with a total expenditure of Rs.50 Crore.
- **Establishment of Field Bunds in 1,45,839 acre & 3,752 Farm ponds in individual farmer's field, besides 113 Ooranies were deepened** (Ramanathapuram & Sivagangai Districts) at a total expenditure of Rs.43.62 Crore.
- **Ploughing subsidy @ Rs.500 / acre extended in 15 Lakh Acre** of dry land with a total financial expenditure of Rs.75 Crore and it is being carried out during 2019-20 with a financial expenditure of Rs.50 Crore.
- **Cultivation of Millets, Pulses, Oil seeds and cotton in 15 lakh acre of dry land**

with distribution of seeds and other inputs at 50% cost for which a sum of Rs.113.67 Crore extended as back ended subsidy to 5.73 Lakh dryland farmers. During 2019-20, a sum of **Rs.100 crore is extended to 3.70 lakh dryland farmers for the cultivation of dry land crops in 10 Lakh Acres.**

- **Out of total 348 Value addition Machinery units targeted, so far, 174 Value addition Machinery Units such as Mini dhal mill, Millet processing units and oil expellers were commissioned** with a financial assistance of Rs.10 Lakh / unit or 75 % of the machinery cost whichever is less. A sum of Rs.35 Crore is being spent and the balance 174 value addition units are under establishment.

- **801 “village level” Custom Hiring Centres have been established** which enabled timely availability of machinery and created employment to rural youth and this activity is still under progress.
- In Animal health care activities, 9 lakh cattle owned by dryland farmers have been targeted and so far, 6.35 lakh cattle were given 8,433 MT of Mineral mixtures, 97,300 packages each of reproductive health care and udder health care at a total expenditure of Rs.88.7 crore. This activity is still under progress.
- So far, **6.3 lakh fruit seedlings comprising 1.3 lakh Jamun, 95,590 Amla, 94,520 Acid lime and 19,000 Mango seedlings were distributed** out of total 17.40 lakh fruit seedlings at a total expenditure of Rs.4 crore to dryland farmers at free of cost to get additional income and to mitigate the

failure of dryland crops. The balance 11 lakh fruit seedlings are being distributed to farmers.

- During 2019-20, as a part of reviving the Palmyra trees in the State as well as to increase the water table in dry land area, **2 crore Palmyra seed nuts were distributed to farmers at free of cost at a total financial expenditure of Rs.8 crore.** Further, to increase the green cover and to fetch extra income to dryland farmers, **20 lakh timber value tree seedlings were distributed at free of cost** at a total expenditure of Rs.4 crore.
- The scheme will be implemented during the year 2020-21 with modified structures for the benefit of dryland farmers in all districts.

1.4.2. INTEGRATED FARMING SYSTEM (IFS)

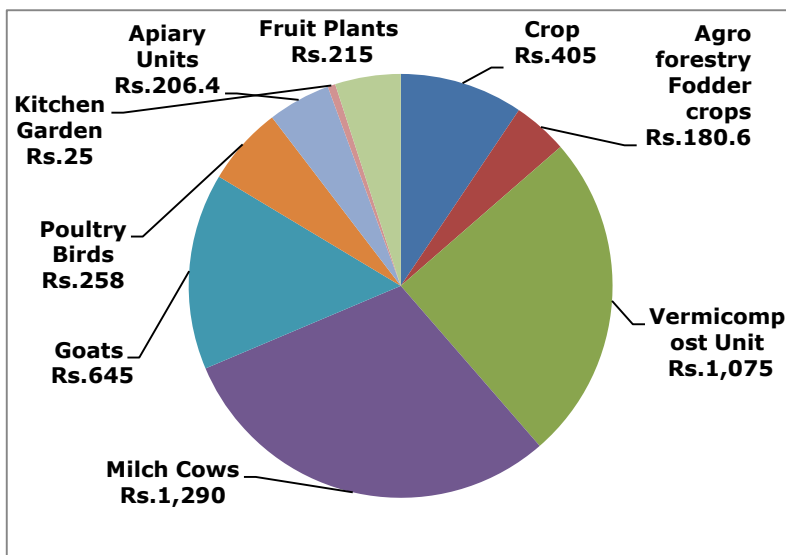
Integrating crop cultivation with allied enterprises ensures continuous employment

along with sustainable income thereby improving the standard of living of the farmers. Hence, as a step towards doubling farmer's income Integrated Farming System was implemented in 2018-2019 on a pilot basis under National Agricultural Development Programme at an expenditure of Rs.22.07 crore establishing 2,490 Integrated Farming System units.

During 2019-2020 as announced in the Budget Speech, further 4,300 Integrated Farming System units are being established under National Agricultural Development Programme and Rainfed Area Development. 3,300 units are being established as Rainfed IFS units and 1,000 units as Garden land and Wet land models in 27 districts at a financial allocation of Rs.44.50 crore

50% assistance is being provided for crop cultivation, Milch cows or Buffalo, Goats, Desi Poultry birds, Vermicompost Units, Kitchen Garden, Fruit Plants, Apiary Units and Agro forestry.

Integrated Farming System - Component wise Allocation - 2019-20 (Rs. in Lakhs)



This scheme will be continued during 2020-21 also.

1.4.3. Paramparagat Krishi Vikas Yojana (PKVY)

Paramparagat Krishi Vikas Yojana (PKVY) is a Central-State shared scheme being implemented as a three year continuous scheme

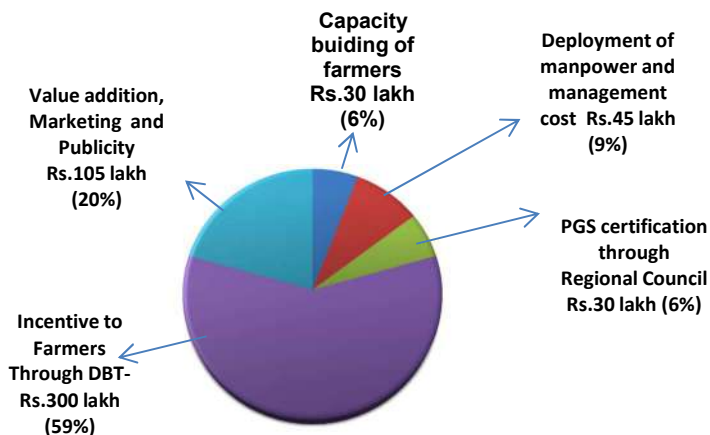
under National Mission for Sustainable Agriculture (NMSA) to promote organic farming. The scheme aims at promotion of organic farming through cluster approach under Participatory Guarantee System (PGS) of certification.

Under PKVY, financial assistance is provided to clusters on different sub components viz., mobilization of farmers, capacity building, procurement of organic inputs, organic input production units, certification charges, residue analysis, packing, labeling, branding of organic products of cluster and creation of value addition infrastructure through Farmer Producer Company / Farmer Producer Organization. The organic produce would be certified on the basis of peer inspection by the progressive farmer of the cluster.

In the first phase implemented from 2015-16, 50 clusters were formed in 11 districts and the Organic farming activities are being implemented with a financial achievement of Rs.6.81 crore benefiting 2,272 farmers covering 2,496 acre.

In second phase during 2018 -19, new 150 clusters in 8 districts were formed and first year activities were implemented at an expenditure of Rs.4.91 crore covering 7,500 acres under Organic farming. The second year activities in 150 clusters is being implemented in 2019-20 at a cost of Rs.5.1 crore for which an amount of Rs.3.89 crore has been spent so far and 4,943 farmers have been benefitted.

Analysis of financial expenditure for different activities under PKVY



In continuation of the first and the second year, the third year activities will be continued during 2020-21 in second phase 150 clusters.

The Participatory Guarantee Systems (PGS) certified organic produce like millets and pulses from the PKVY clusters are marketed in the brand name of Tamil Nadu Organic Produce (TOP).

1.4.4. Collective Farming:

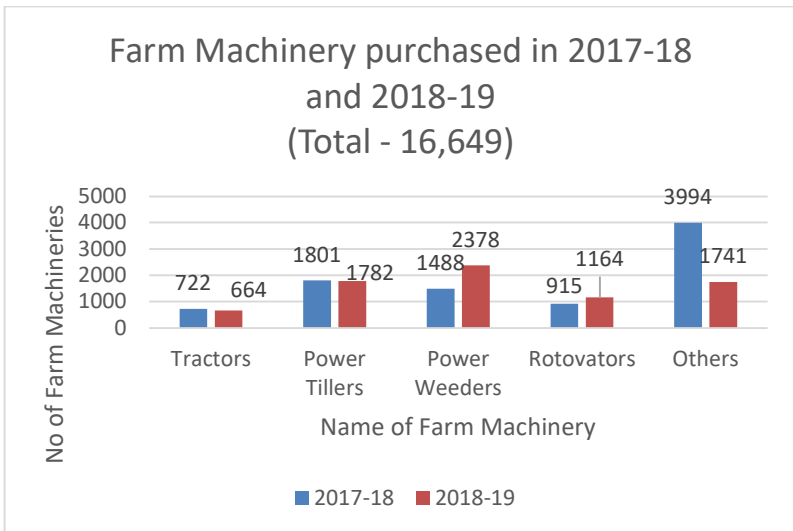
Small and Marginal farmers account to 93% in Tamil Nadu. In order to empower and improve the standard of living of Small and Marginal farmers, an ingenious approach called “**Collective Farming**” scheme is being implemented by the Government of Tamil Nadu since 2017-18.

The scheme revolves around the principle of integrating Small and Marginal farmers into Farmer Interest Groups (FIG), Farmer Producer Groups (FPG) and Farmer Producer Organisations (FPO). Each FIG consists of 20 farmers and 5 such FIGs are integrated to form a FPG consisting of 100 farmers. 7-10 FPGs in a District are federated to form a Farmer Producer Organisation (FPO).

So far 30,000 FIGs and 6,000 FPGs benefitting 6 Lakh Small and Marginal Farmers have been formed. 110 Farmer Producer

Companies (FPCs) have been formed and formation of 10 FPCs is under progress. Start up Grant is given to the FPCs by the Department of Agricultural Marketing and Agri Business.

Rs.5 Lakh is allotted to each FPG by the Government of Tamil Nadu for purchase of Farm Machinery. During 2017-18 and 2018-19, 16,649 Farm Machinery worth Rs.200.42 Crores were purchased by 4,000 FPGs and is being utilised by the Farmers.



The scheme focuses on the tactics of Collectivisation of Farmers in Purchase of inputs and Machinery, Cultivation and Marketing.

All the FIGs are involved in Collective purchase of inputs at a minimum of Rs.10,000 per group. FPGs are being facilitated to purchase high value Farm Machinery collectively by pooling the corpus fund. Collective cultivation is practised across the State covering Paddy, Pulses, Oilseeds, Vegetables etc., in a synchronised manner.

It is inevitable to create opportunities for generation of additional income to the Groups that are not incorporated into FPCs. In this regard, the FPGs are facilitated to take up various livelihood activities such as Kudimaramathu works of PWD, Milk Pooling centres by AAVIN, purchase of Accessories/ Farm Machinery from DIC loan, subsidy schemes of Animal Husbandry Department, input shops for Fertiliser, Seeds, Pesticides, MI,

Establishment of Value addition Units, etc., Besides, schemes of Agriculture and Allied Departments are dovetailed and priority is given to the FPGs. Till now, 288 Livelihood activities have been undertaken by the FPGs.

During 2019-20, the scheme is implemented with a corpus fund of Rs.100.58 Crore to benefit 2 lakh Small and Marginal farmers. In 2020-21, another 2,000 FPGs will be formed by organising 2 Lakh small and marginal farmers with a financial outlay of Rs.100.56 Crore and the groups will be eventually upgraded into FPCs.

Table 1.28 FIG and FPG formed under Collective Farming

S. No	District	2017-18		2018-19		2019-20		Total	
		FIGs	FPGs	FIGs	FPGs	FIGs	FPGs	FIGs	FPGs
1	Ariyalur	275	55	310	62	310	62	895	179
2	Coimbatore	130	26	135	27	135	27	400	80
3	Cuddalore	400	80	425	85	435	87	1260	252
4	Dharmapuri	335	67	435	87	445	89	1215	243
5	Dindigul	345	69	405	81	405	81	1155	231

S. No	District	2017-18		2018-19		2019-20		Total	
		FIGs	FPGs	FIGs	FPGs	FIGs	FPGs	FIGs	FPGs
6	Erode	225	45	220	44	225	45	670	134
7	Kanchipuram	280	56	250	50	250	50	780	156
8	Kanyakumari	455	91	280	56	280	56	1015	203
9	Karur	160	32	165	33	165	33	490	98
10	Krishnagiri	360	72	395	79	435	87	1190	238
11	Madurai	375	75	410	82	410	82	1195	239
12	Nagapattinam	215	43	280	56	280	56	775	155
13	Namakkal	280	56	340	68	340	68	960	192
14	Perambalur	175	35	200	40	200	40	575	115
15	Pudukkottai	485	97	360	72	310	62	1155	231
16	Ramnad	495	99	265	53	265	53	1025	205
17	Salem	400	80	520	104	520	104	1440	288
18	Sivagangai	345	69	315	63	315	63	975	195
19	Thanjavur	365	73	525	105	525	105	1415	283
20	Theni	155	31	170	34	170	34	495	99
21	Thiruvallur	280	56	275	55	275	55	830	166
22	Tirunelveli	365	73	330	66	340	68	1035	207
23	Tiruppur	160	32	145	29	145	29	450	90
24	Tiruvannamalai	570	114	535	107	525	105	1630	326
25	Thiuvavarur	180	36	185	37	185	37	550	110

S. No	District	2017-18		2018-19		2019-20		Total	
		FIGs	FPGs	FIGs	FPGs	FIGs	FPGs	FIGs	FPGs
26	Thoothukudi	220	44	215	43	215	43	650	130
27	Trichy	375	75	390	78	390	78	1155	231
28	Vellore	490	98	515	103	515	103	1520	304
29	Villupuram	785	157	730	146	715	143	2230	446
30	Virudhunagar	240	48	195	39	195	39	630	126
31	The Nilgiris	80	16	80	16	80	16	240	48
	Total	10000	2000	10000	2000	10000	2000	30000	6000

1.5. CLIMATE CHANGE RESILIENCE MEASURES

Tamil Nadu agriculture is highly riddled with natural calamities such as flood, drought and cyclone. This has a high impact on production and productivity of crops inspite of the combined efforts of farmers, Government and other stake holders, to make profitable returns in agriculture. In the circumstances stated above, Government is extending relief assistance under State Disaster Response Fund (SDRF) to compensate the crop losses at distress times and protect the livelihood of the

farmers by infusing confidence to adopt frontier technologies to increase the crop yields.

1.5.1. Damages due to GAJA Cyclone 2018 and the Relief Measures taken by the Government:

The 'Gaja' cyclone crossed north east seashore of Tamil Nadu on 16.11.2018, caused severe damages to Agricultural crops especially Coconut trees in 12 districts viz., Thanjavur, Tiruvarur, Nagapattinam, Pudukkottai, Tiruchirapalli, Dindigul, Sivagangai, Madurai, Tiruppur, Theni, Karur and Ariyalur in an area of 78,584 Hectare and other agricultural crops viz., Paddy, Millets, Pulses, Sugarcane, Cotton and Oil palm in an area of 19,720 Hectare.

Considering the plight of the affected Coconut farmers, the Tamil Nadu Government has sanctioned a sum of Rs.2,64,600/- per Hectare (Covering 175 Coconut trees/Hectare) which is Rs.2,46,600/- more than the eligible relief assistance of Rs.18,000/- per Hectare under SDRF norms.

Government of Tamil Nadu sanctioned a sum of Rs.684.74 Crore as relief assistance to the affected Coconut farmers and an amount of Rs.22.89 Crore has been sanctioned as Input Subsidy relief assistance to the affected farmers for other agricultural crops which includes Paddy, Millets, Pulses, Oilseed, Sugarcane and Oil palm.

Out of the above sanctioned amount, a sum of Rs.586.24 Crore towards Coconut relief and Rs.14.41 Crore for other agricultural crops totally Rs.600.65 Crore has been disbursed directly to the bank account of 1,37,805 Farmers.

1.5.2. Crop damages due to North East Monsoon 2019 and Steps taken by Government

The heavy rains by North East Monsoon during 2019 have caused inundation in certain pockets of many districts. Based on the

guidance of the **Honourable Chief Minister of Tamil Nadu**, field inspection was taken up immediately and the farmers were advised to take up protective measures to prevent the crop from damage.

Despite taking up protective measures, agricultural crop like Paddy, Maize, Sorghum, Pulses, Oil seeds, Cotton and Sugarcane have been reported to be affected by inundation at various stages causing yield loss of more than 33 per cent in an extent of 44,342 Ha in 24 districts and necessary action is being taken to provide compensation to the affected farmers as per State Disaster Response Fund (SDRF) norms.

1.5.3. CROP INSURANCE

Agriculture is inherently a risky venture due to the prevailing increase in climatic aberrations besetting with occurrence of natural calamities like flood, drought, cyclone & storm surge,

infestation by plant diseases and pest attack etc. The changes in climate factors like temperature, humidity etc., have exacerbated the crop loss threatening the food security and rural livelihood. In the recent times, Tamil Nadu had been severely impacted by these factors such that the transboundary plant pests & diseases have been triggered in large scale stymieing the increase in Food Grain Production.

The Government of Tamil Nadu which is always concerned about the welfare of the farmers has come up with various protective mechanisms and one among them is implementation of Crop Insurance Scheme as a part of the Climate Resilient System. Tamil Nadu is one of the frontier States, in successful implementation of the crop insurance schemes that provide hand holding support and act as a safety net to the farmers.

1.5.3.1. PRADHAN MANTRI FASAL BIMA YOJANA

“Pradhan Mantri Fasal Bima Yojana” (PMFBY) is implemented from Kharif, 2016 onwards in all the districts of Tamil Nadu except Chennai. The scheme which is implemented with the main objective of providing financial support to farmers suffering crop loss / damage arising out of unforeseen events has a bouquet of insurance coverage against risks like failed sowing / prevented sowing / planting, post harvest losses (Hailstorm, Cyclone, Cyclonic rains & Unseasonal rains), localized calamities (Hail storm, Landslide, Inundation, Cloud burst and Natural fire due to Lightning in isolated farms) and mid season adversities. All loanee farmers growing notified crops are covered compulsorily and non-loanee farmers voluntarily under this scheme.

The scheme has unique features like early payment of compensation to farmers for their

crop loss during mid season adversities, uniform cut-off date for enrolment of loanee and non-loanee farmers, timely and accurate compensation claims to the affected farmers, sum insured equal to scale of finance and use of smart technologies to expedite claim disbursement.

Agricultural Crops like Paddy, Maize, Redgram, Blackgram, Greengram, Rice Fallow Blackgram, Rice Fallow Greengram, Groundnut, Cotton, Rice Fallow Cotton and Sugarcane are insured at revenue village level and Cholan, Ragi, Cumbu, Cowpea, Gingelly, Sunflower, Bengal gram, Samai and Horsegram at firka level.

The premium amount excluding the farmer's share is equally shared by the Central and the State Governments. The farmer's share of premium for the crops is as follows:

Table : 1.29: Farmer's share of premium

Crops	Season	Maximum premium payable by farmers
All food grain crops (all cereals, millets & pulses) and Oilseed crops	Kharif	2% of sum insured or actuarial rate whichever is less
	Rabi	1.5% of sum insured or actuarial rate whichever is less
Annual commercial / Annual & Perennial Horticultural Crops	Kharif and Rabi	5% of sum insured or actuarial rate whichever is less

1.5.3.1.1. MILESTONES

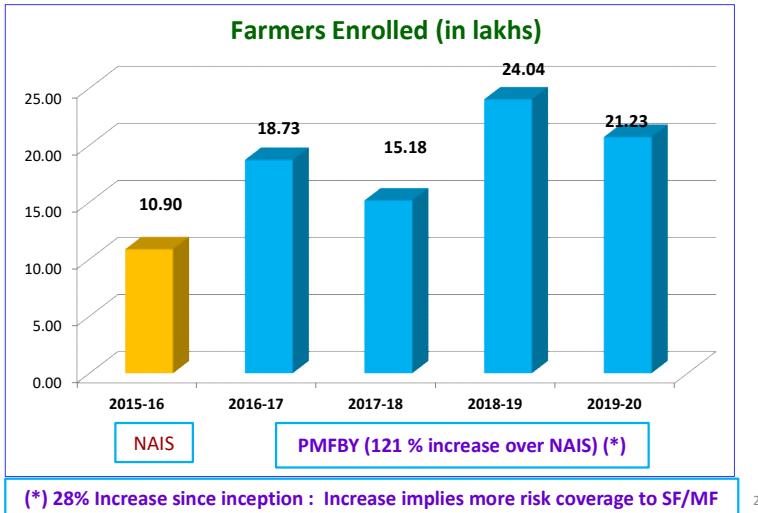
About 79.18 Lakh farmers were enrolled and an area of about 135.08 Lakh Acres was insured under this scheme from 2016-2017 to 2019-2020. **The State Government of Tamil Nadu had released a sum of Rs.1,994 Crore to the Insurance Companies as State Share of Subsidy for the same period and a claim amount of Rs.7,702.46 Crore has been sanctioned to 37.32 lakh farmers. About 64% of the farmers enrolled till 2018-19 have been benefitted.**

Table : 1.30: Position of Tamil Nadu at all India level in terms of Premium: Claim ratio

State / Year	2016-17	2017-18	2018-19
All India Level	1 : 0.75	1 : 0.87	1 : 0.80
Tamil Nadu	1 : 3.16	1 : 1.47	1 : 1.32
Kerala	1 : 1.01	1 : 0.41	1 : 1.56
Karnataka	1 : 1.46	1 : 0.38	1 : 1.68
Andhra Pradesh	1 : 0.65	1 : 0.76	1 : 1.56
Telangana	1 : 0.52	1 : 0.68	1 : 0.55
Gujarat	1 : 0.56	1 : 0.33	1 : 0.88
Rajasthan	1 : 0.75	1 : 0.81	1 : 0.86
Maharashtra	1 : 0.50	1 : 0.77	1 : 0.89
Uttar Pradesh	1 : 0.47	1 : 0.27	1 : 0.31

During 2019-2020, about 21.23 lakh farmers have been enrolled and an area of about 32.46 Lakh Acre has been insured so far. About Rs.3.76 Crore has been sanctioned as compensation amount to 9,699 farmers so far for Kharif, 2019.

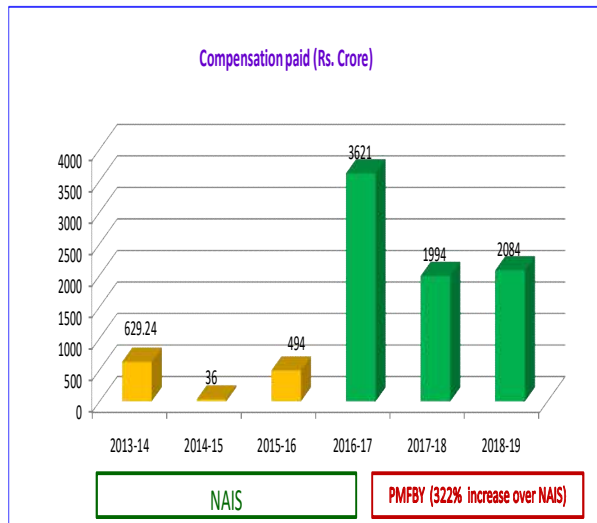
INFOGRAPH 1.a: PERFORMANCE UNDER PMFBY



The **Indian Council for Research on International Economic Relations (ICRIER)** has lauded the Tamil Nadu State in its Working Paper No.352, Crop insurance in India; key Issues and Way Forward, Feb 2018 saying that ***“Tamil Nadu stands as an outstanding example that should be emulated by other States to provide yield data and premium subsidy on time to the ICs”***. Tamil Nadu also stood first among all other States /

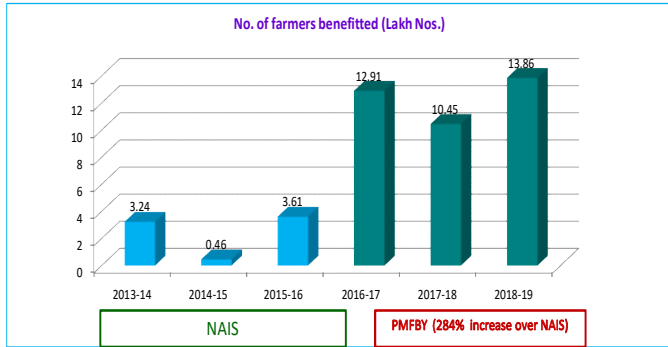
UTs in disbursement of significant claim amount to farmers in 2016-2017.

INFOGRAPH 1.b: RELEASE OF COMPENSATION UNDER PMFBY



Tamil Nadu stands first across the Nation in terms of claims paid during 2016-17 (Rs.3621 Crore)

INFOGRAPH 1c: NUMBER OF FARMERS BENEFITTED UNDER PMFBY



The scheme will be implemented with a proposed allocation of Rs.724.14 Crore towards the State share of premium subsidy for agricultural crops during 2020 - 2021. Agriculture Insurance Company of India Limited (AICIL) will operate in 4 clusters comprising of 20 districts (Tiruvarur, Karur, Salem, Krishnagiri & Kanyakumari (Cluster I**), Nagapattinam, Tiruppur, Dindigul, Ariyalur & Kancheepuram (**Cluster II**), Thoothukudi, Madurai, Thanjavur, Nilgiris & Theni (**Cluster III**) and Pudukkottai,**

Villupuram, Virudhunagar, Namakkal & Perambalur (**Cluster V**) while **Oriental Insurance Company Limited (OICL)** will operate in 2 clusters comprising of 11 districts (Ramanathapuram, Tiruchirapalli, Tiruvannamalai, Vellore & Dharmapuri (**Cluster IV**) and Sivagangai, Tirunelveli, Cuddalore, Tiruvallur, Erode & Coimbatore (**Cluster VI**).

The Government of Tamil Nadu has taken new initiatives like fixing districtwise seasonality discipline for the notified crops to bring maximum number of Farmers under the folds of PMFBY, Addition of new crops & area and Constitution of Farmers Grievance Redressal Cell at District & State Level.

1.5.3.2. COCONUT PALM INSURANCE SCHEME (CPIS):

Coconut which is cultivated in all the districts of Tamil Nadu plays a significant role in the economy of the State. Being a perennial

crop, Coconut earns more income for the growers throughout the year. However, Coconut is largely affected by deficient rainfall, pest & diseases and natural calamities and at times the entire coconut groves in a region gets wiped out. In this back drop, **Coconut Palm Insurance Scheme** is implemented by Agriculture Insurance Company of India Ltd (AICIL) in all the districts except Chennai and the Nilgiris with the objectives to provide insurance coverage against natural and other perils, provide relief against income loss, minimize risks and encourage replanting. During 2020-2021, the Government has chalked out a multitude of strategies to maximise the insurance coverage under this scheme and lend a hand holding support to the Coconut growers.

Under this scheme, healthy nut bearing Coconut palms grown as mono or intercrop, on bunds or homestead and all varieties of Coconut

(Dwarf & Hybrids of 4 to 60 years and Tall varieties of 7 to 60 years) are insured. Individual farmer / grower cultivating atleast 5 healthy nut bearing palms in contiguous area/plot are eligible for enrolment. The premium subsidy will be shared by the Coconut Development Board (50%), State Government (25%) and farmers (25%).

Table: 1.31: CPIS - Sum Insured and Premium

Coconut Palm age in years	Sum Insured Per Palm (Rs)	Premium Per Palm Per Year (Rs)	Farmers' share of premium Per Palm Per year (Rs)
4 to 15	900	9.00	2.25
16 to 60	1750	14.00	3.50

The scheme covers perils like storm, hailstorm, cyclone, heavy rains, flood, inundation, pest & diseases of widespread nature, accidental fire including forest fire & bush fire, lightening, earthquake, landslide, tsunami and severe drought.

The scheme will be implemented during 2020-2021 also.

1.6. Tamil Nadu State Seed Development Agency (TANSEDA)

Seed is the vital source to increase the productivity of any crop. It is imperative to ensure the availability of quality seeds to the farmers at right time for getting additional income. Hence to strengthen the seed supply chain in the State of Tamil Nadu, a separate agency called **Tamil Nadu State Seed Development Agency (TANSEDA)** has been established in 2015 and registered as a society under Tamil Nadu Societies Act 1975 on 30.04.2015.

Based on the prescribed Seed Replacement Ratio for each crop, Breeder seeds are sourced from various production centres located across the country and multiplied as Foundation and Certified seeds in State seed farms and

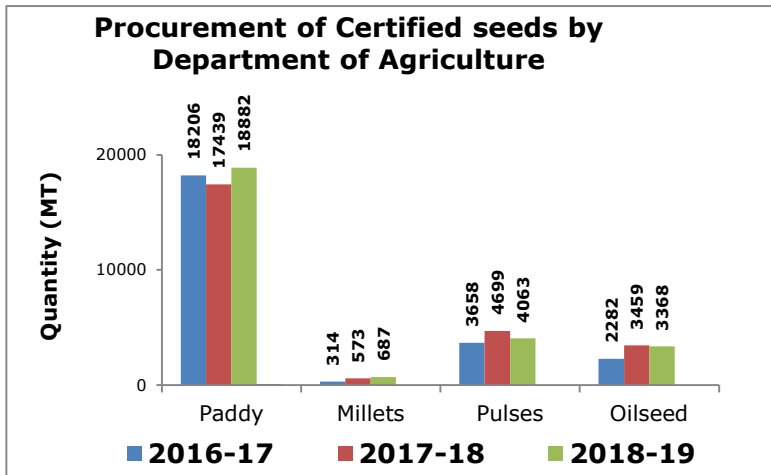
progressive farmers field. Location specific suitable varieties are identified and based on its yield performance and farmers preference, further multiplication is programmed in every districts.

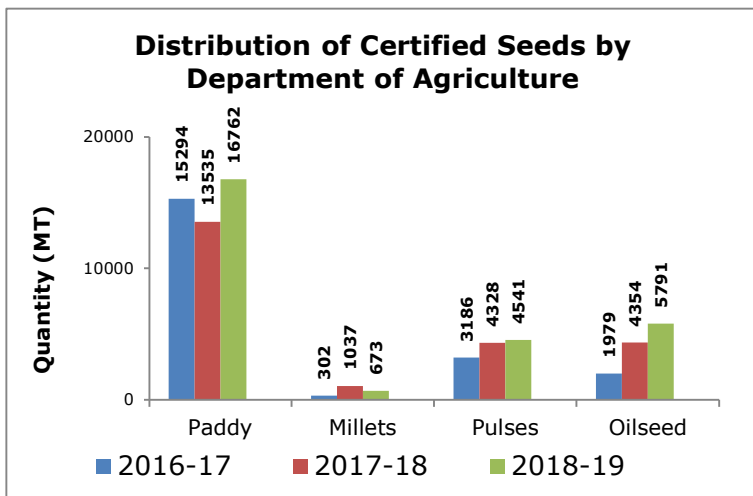
Production of Certified Seeds (Foundation Class and Certified Class) is undertaken under TANSEDA for the Agriculture crops cultivated by farmers in Tamil Nadu viz., Paddy, Millets like Sorghum, Cumbu, Ragi, Maize, Minor millets like Samai, Kudiraivali, Varagu and Thinai, Pulses like Redgram, Blackgram, Greengram, Horsegram, Cowpea and Bengalgram, Oilseeds like Groundnut, Gingelly, Sunflower, Castor and Cotton.

The Production of Certified Seeds (Foundation Class and Certified Class) under Seed farms are registered with the Department of Seed Certification and seeds are processed in 126 Seed Processing Units (SPU). The processed

seeds are tested in Seed Testing Laboratories for the germination, Other Distinguishable Varieties (ODV) and genetic purity. The seed lots passed in seed testing are certified and made available in 880 Agricultural Extension Centres for distribution to the farmers.

Crop wise Procurement and distribution programme for three years





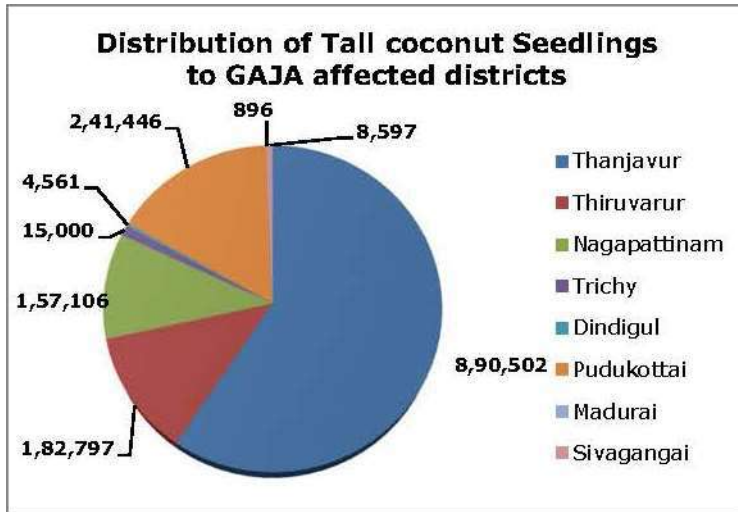
The Seed plan for the year 2020-21 is as follows:

Table 1.32: Seed Procurement and Distribution Plan – 2020-21

Crop	Seed Procurement (Metric Tonnes)	Seed distribution (Metric Tonnes)
Paddy	18,800	18,800
Millets	800	800
Pulses	4,968	4,966
Oilseeds	5,242	5,242
Cotton	20	20
Coconut Seedlings production and distribution (Lakh Nos.) Regular	10	10

1.6.1. Coconut Seedlings Production and Distribution

Under TANSEDA, Coconut seedlings are produced in 23 Government Coconut Nurseries and hybrid Coconut Seed nuts are produced in 16 Coconut Crossing Centres to ensure supply of quality Coconut seedlings at reasonable price to farmers.



During the year 2019-2020, a total of 19.50 Lakh coconut seedlings have been produced and distributed for General sales and for the Gaja cyclone affected farmers.

During 2020-2021, it is programmed to produce 10 lakh number of Coconut seedlings to the farmers under general distribution and schemes. The seedlings are being produced in the State Coconut Nurseries and State Seed Farms.

1.6.2. Seed Price Policy

TANSEDA was initiated in 2015 for fixing and adopting a uniform seed price policy throughout the state for the seeds of Agricultural crops procured and distributed through TANSEDA.

During 2019-2020, Rs.109.71 crore expenditure incurred by TANSEDA towards the cost involved in quality certified seed production

both in SSF and AEC like procurement of Agricultural inputs, seed certification charges, tagging charges, materials and services, labour cost and wages and Transport Charges involved in transport of the quality certified seeds and Coconut Seedlings to Agricultural Extension Centres (AECs) for distribution to farmers.

1.6.3. Sub-Mission on Seeds and Planting Material (SMSP)

Quality seeds are a vital input for crop cultivation. Providing quality seeds to the farmers is the main objective of the Scheme Sub-Mission on Seeds and Planting Material. Under the Scheme, Certified Seeds of Paddy, Millets, Pulses and Oilseed crops are distributed to the farmers at the subsidised cost to enable them to produce the quality seeds by themselves and get higher production. Further, Foundation seeds of Pulses and Oilseeds crops are also distributed at subsidised cost for the production of Certified Seeds.

Moreover, training on new seed production techniques are also given to farmers for the production of quality seeds. The scheme is implemented in all districts except, the Nilgiris and Chennai.

The scheme was implemented during 2019-20 with an allocation of Rs.19.43 Crore. It is proposed to continue the scheme during 2020-21 also.

1.7. Plant Protection

Plant protection is the subject dealing with taking suitable control measures to prevent the losses caused to crops by pests, diseases and weeds. Pest and Disease Forecasting and precautionary action play a major role in prevention of pest and diseases in crops. To ensure the adoption of integrated pest management technologies at minimal cost, various technologies *viz.*, summer ploughing, crop rotation, selection of pest and disease resistant varieties, sowing of treated seeds,

planting of catch crops as bund and border crop etc., are being promoted by the Government of Tamil Nadu.

In addition, awareness is being created on production and use of bio control agents by farmers themselves through various training programmes and demonstrations at field level. Pest and Disease surveillance is conducted at weekly interval and farmers are alerted through monthly forecasting system.

1.8. Fertiliser:

Fertiliser is the deciding critical input for production and productivity of crops. On an average, Tamil Nadu consumes 23 Lakh Metric Tonnes of Chemical Fertilisers every year. Besides, Agriculture Department is encouraging Farmers to use Biofertilisers and Organic Fertilisers to maintain Soil Health and reduce dependence of Chemical Fertilisers.

Department of Chemicals and Fertilisers, Government of India is conducting biennial

Agricultural Input conference for Kharif and Rabi season, separately before commencement of Cropping season for ensuring adequate Fertilisers availability to Farmers.

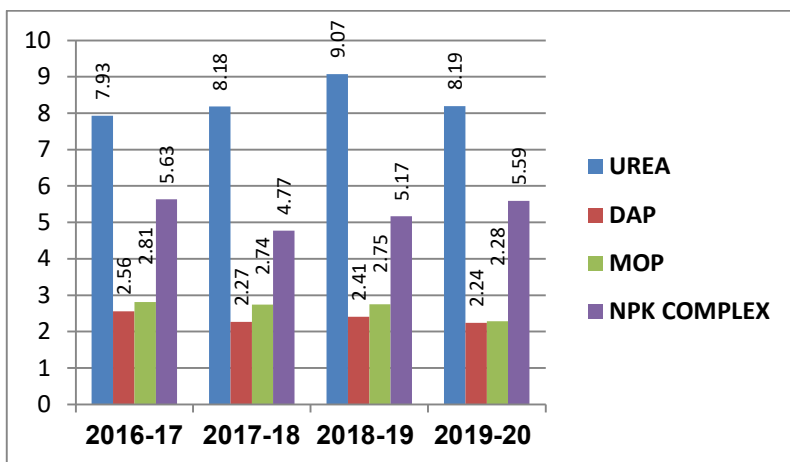
Department of Fertiliser approves Fertiliser assessment of Tamil Nadu for each season and release allocation of Fertilisers on monthly basis to the State.

Government of Tamil Nadu has provided Interest Free ways and Means advance of Rs.135.00 Crore to TANFED for purchase and prepositioning of Fertilisers to ensure sufficient Fertilisers stock for ensuing cropping season.

Table 1.33: Year wise details of Fertiliser Consumption:

Fertilizer Grade	Consumption of Fertiliser (Lakh Metric Tonnes)			
	2016-17	2017-18	2018-19	2019-20 (so far)
UREA	7.93	8.18	9.07	8.19
DAP	2.56	2.27	2.41	2.24
MOP	2.81	2.74	2.75	2.28
NPK COMPLEX	5.63	4.77	5.17	5.59
Total	18.93	17.96	19.40	18.30

Consumption of Fertiliser over years (Lakh Metric Tonnes)



1.8.1. Fertiliser sales through Point of Sale Machine:

Fertiliser sales through PoS device has been implemented since 1st January 2018 in Tamil Nadu by following Government of India guidelines:

1.8.1.1. Important features

- Sale of Fertilisers to buyers / Farmers through Point of Sale at retailer shop on

production of Aadhaar Card / Kisan Credit Card (KCC) or Voter Identity Card.

- Subsidy amount is released to Fertiliser Manufacturers / Importers after the sale of Fertiliser to individual Farmers through PoS devices.
- Farmers on production of authentication can purchase Fertiliser at prevailing MRP printed on Fertiliser bags and need not to pay additional money

1.8.1.2. PoS devices usage in the state:

Government of India have allocated 12,219 PoS devices to Tamil Nadu, out of which 12,216 PoS devices were received and 11,690 PoS devices are distributed to retailers including Cooperatives. At present, all the retailers are selling subsidized Fertilisers through PoS devices only.

1.8.2. Ensuring supply of Quality Fertilisers:

Tamil Nadu Government has established 14 Notified Fertiliser Control Labs for ensuring Quality of Fertilisers marketed in Tamil Nadu.

Annually 19,600 Fertiliser samples are taken and sent for quality analysis. Based on the degree of variation observed in Nutrient content as specified in FCO 1985, Departmental and Legal actions are initiated against retailer, Wholesale dealer and Marketer / Manufacturers of Fertilisers.

As on date, 17,226 Fertiliser samples were drawn and analyzed and 689 Fertilisers samples found to be declared as Non standard. Out of which 601 samples comes under departmental actions and 88 under Legal actions have been initiated according to the degree of variation noticed in the report.

1.9. SOIL HEALTH CARDS

To sustain soil health and increase the production and productivity of the crops, Soil Health Card Scheme is being implemented from the year 2015-16 in cycle of two years. During 2019-2020, it was proposed to conduct Demo villages programme. Under this Programme one village from each block was selected in 385 Blocks of the State. Unlike in first and second cycles, Soil samples were collected from the individual farm Holdings. From 385 blocks, 58,317 lakh soil samples were collected, analysed and 58,317 soil health cards were distributed to farmers of 385 villages. Based on the SHC recommendation, 13,965 demonstrations were conducted for adopting SHC based fertilizer application in these villages.

In order to develop village soil fertility map and to revalidate the Soil Health Card Scheme,

2.63 lakh soil samples were collected from all revenue villages and analysed.

During 2020-2021, it is proposed to collect, analyse soil samples and to distribute Soil health cards in five villages in each block of all Districts and to conduct demonstrations for adopting Soil health card based fertilizer application in all 1925 villages.

1.10. ATMA (Agricultural Technology Management Agency)

Capacity Building and Training programmes empowers the farmer on decision making in the areas of crop production and diversification of their farm enterprises for the prospects of better returns to the farmers. Training to officials helps to gain specific knowledge or skill to improve the latest technologies in agricultural and allied activities which empowers them to impart technology dissemination to farmers.

1.10.1. Sub - Mission on Agricultural Extension (SMAE) - Support to State Extension Programmes for Extension Reforms Scheme (SSEPERs)-ATMA

Support to State Extension Programmes for Extension Reforms Scheme (SSEPERs) programme is implemented with co-ordinated efforts of Departments of Agriculture, Horticulture and Plantation crops, Animal Husbandry, Sericulture, Fisheries, Forestry, Agricultural Engineering, Agricultural Marketing and Agri- Business, Seed Certification and Organic Certification, Tamil Nadu Agricultural University, Tamil Nadu University for Veterinary and Animal Sciences University and Tamil Nadu Dr.J.Jayalalitha Fisheries University in all districts except Chennai.

This programme includes cafeteria of activities such as training, demonstration, exposure visit, awards, information dissemination activities, farmers scientist

interaction, joint visits by scientists and extension workers, organisation of kisan gosthies, district level exhibitions, kisan melas, assessment, refinement and validation of short term researchable projects, farm school, innovative activities and innovative technology dissemination components implemented within the district, State and at Inter-State level during 2019-20 at a cost of Rs.61.32 Crore.

1.10.1.1. IMPLEMENTATION OF ATMA DURING 2019-2020

(No.of Farmers benefitted)

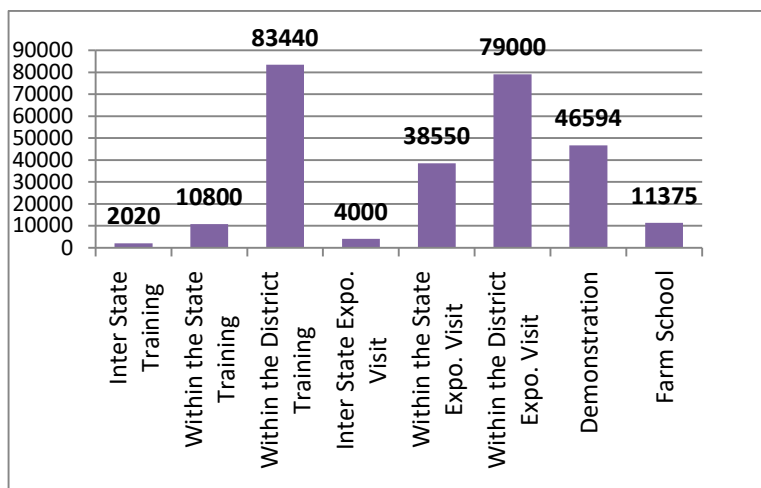


Table 1.34: Trainings and Farmers benefitted under ATMA:

S. No	Components	No. of Trainings	No. of Farmers benefitted
1	Inter State Training	101	2020
2	Within the State Training	270	10800
3	Within the District Training	2086	83440
4	Inter State Exposure Visit	200	4000
5	Within the State Exposure Visit	771	38550
6	Within the District Exposure Visit	1580	79000
7	Demonstration	46594	46594
8	Farm School	455	11375

1.10.1.2. IMPLEMENTATION OF ATMA IN 2020-21

During 2020-21, the State Extension Work Plan for ATMA is programmed with special focus and thrust on programmes like **Motivating Youth in Agriculture and providing Trainings to the Youth**, Awareness about Pest and Disease symptoms and control measures in all crops, Mechanization in agriculture, Marketing and value addition of crop produce etc through demonstration and exposure visit for an amount of Rs.124.14 Cr.

1.10.2. Farmers Facilitation Centres

22 Farmers Training Centres (FTC) functioning under the control of Government of Tamil Nadu impart training to 28,820 farmers, convenors, farm women and rural youths annually on farm management practices and latest technologies.

Table 1.35 : Farmers Training Centres in Tamil Nadu

S. No	District	Location
1	Kancheepuram	Kancheepuram
2	Villupuram	Tindivanam
3	Vellore	Vellore
4	Tiruvannamalai	Tiruvannamalai
5	Salem	Salem
6	Namakkal	Namakkal
7	Dharmapuri	Dharmapuri
8	Krishnagiri	Krishnagiri
9	Erode	Erode
10	Tiruchirapalli	Tiruchirapalli
11	Perambalur	Perambalur
12	Karur	Karur
13	Pudukkottai	Kudumianmalai
14	Thanjavur	Sakkottai
15	Theni	Theni
16	Dindigul	Dindigul
17	Ramanathapuram	Paramakudi
18	Sivagangai	Sivagangai

S. No	District	Location
19	Virudhunagar	Virudhunagar
20	Tirunelveli	Palayamkottai
21	Thoothukudi	Thoothukudi
22	Kanyakumari	Nagercoil

The State Agricultural Extension Management Institute (STAMIN) functioning at Kudumianmalai, Pudukkottai District is the main centre for training of 1,100 field Extension Officers of the department.

State Agricultural Management and Extension Training Institute (SAMETI) was established in 2012-13 in the premises of State Agricultural Extension Management Institute (STAMIN), to provide consultancy services in areas of project planning, project appraisal, etc.,

Water Management Training Centre (WMTC) functioning at Vinayagapuram, Madurai district since 1985 with a capacity to train 180 field functionaries and 900 farmers annually. Irrigation technologies and water use efficiency technologies are imparted to field functionaries and farmers.

1.10.3. Strengthening of Farmer-Officer Contact System

Consequent to the announcement made in the Budget speech 2020-21 by the Hon'ble Deputy Chief Minister in the Floor of Assembly regarding strengthening **the Farmer –Officer contact system** “உழவர் – அலுவலர் தொடர்பு திட்டம்” an innovative, systematic approach will be evolved to ensure that the extension officials visit every farmer individual fields and deliver on the spot agro advisories periodically.

1.11. Laboratories for Quality Control and Soil Testing

The Government has established 14 Fertilizer Control Laboratories, 12 Pesticide Testing Laboratories, 3 Pesticide Testing cum Coding centres and One Central Control Laboratory with an aim to ensure quality of fertilizers and pesticides Moreover, the quality of organic manures such as Vermi compost, City Compost are ensured by two Organic Fertilizer Testing Laboratories at Tiruchirapalli

and Coimbatore. The quality of Bio fertilizers is ensured at Biofertilizers quality control laboratory functioning at Tiruchirapalli. The Government strictly enforces the provisions of the Fertilizer (Control) Order, 1985, the Insecticide Act, 1968 and Insecticide Rules, 1971 respectively through Fertilizer and Pesticide Inspectors.

1.11.1. Fertilizer Control Laboratories

The 14 Fertilizer Control Laboratories functioning in the State are listed below:-

Table 1.36: Fertilizer Control Laboratories

S.No.	District	Location
1	Kancheepuram	Kancheepuram
2	Villupuram	Villupuram
3	Salem	Salem
4	Dharmapuri	Dharmapuri
5	Coimbatore	Coimbatore
6	Tiruchirapalli	Tiruchirapalli
7	Thanjavur	Kumbakonam
8	Tiruvarur	Tiruvarur
9	Madurai	Madurai
10	Dindigul	Dindigul
11	Ramanathapuram	Paramakudi
12	Thoothukudi	Kovilpatti
13	Kanyakumari	Nagercoil
14	The Nilgris	Ooty

During 2019-2020, 17,948 Fertilizer samples have been analyzed and 761 samples were found non-standard. As part of the quality control of organic manure and bio fertilizers, 1,401 Organic Fertilizer samples and 760 Biofertilizer samples have been analysed, of which 129 Organic Fertilizer samples and 1 BioFertilizer sample were found non-standard. Action is being taken as per Fertilizer (Control) Order, 1985.

It is programmed to analyze 19,600 fertilizer samples, 1,440 Organic fertilizers samples and 1,040 Biofertilizers samples during 2020-2021.

1.11.2. Pesticide Testing Laboratories

The 15 Pesticide Testing Laboratories functioning in the State are given below.

Table.1.37: Pesticide Testing Laboratories (PTLs) functioning in the State

S. No.	District	Location
1	Kancheepuram	Kancheepuram
2	Vellore	Vellore
3	Salem	Salem

S. No.	District	Location
4	Dharmapuri	Dharmapuri
5	Coimbatore	Coimbatore
6	Tiruchirapalli	Tiruchirapalli
7	Thanjavur	Aduthurai
8	Nagapattinam	Nagapattinam
9	Madurai	Madurai
10	Sivagangai	Sivagangai
11	Tirunelveli	Tirunelveli
12	Thoothukudi	Kovilpatti
Pesticide Testing Laboratories cum Coding centre		
1	Cuddalore	Cuddalore
2	Erode	Erode
3	Theni	Vaigai Dam

Special efforts have been taken to obtain accreditation from National Accreditation Board for Testing and Calibration Laboratories (NABL) for Kancheepuram and Coimbatore Pesticide Testing Laboratories.

During 2019-2020, 20,018 pesticide samples have been analysed of which

215 samples were found misbranded and necessary action has been taken. It is programmed to analyse 21,850 pesticide samples during 2020-2021.

1.11.3. Soil Testing Laboratories (STL) and Mobile Soil Testing Laboratories (MSTL)

Soil test based nutrient management and need based fertilizer application is the need of the hour to double the crop production and to triple the farmers income. Considering this, State of the art 31 soil testing laboratories and 16 mobile soil testing laboratories have been established in the State to cater to this need for analysing Macro and Micro nutrient status of the soil.

The Soil Testing Laboratories (STL) and Mobile Soil Testing Laboratories (MSTL) functioning in the State are listed below:

Table 1.38 : STLs and MSTLs functioning in the State

S. No	District	Soil Testing Laboratories		Mobile SOIL Testing Laboratories	
1	Kancheepuram	1	Kancheepuram		
2	Tiruvallur	2	Tiruvallur	1	Tiruvallur
3	Cuddalore	3	Cuddalore		
4	Viluppuram	4	Viluppuram	2	Viluppuram
5	Vellore	5	Melalathur		
6	Thiruvannamalai	6	Tiruvannamalai	3	Tiruvannamalai
7	Salem	7	Salem		
8	Namakkal	8	Namakkal	4	Tiruchengode
9	Dharmapuri	9	Dharmapuri		
10	Krishnagiri	10	Krishnagiri	5	Krishnagiri
11	Coimbatore	11	Coimbatore		
12	Tiruppur	12	Tiruppur	6	Tiruppur
13	Erode	13	Erode	7	Erode
14	Tiruchirapalli	14	Tiruchirapalli		
15	Perambalur	15	Perambalur	8	Perambalur
16	Ariyalur	16	Ariyalur		
17	Karur	17	Karur	9	Karur
18	Pudukkottai	18	Kudumiyanmalai		
19	Thanjavur	19	Aduthurai		
20	Nagapattinam	20	Nagapattinam	10	Nagapattinam
21	Thiruvarur	21	Thiruvarur	11	Thiruvarur
22	Madurai	22	Madurai	12	Madurai
23	Theni	23	Theni		

S. No	District	Soil Testing Laboratories		Mobile SOIL Testing Laboratories	
24	Dindigul	24	Dindigul		
25	Ramanathapuram	25	Paramakudi	13	Paramakudi
26	Sivagangai	26	Sivagangai		
27	Virudunagar	27	Virudhu-nagar	14	Aruppukkottai
28	Thirunelveli	28	Thirunelveli		
29	Tuticorin	29	Kovilpatti	15	Kovilpatti
30	Kanyakumari	30	Nagercoil	16	Nagercoil
31	The Nilgris	31	Ooty		

These Soil Testing Laboratories are having the capacity to test 6.50 lakh soil samples per year.

Further, Soil Survey and Land use Organization is functioning in four soil survey units at Coimbatore, Thanjavur, Vellore and Thirunelveli.

1.11.4. Central Control Laboratory:

Central Control Laboratory has been established at Kudumiyanmalai, Pudukkottai District by the Tamil Nadu Government. It is an Apex Laboratory, monitoring all the laboratories of the State with an objectives of Imparts

capacity building training to all laboratory personnel, Calibration and maintaining accuracy of analysis of the laboratories and Creating awareness on soil-test-based fertilizer recommendation.

1.12. Production Unit For Critical Inputs

Seed is the basic and vital input that determines the yield and quality of the produce. The Tamil Nadu Government has established a Special Purpose Vehicle, viz., Tamil Nadu State Seed Development Agency during 2015 with a corpus fund of Rs.50 Crore to ensure timely procurement of Quality Seeds.

1.12.1. State Seed Farms and Coconut Nurseries

Improved seeds of paddy, millets, pulses and oilseed are produced in State owned 40 seed farms (State Seed Farms-33nos, State Oil seed Farms-6nos and State Pulses Multiplication Farm-1 no.) situated throughout the State.

Table 1.39 : State Seed Farms

S. No	District	Name of the State Seed farm	Area (acres)
1	Kancheepuram	Panjupettai	58.76
2	Thiruvallur	Kolandalur	50.72
3	Cuddalore	Miralur	43.98
4		Vandurayanpattu	50.99
5	Viluppuram	Kakuppam	31.60
6		Iruvelpattu	50.72
7		Vadakanendal	47.06
8		Vanur	60.36
9	Thiruvannamalai	Athiyendal	14.11
10		Vazhavachanur	36.00
11	Salem	Danishpet	96.40
12		Mettur	57.90
13	Erode	Bhavani	73.61
14		Sathyamangalam	41.89
15	Dharmapuri	Papparapatti	14.87
16	Tiruppur	Pappankulam	26.88
17	Pudukkottai	Annapannai	601.95
18	Tiruchirapalli	Pudurpalayam	75.97
19		Neikuppaipudur	38.57
20	Karur	Inungur	205.44
21	Thanjavur	Sakkottai	83.00
22	Nagapattinam	Nagamangalam	63.91
23		Thirukadaiyur	45.74

S. No	District	Name of the State Seed farm	Area (acres)
24	Thiruvarur	Keeranthi	55.70
25		Kanchikudikadu	53.02
26		Devambalpattinam	92.72
27		Nedumbalam	63.73
28		Moongilkudi	47.63
29	Madurai	Vinayagapuram	45.52
30	Theni	Keezhakudalur	47.86

Quality Tall, Dwarf and Hybrid Coconut seedlings are produced in 23 Government Coconut nurseries and 16 coconut crossing centres and distributed to the farmers.

Table: 1.42: Government Coconut Nurseries and Crossing Centres

S. No	District	Coconut Nurseries		Crossing Centres	
1	Kancheepuram	1	Pichivakkam		
2	Tiruvallur	2	Madavaram	1	Madavaram
3	Cuddalore	3	Neyveli		
4	Viluppuram			2	Marakkanam
5	Vellore	4	Navlock	3	Navlock
6	Thiruvannamalai	5	Vazhavachanur		
7	Salem	6	Danishpet	4	Sukkampatti
8	Krishnagiri	7	B.G Pudur	5	Kaveripattinam

S. No	District	Coconut Nurseries		Crossing Centres	
9	Coimbatore	8	Aliyarnagar	6	S.G.Palayam
10	Erode	9	Bhavanisagar	7	Ayyampalayam
11	Tiruchirapalli	10	Tiruvarangam	8	Tiruvarangam
12	Pudukottai	11	Vellalaviduthi		
13	Thanjavur	12	Pattukottai	9	Pattukottai
14	Nagapattinam	13	Malliam		
15	Theni	14	Vaigaidam	10	Bodinayakkanur
16	Ramanathapuram	15	Uchipuli	11	Uchipuli
		16	Devipattinam		
17	Sivagangai	17	Sathurvedi mangalam	12	Ladanendhal
18	Virudhunagar	18	Devadhanam	13	Devadhanam
19	Thirunelveli	19	Senkottai	14	Vadakarai
		20	Vadakarai		
20	Tuticorin	21	Killikulam	15	Udangudi
21	Kanyakumari	22	Puthalam	16	Agastheeswaram
22	Thiruvarur	23	Vaduvur		

1.12.2. Seed Processing Units

In the State, 126 numbers of Seed Processing Units along with seed storage godowns are functioning, in order to supply quality seeds to the farmers and thereby enhancing crop productivity. These Units are

functioning under the control of respective Block Assistant Directors of Agriculture.

Table 1.43: Seed Processing Units

S. No	District	No. of Units			
		Major	Medium	Mini	Total
1	Kancheepuram	2	0	4	6
2	Tiruvallur	3	0	4	7
3	Cuddalore	0	0	3	3
4	Viluppuram	5	1	3	9
5	Vellore	1	0	3	4
6	Thiruvannamalai	3	0	6	9
7	Salem	2	1	0	3
8	Namakkal	1	0	2	3
9	Dharmapuri	1	0	2	3
10	Krishnagiri	1	0	2	3
11	Coimbatore	1	0	1	2
12	Tiruppur	1	0	2	3
13	Erode	2	0	2	4
14	Tiruchirapalli	2	0	3	5
15	Perambalur	0	0	1	1
16	Ariyalur	2	0	1	3
17	Karur	2	0	0	2
18	Pudukkottai	2	0	3	5
19	Thanjavur	6	0	1	7
20	Nagapattinam	2	0	5	7

S. No	District	No. of Units			
		Major	Medium	Mini	Total
21	Thiruvarur	3	2	2	7
22	Madurai	4	2	0	6
23	Theni	0	0	2	2
24	Dindigul	1	0	0	1
25	Ramanathapuram	2	1	0	3
26	Sivagangai	1	0	2	3
27	Virudhunagar	1	0	4	5
28	Thirunelveli	1	0	4	5
29	Tuticorin	2	0	1	3
30	Kanyakumari	1	0	1	2
TOTAL		55	7	64	126

1.12.3. Micro Nutrient Mixture Production Centre

In order to supply quality micronutrients, Micro Nutrient mixture production unit has been established at Kudumiyamalai, Pudukkottai District from which 14 grades of notified micro nutrient mixtures are produced and supplied to farmers. During 2019-2020, so far 2,279 metric Tonnes of micro Nutrient mixtures have been produced and distributed to farmers.

During 2020-2021, it is programmed to produce and distribute 2,400 MT of Micro Nutrient Mixtures.

1.12.4. Bio-Fertilizers production Units (BFPU)

State is producing five strains of Biofertilizers viz., Azospirillum–Paddy, Azospirillum –Others, Rhizobium–Pulses, Rhizobium–Groundnut and Phosphobacteria in 22 Bio fertilizer production units. (BFPUS)

During 2019-2020, 2,731 Metric Tonnes of carrier based and 6.37 Lakh Litres of Liquid Bio-fertilizers were produced and distributed to the farmers in the name of **“AMMA Bio-fertilizer”**. The scheme will be continued in 2020-21.

Table 1.44: Bio-Fertilizer Production Units (BFPUs)

S. No	District	Carrier based BFPU		Carrier and Liquid based BFPU
1	Kancheepuram	1	Chengalpattu	
2	Cuddalore	2	Cuddalore	1 Cuddalore
3	Thiruvannamalai	3	Polur	
4	Salem	4	Salem	2 Salem
5	Dharmapuri	5	Palacode	
6	Tiruppur	6	Avinashi	
7	Erode	7	Bhavani	
8	Trichirappalli	8	Trichirappalli	
9	Pudukkottai	9	Kudumianmalai	3 Kudumianmalai
10	Thanjavur	10	Sakkottai	4 Sakkottai
11	Thiruvarur	11	Needamangalam	
12	Theni	12	Uthamapalayam	
13	Ramanathapuram	13	Ramanathapuram	5 Ramanathapuram
14	Thirunelveli	14	Tenkasi	Liquid BFPU
15	Tuticorin	15	Tuticorin	
16	Tiruvallur			1 Puzhal
17	Viluppuram			2 Mugaiyur
18	Vellore			3 Gudiyatham
19	Ariyalur			4 Jeyamkondam
20	Madurai			5 Thirumangalam
21	Dindigul			6 Palani
22	Sivagangai			7 Manamadurai

1.12.5. Production of Bio-control agents

Considering the growing demand for organic products among the consumers and to bring more area under organic cultivation, the Government have established 10 Bio-control laboratories and 2 Integrated Pest Management Centres for production and distribution of Bio-control agents to the farmers through Agricultural Extension Centres.

Table 1.45: Bio-control Laboratory and Integrated Pest Management (IPM) centres

S. No	District	Bio Control Laboratories	IPM Centres
1	Viluppuram	Viluppuram	-
2	Salem	Seelanaickanpatti	-
3	Namakkal	Namakkal	-
4	Dharmapuri	Papparapatti	-
5	Coimbatore	Coimbatore	-
6	Erode	Bhavani	-
7	Trichirappalli	Trichirappalli	-
8	Thanjavur	Kattuthottam	-
9	Thirunelveli	Palayamkottai	-
10	Kanchipuram	-	Panchupettai
11	Madurai	Vinayagapuram	Vinayagapuram

Table 1.46: Distribution of Bio Control Agents during 2019-20

S. No.	Bio control agent	Distribution
1.	<i>Trichoderma viride</i> (Kg)	1,51,799
2.	<i>Pseudomonas fluorescens</i> (kg)	57,174
3	<i>Beauveria bassiana</i> (kg)	70,956
4.	<i>Trichogramma chilonis</i> (cc)	4,280
5.	<i>Metarhizium anisopliae</i> (kg)	1,22,000

The production and distribution of Bio-control agents will be continued during 2020-21. With a special thrust to manage Fall Army Worm and Rugose Whitefly in Coconut, it is programmed to produce 90,000 kgs of *Beauveria bassiana*, 1,10,000 kgs of *Metarhizium anisopliae*, 2,20,000 kgs of *Trichoderma viride*, 60,000 Kgs of *Pseudomonas fluorescens*, 30,000 CC of *Trichogramma chilonis* and 62,000 cc of *Trichogramma pretiosum* and distribute to the farmers.

1.13. Technology dissemination and Distribution of Critical inputs

1.13.1. Agricultural Extension Centres

The **Agricultural Extension centres** are serving as **“an Agriculture Hub”** for stocking of key inputs like seeds, Micro Nutrient mixtures, Biofertilizers, Biopesticides, implements for distribution to farmers, points of execution of the various schemes operated in the Department, providing information on new technologies to farmers and consultation services on key matters, providing advisories on all “seed to seed” activities.

To provide all Agriculture services to farmers under one roof, 880 numbers Agricultural Extension Centres are functioning. Out of 880 Agricultural Extension Centres, 383 centres are functioning at Block level as the Main centres and 497 centres are functioning at village level as sub-centres.

Out of 383 Main Agricultural extension centres, 181 were upgraded as **Integrated Agricultural Extension Centres (IAEC)** and 10 are upgraded as Uzhavar Maiyam. These 191 centers are able to house the Block offices for the Department of Agriculture, Horticulture, Agricultural Marketing and Agri Business, Seed Certification and Agricultural Engineering and also provided with the facilities of Conference Hall, Computer Centre, etc,. Out of 497 **Sub Agricultural Extension Centres**, 160 are being renovated since 2017-18, with improved infrastructure and additional facilities.

Table 1.47: Agricultural Extension centres

District	Main AECs	Sub AECs	Total
Kancheepuram	13	16	29
Thiruvallur	14	21	35
Cuddalore	13	17	30
Viluppuram	21	27	48
Vellore	20	23	43
Thiruvannamalai	17	24	41
Salem	20	11	31

District	Main AECs	Sub AECs	Total
Namakkal	15	17	32
Dharmapuri	8	8	16
Krishnagiri	10	7	17
Coimbatore	12	14	26
Tiruppur	13	13	26
Erode	14	21	35
Tiruchirappalli	14	10	24
Perambalur	4	3	7
Ariyalur	6	3	9
Karur	8	4	12
Pudukkottai	13	20	33
Thanjavur	14	47	61
Nagapattinam	11	33	44
Thiruvarur	10	32	42
Madurai	13	19	32
Theni	8	13	21
Dindigul	13	15	28
Ramanathapuram	11	6	17
Sivagangai	12	9	21
Virudhunagar	11	5	16
Thirunelveli	19	31	50
Tuticorin	12	16	28
Kanyakumari	10	11	21
The Nilgiris	4	1	5
Total	383	497	880

1.14. Tamil Nadu Irrigated Agriculture Modernization (TN-IAM) Project II:

The Department of Agriculture is implementing the Tamil Nadu Irrigated Agriculture Modernization [TN-IAM] Project with the assistance of the World Bank, to enhance productivity and climate resilience of irrigated agriculture, improve water management and increase market opportunities for farmers and agro-entrepreneurs in 66 selected Sub-basin areas of Tamil Nadu over a period of 7 years from 2017-18 with an allocation of Rs.86.55 Crore.

During the year 2019-20, TNIAM Project was implemented in Phase I (18 sub basins) with an allocation of Rs.6.18 Crore and in phase II (16 Sub basins) with an allocation of Rs.8.28 Crore and totally an amount of Rs.14.46 Crore was allocated to implement the following components:-

1.14.1. Improved Production Technology (IPT) Demonstrations:

The Demonstrations on three crop sequence of Green manure-System of Rice Intensification (SRI) -Rice Fallow Pulses were implemented to increase the soil fertility and also crop productivity. In addition, to increase the crop productivity and farmers' income, demonstrations were conducted in Green manure, System of Rice Intensification, Rice Fallow Pulses, Maize, Ragi, Minor Millets, Pulses and Groundnut with high yielding varieties.

1.14.2. Other Crop based Components:

Farmers' Field Schools, Integrated Pest Management Villages through Establishment of Eco friendly IPM Model Villages; Vermi compost (Silpaulin) Units for Integrated Nutrient Management, to enrich the soil fertility and Seed villages for the production of required seeds for

the Farmers in the sub-basins through Farmers Interested Groups were implemented.

1.14.3. Mechanized weeding

Back-ended subsidy was provided for carrying out the weeding operation through power/Mechanical cono weeder in System of Rice Intensification (SRI) fields.

1.14.4. Information, Education and Communication Activities (IEC) and Capacity Building (CB) Components:

Capacity Building & Change Management Trainings were organized to farmers to create awareness on the water saving crop production technologies.

The project will be continued in the year 2020-21 also.

1.15. Crop Yield Competitions and Special Awards for Farmers

1.15.1. Crop Yield Competitions

Government of Tamil Nadu is promoting innovative scientific technologies to increase the production and productivity of Agricultural crops at field level. Crop Yield Competitions are conducted for motivating the farmers to adopt advanced farming practices at State level in Maize (Irrigated), Cholan (Irrigated), Cumbu (Irrigated), Groundnut (Irrigated), Redgram, Blackgram (Irrigated), Greengram (Irrigated), Cotton and Sugarcane crops and Prizes are awarded every year. Similarly, Crop Yield Competitions are conducted at District level for crops like Paddy, Maize (Irrigated), Cholan (Irrigated), Cumbu (Irrigated), Groundnut (Irrigated), Groundnut (Rainfed), Redgram, Blackgram (Irrigated), Greengram (Irrigated), Cotton and Sugarcane.

Farmers registering highest productivity under Crop Yield Competition at State and District Level are awarded with cash prize as indicated below:-

Table 1.48: Cash Prizes at State and District Level

(Unit in Rupees)

S. No	Crop	First Prize	Second Prize
1. State Level			
	Groundnut, Sugarcane & Cotton	25,000/-	15,000/-
	Cholam, Cumbu, Maize, Blackgram, Greengram & Redgram.	15,000/-	10,000/-
2. District Level			
	Paddy, Groundnut, Sugarcane & Cotton	15,000/-	10,000/-
	Cholam, Cumbu, Maize, Blackgram, Greengram & Redgram.	10,000/-	5,000/-

1.15.2. Special Award

1.15.2.1 System of Rice Intensification

A special award of Rs.5 Lakh and a medal worth Rs.5,000/- is being distributed to the farmer who obtains highest productivity in Paddy following the System of Rice Intensification method of Paddy cultivation by the **Hon'ble Chief Minister** at the Republic Day function every year.

For the year 2018-19 this award has been given to Thiru. S.Yuvakumar of Pasuvapatti Village in Erode district who has obtained 16,750 kg/ha of paddy adopting System of Rice Intensification technology, at the Republic Day function on 26.01.2020 by the **Hon'ble Chief Minister**.

1.15.2.2. Bharat Ratna Dr.M.G.R. Traditional Rice variety conservator Award

"Bharat Ratna Dr.M.G.R. Traditional Rice variety conservator Award" would be conferred

for supporting the traditional paddy variety growing farmers and to conserve traditional varieties to the first three Farmers who conserve and cultivate traditional rice varieties for obtaining highest yield in the State with the cash prize of Rs.1 lakh, Rs.75,000 and Rs.50,000, respectively from 2018-19.

For the year 2018-19, the cash prize of Rs.1 lakh was awarded to Tmt. S.Krishnammal of Thirunelveli district for obtaining maximum yield of 8,455 Kg/ha in Attur kichili samba by the **Hon'ble Chief Minister** and Thiru. J.Nagarajan of Ariyalur district for obtaining second highest yield of 7,625 Kg/ha in Mappillai samba and Thiru.P.Pichaimurugan of Virudhunagar district for obtaining third highest yield of 7,200 Kg/ha in Seeraga samba were awarded with the cash prize of Rs.75,000 and Rs 50,000, respectively.

This scheme will be continued during 2020-21.

1.16. Information Technology in Agriculture

Tamil Nadu is the pioneer in execution of e-Governance in Agriculture and the pro-active policies conceived by the Department paved way for the development of an exemplary Agricultural Management and Information System (AGRI-MIS) for the farming community in the State.

The growth of e-agriculture has the potential to accelerate agriculture and rural development, to promote food security and to reduce rural poverty. **Information, Communication Technology (ICT)** plays a more significant role in improving sustainability, efficiency and returns of small scale farming by reducing time and labour, facilitates relationship with seeds and fertiliser suppliers besides

seamless access to cultivation information and best practices.

Tamil Nadu is the frontier State in the entire country in delivering Agricultural Information Services to farming community through various Information Technology initiatives.

Uzhavan Mobile application launched by the **Hon'ble Chief Minister on 05-04-2018** has already won the confidence of farmers. So far more than 6.22 Lakh farmers downloaded this App with following **Sixteen vital services**:-

- (i). Information on Agriculture and Sister Departments subsidy schemes
- (ii). Facility to register in advance to avail the high value input subsidy on priority basis.
- (iii). Through Crop insurance services, farmers may get information on crop wise premium rate for the notified villages,

documents required for enrolment and Insurance policy status.

- (iv). Stock availability of Fertilizer on real time basis
- (v). Stock availability of Seeds on real time basis
- (vi). Machinery availability by Government/Private Custom hiring centres and farmer to farmer machinery rental services.
- (vii). Daily Market price of Cereals, Pulses, Oilseeds and Vegetables
- (viii). Daily Weather Forecast
- (ix). Assistant Agricultural/Horticultural Officers contact details and their date of visit to respective villages
- (x). Daily water level in Major reservoirs of Tamil Nadu and Karnataka

- (xi). Agriculture News on latest information to Farmers from Agriculture Department
- (xii). Provisions for Feedback from users to post their views and suggestions related to Schemes.
- (xiii). **“My Farm Guide”** service will provide information from sowing to Harvest for both Agriculture and Horticulture crops.
- (xiv). Information about Organic crop cultivating farmers, Organic crop traders and Organic crops certifying agencies
- (xv). Information on Farmer Producer Organisation and their manufactured products.

Newly added service:-

- (xvi). Pest and Disease Monitoring service through which the farmer can upload Pest /Disease affected image and get remedial

measures instantaneously using Artificial Intelligence Technology.

1.17. PRADHAN MANTRI KISAN SAMMAN NIDHI (PM-KISAN)

The Pradhan Mantri Kisan Samman Nidhi scheme is being implemented in the State from 01.12.2018 with an aim to provide income support to all landholding farm families in the country for procuring various Agricultural inputs. Initially this scheme was launched for Small and Marginal farmers only but subsequently extended to other farmers also.

Under this Scheme, an amount of Rs.6,000/- per year is released in three installments @ Rs.2,000/- once in every four months by the Government of India through online into the Bank accounts of the eligible farmers under Direct Benefit Transfer mode.

All categories of farmers except the following exclusion categories are eligible to avail the benefit of this scheme:-

1. Higher income family.
2. All Institutional Land holders.
3. Farmer families in which one or more of its members belong to following categories:-
 - a) Former and present holders of constitutional posts,
 - b) Former and present Ministers/ State Ministers and former/present Members of Lok Sabha/ Rajya Sabha/ State Legislative Assemblies, former and present Mayors of Municipal Corporations, former and present Chairpersons of District Panchayats.
 - c) All serving or retired officers and employees of Central / State Government

Ministries / Offices / Departments and its field units Central or State PSEs and Attached offices /Autonomous Institutions under Government as well as regular employees of the Local Bodies.

d)All superannuated/retired pensioners whose monthly pension is Rs.10,000/-or more.

e)All Persons who paid Income Tax in last assessment year and

f) Professionals like Doctors, Engineers, Lawyers, Chartered Accountants, and Architects registered with Professional bodies and carrying out profession by undertaking practices.

As per the National Sample Survey Organisation(NSSO) 2012-13 report, a total of 32.44 Lakh Agricultural households are available in Tamil Nadu. Including current Agricultural

households, so far, 37.40 Lakh Agricultural households were enumerated and uploaded in PM KISAN Government of India portal. As on date, out of 37.40 Lakh Agricultural households, cash benefit has been extended to 35.69 Lakh Agricultural households for a sum of Rs.2469.75 Crore to the bank accounts of the farm families through Direct Benefit Transfer mode.

To saturate this scheme with the left out eligible farmers, special campaign has been conducted in all the blocks as a result of which 1.92 Lakh Agricultural households have self registered under PM KISAN web portal through Farmers Corner. Action is being taken to enroll eligible Agricultural households under this scheme. Further, for new enrolment of farmers provision has been made in "Uzhavan App".

1.18. PRADHAN MANTRI KISAN MAANDHAN YOJANA

In Tamil Nadu, Pradhan Mantri Kisan Maandhan Yojana (PMKMY) is being implemented from 09.08.2019 as a social security scheme. All Small and Marginal Farmers falling in the age group of 18 to 40 years are eligible to join this scheme.

Under this scheme, the farmers would receive a minimum assured pension of Rs.3,000/- per month after attaining the age of 60 years and if the farmer dies, the spouse of the farmer shall be entitled to receive 50% of the pension as family pension.

The applicants between the age group of 18 to 40 years will have to make monthly contributions ranging between Rs.55/- to Rs.200/- per month till they attain the age of 60. Every month a fixed pension amount including Government of India's same

proportionate contribution gets deposited in the pension account of the respective individual.

In case of death of subscriber before vesting date, the spouse of subscriber shall have an option of continuing the scheme by payment of remaining contributions under the scheme.

Upon completion of enrolment process and payment of initial contribution, an enrolment-cum-auto-debit-mandate form for taking consent of farmers for auto-debiting from their PM-KISAN benefits through their bank accounts will be generated and signed by the subscriber. So far 1.06 Lakh numbers of farmers have been enrolled in the State.

1.19. KISAN CREDIT CARD

Kisan Credit Card was issued from 1998 through Nationalised Banks, Cooperative Banks and Regional Rural Banks based on farmers

land holding and extent of crop cultivated. Under this, farmer are given loan amount of Rs.1.60 lakh to procure seed, Fertilizer, Plant protection chemicals and other production related expenditure. The farmers can invest against Agricultural activities using this collateral free loan. Farmers, tenant farmers and farmers belonging to Self – help Groups (SHG) etc., are eligible to get Kisan Credit Card.

So far, 12.83 lakh Kisan Credit Cards have been issued through Cooperatives, 7.04 lakh Kisan Credit Cards have been issued through Nationalised Banks and 0.33 Kisan Credit Cards have been issued through Regional Rural Banks which are active. Totally 20.20 Kisan Credit Cards have been issued. In order to cover all eligible farmers special campaigns are being conducted in all villages of the State through Agriculture and Bank officials to saturate all the PM – KISAN beneficiaries with KCC. The

collected applications are handed over to Nationalised banks and Co-operative Banks and Kisan Credit Card are being distributed to farmers.

1.20. Automatic Weather Stations:

Tamil Nadu Agricultural University (TNAU) has installed Automatic Weather Stations (AWS) at the rate of one per block and developed agro advisory services software for using AWS data at block level. Presently, around 50 AWS are sending the weather data to the server which is being shared to Revenue Department on daily basis. Necessary action is being taken to revive 285 AWS installed in various locations for providing agro advisory services to the farmers.

1.21. Agriculture Staff Structure

The Department of Agriculture is functioning with 4,828 technical staff and 4,996 non-technical staff, totaling to 9,824 Staff.

Table 1.49 : Technical Establishment

Name of the Post	Sanctioned Strength
Additional Director of Agriculture	4
Joint Director of Agriculture	31
Deputy Director of Agriculture	123
Assistant Director of Agriculture	420
Agricultural Officer	1,088
Deputy Agricultural Officer	337
Assistant Seed Officer	509
Assistant Agricultural Officer	2,316
Total Technical Staff	4,828

Table 1.50: Non-Technical Establishment

Name of the Post	Sanctioned Strength
Deputy Director (Administration)	2
Administrative Officer	33
Superintendent	183
Assistant	644
Junior Assistant	387
Typist	360
Depot Manager(Gr-I)	141
Depot Manager (Gr-II)	249
Depot Manager(Gr-III)	567
Steno-Typist (Gr-I)	1
Steno-Typist (Gr-II)	37
Steno-Typist (Gr-III)	89
Driver	289
Lab Assistant	143
Record Clerk	155
Office Assistant	584
Watchman	1,130
Telephone Operator	2
Total Non-Technical Staff	4,996

In order to effective functioning of the department, the Government of Tamil Nadu has recruited and filled up 643 technical staff and 901 Non-Technical staff through Tamil Nadu Public Service Commission during 2018-19.

During 2019-20, it is proposed to recruit and fill up 195 technical staff and 240 Non-Technical staff through Tamil Nadu Public Service Commission.

2. HORTICULTURE AND PLANTATION CROPS

Horticulture is a prosperous sector having the potential to raise the farm income, provide livelihood security and earn foreign exchange through export. Horticulture has made remarkable progress in terms of expansion in area under different crops, increase in production and productivity, crop diversification, technological interventions, post-harvest management, development of forward linkages through value addition, marketing and export besides serving an integral part in ensuring nutritional security.

The diverse agro-climatic conditions and rich diversity in crops and genetic resources enable Tamil Nadu to produce a wide range of Horticulture crops round the year facilitating the growing population at large to enjoy a diverse and balanced diet for healthy living.

To gratify the nutritional food requirement of increasing population, the Horticultural production has to be increased in a sustainable manner by implementing various schemes.

2.1 POSITION OF TAMILNADU AT NATIONAL LEVEL IN HORTICULTURE CROPS

As per Statistics at a Glance, 2018, Tamil Nadu is one among the leading Horticulture States contributing **5.5%** towards Production and **4.9%** towards area at National level. Tamil Nadu accounts for nearly **4.4%** of the area under fruits and **2.3%** of area under vegetables in the Country.

In terms of production, the State's share is nearly 5.8% in fruits, 3.4% in vegetables. The area coverage of fruits and vegetable crops in Tamil Nadu is 7 Lakh Ha, fulfilling the growing nutritional demand of the increasing population. Tamil Nadu is the leading producer of Loose Flowers contributing 24.5% to Nation's production.

Table:2.1: Area, Production and Productivity of Horticulture crops in Tamil Nadu (2018-19 and 2019-20)

(Area: Lakh Ha, Production: Lakh MT, Productivity : MT/Ha)

Name of the Crop	2018-19(Final Estimate- Provisional)			2019-20(First Advance Estimate)		
	Area	Production	Productivity	Area	Production	Productivity
FRUITS	2.77	56.24	19.34	3.02	59.41	19.66
VEGETABLES	2.03	57.03	25.29	3.25	74.85	23.00
SPICES AND CONDIMENTS	1.10	3.89	3.55	1.04	3.38	3.24
PLANTATION CROPS	6.76	48.69	7.18	6.71	46.73	7.18
MEDICINAL & AROMATIC PLANTS	0.11	2.10	13.87	0.17	2.16	12.66
FLOWERS	0.27	5.15	13.81	0.36	4.91	13.59
TOTAL	13.04	173.10		14.56	191.43	

*2019-20 - HAPIS (Horticulture Area Production Information System - GOI)

The policy of the State mainly focuses on “doubling the production and tripling the income of farmers”.

The strategies which pave way for attaining the State policy are to encourage the use of quality certified / hybrid seeds and quality planting materials in area expansion of Horticultural crops, promotion of high value Horticultural crops in protected cultivation, high density planting, increased water use efficiency through adoption of Micro irrigation, pollination support through bee keeping for enhancing the production, canopy management and rejuvenation of senile orchards. Improved Horticulture farming practices in rainfed areas, farm mechanization, improved Post Harvest Management techniques and strengthening of infrastructure facilities in State Horticulture Farms for production of quality pedigree planting materials and vegetable seeds, Integrated

Nutrient Management, Integrated Pest and Disease Management are given priority through various schemes. Besides crop diversification to fetch better return, value addition to Horticultural produces and organic farming are given impetus to improve the socio-economic status of the farming community.

2.2: Tamil Nadu Horticulture Scenario

Tamil Nadu is at forefront in National level towards area, production and productivity of Horticultural crops by implementing various Government policies, developmental schemes and transfer of technologies.

2.2.1: Fruits

As per 2018-19 Final Advance Estimate - Mango (52%) and Banana (29%) are the leading fruit crops in Tamil Nadu accounting more than 81% towards total area under Fruits category. Off-season production of Mango and round the year production of Grapes is unique to Tamil Nadu.

During 2018-19, 172.11 Lakh numbers of planting materials of fruit crops have been produced in State Horticulture Farms and distributed to the farmers under various schemes.

During 2019-20, a special programme named **“Augmentation of Fruits Area”** is being implemented to give emphasis for growing fruit crops for their nutritional benefits. The programme is aimed at covering minimum of 2 Ha per Revenue Village.

In the current year, Tamil Nadu Agricultural University has released new varieties for Banana (CO-2) and Manila Tamarind (SPD 02). The trials are being taken up in State Horticulture Farms for assessing the performance of the varieties. Based on the performance, the varieties will be popularised among the farmers.

During the year 2020-21, it has been planned to expand area under fruit crops through schemes like National Horticulture Mission, Integrated Horticulture Development Scheme and Tamil Nadu Irrigated Agriculture Modernization Projects.

Table.2.2 : Details of major Fruit growing Districts (2018-19)

Sl. No.	Name of the Crops	Area (Ha)	Major Fruit Growing Districts (in Ha)
1	Mango	1,50,945	1. Krishnagiri (33,679) 2. Dharmapuri (18,388) 3. Dindigul (15,742) 4. Vellore (12,319) 5. Thiruvallur(11,057)
2	Banana	85,001	1. Erode (13,464) 2. Thoothukudi(8,776) 3. Tirunelveli (6,216) 4. Tiruchirapalli (6,010) 5. Coimbatore (5,743)
		10,214	1. Dindigul (1,670)

Sl. No.	Name of the Crops	Area (Ha)	Major Fruit Growing Districts (in Ha)
3	Guava		2. Madurai (1,386) 3. Virudhunagar (1,069) 4. Vellore (917) 5. Cuddalore (883)
4	Lime/ Lemon	9,459	1. Tirunelveli (3,134) 2. Dindigul (1,629) 3. Theni (675) 4. Tiruchirapalli (670) 5. Thoothukudi (623)
5	Watermelon	7,530	1. Kancheepuram (3,159) 2. Villupuram (1,257) 3. Thiruvallur (834) 4. Thiruvannamalai (581) 5. Erode (311)
6	Amla	6,709	1. Tirunelveli (1,750) 2. Dindigul (1057) 3. Tiruppur (514) 4. Theni (422) 5. Sivagangai (380)
7	Sapota	5,417	1. Dindigul (1,172) 2. Vellore (534) 3. Tirunelveli (485) 4. Virudhunagar (436) 5. Theni (428)

Sl. No.	Name of the Crops	Area (Ha)	Major Fruit Growing Districts (in Ha)
8	Jackfruit	2,876	1. Cuddalore (714) 2. Kanyakumari(606) 3. Dindigul(442) 4. Pudukkottai(250) 5. Namakkal (230)
9	Grape	2,058	1. Theni (1,826) 2. Dindigul (132) 3. Coimbatore (64)
10	Sweet Orange /Mosambi	1,688	1. Dindigul (1,513) 2. Pudukkottai (90) 3. Theni (85)

2.2.2: Vegetables

The vegetables alone contribute to 33% of the total production of Horticulture. The major Vegetables grown in Tamil Nadu are Tapioca, Onion, Tomato, Brinjal and Ladies finger. These crops alone account for over 70% of the total area.

Every year Hybrid vegetable cultivation is being promoted by providing assistance for cultivation through the Horticulture Schemes. Special focus is given for Onion in which Onion cultivation and Storage structures for Onion are promoted through schemes like National Horticulture Mission and National Agriculture Development Programme.

Quality vegetable protray seedlings are raised in State Horticulture Farms and distributed to farmers through Schemes at subsidized cost to increase the area under vegetable cultivation.

During 2018-19, 1312.63 Lakh numbers of portray seedlings of Vegetables were produced in State Horticulture Farms and distributed to the farmers under various schemes.

During 2019-20, a special programme named "Augmentation of Vegetables Area" is being implemented with an aim to cover minimum of

10 Ha, per Revenue Village to fulfill the nutritional requirement of the people.

In the current year, Tamil Nadu Agriculture University has released new varieties of Tomato (CTH-1 Hybrid), Onion (Onion Co-6), Tapioca (YTP-2) and Manathakali (Co-1). The trials are being taken up in State Horticulture Farms for assessing the performance of the varieties. Based on the performance, the varieties will be popularised among the farmers.

During 2019-20, Chief Minister's Rural Vegetable Production Programme (CMRVPP) is being implemented at an outlay of Rs.3 crores by distributing 12 Lakh seed kits. Under this programme, each Village Panchayat is provided with 100 seed kits. Each seed kit comprises of 7 kinds of Vegetable seeds and 1 kg of Organic manure.

During the year 2020-21, it has been planned to expand area under Vegetable crops through schemes like National Horticulture Mission, National Agriculture Development Programme, Integrated Horticulture Development Scheme and Tamil Nadu Irrigated Agriculture Modernization Projects.

Table: 2.3 : Details of major vegetable growing Districts 2018-19

Sl. No.	Name of the Crop	Total Cultivated Area (Ha)	Major Vegetable Growing Districts (in Ha)
1	Tapioca	70,802	1. Namakkal (16,150) 2. Villupuram (12,189) 3. Salem (9,449) 4. Dharmapuri (7,269) 5. Erode (7,101)
2	Onion	32,044	1. Perambalur (7,047) 2. Tiruchirappalli (3,913) 3. Namakkal (3,451) 4. Thoothukudi (3,314) 5. Dindigul (2,350)
3	Tomato	27,058	1. Krishnagiri (7,954) 2. Dharmapuri (6,173) 3. Salem (3,324)

Sl. No.	Name of the Crop	Total Cultivated Area (Ha)	Major Vegetable Growing Districts (in Ha)
			4. Coimbatore (1,684) 5. Dindigul (1,568)
4	Brinjal	15,813	1. Salem (1,925) 2. Dharmapuri (1,815) 3. Vellore (1,426) 4. Krishnagiri (1,421) 5. Villupuram (1,335)
5	Moringa	14,495	1. Dindigul (3,144) 2. Theni (3,083) 3. Karur (2,125) 4. Thoothukudi (1,540) 5. Ariyalur (1,223)
6	Ladies finger (Bhendi)	11,116	1. Salem (2,200), 2. Dharmapuri (1,664), 3. Villupuram(932), 4. Thiruvannamalai (854) 5. Madurai (512)
7	Beans	8,068	1. Krishnagiri (2,745), 2. Vellore (1,888), 3. Dindigul (1,287), 4. Dharmapuri (356), 5. Erode (334)
8	Potato	3,932	1. Dindigul (2,601) 2. The Nilgiris (620) 3. Erode (543) 4. Krishnagiri (165)
9	Carrot	3,671	1. Krishnagiri (1,682) 2. Dindigul (1,166) 3. The Nilgiris (785)

Sl. No.	Name of the Crop	Total Cultivated Area (Ha)	Major Vegetable Growing Districts (in Ha)
10	Leafy Vegetables	3,183	1. Salem (620) 2. Krishnagiri (607) 3. Thiruvallur (478) 4. Thiruvapur (265) 5. Namakkal (213)
11	Bitter gourd	2,869	1. Coimbatore (427) 2. Dharmapuri (389) 3. Salem (275) 4. Krishnagiri (268) 5. Thiruvannamalai (178)

2.2.3: Flowers

Tamil Nadu continues to take the first place in the production of loose flowers in the country. The major contributing Districts to maintain the top position are Dharmapuri, Salem, Dindigul, Krishnagiri, and Thiruvannamalai.

The art of flower decoration in functions is becoming trend now a days, due to which, there is demand for cut flowers locally, in nearby States and foreign countries. The higher income

obtained through Export of cut flowers has attracted many entrepreneurs and farmers to cultivate export oriented cutflowers.

To motivate, educate and train the farmers on recent technologies, Centre of Excellence for Cut flowers which is a joint venture of Government of India and the Government of Israel is being operated by the Department of Horticulture and Plantation Crops, at Thally, Krishnagiri District.

At this Centre of Excellence, trainings are being imparted to farmers on cut flower production in Poly green houses, Shadenet and Open field. Here, cut flowers like Chrysanthemum, Rose, Carnation and Gerbera are cultivated under protected condition in an area of 7,200 Sq.m and Cut flowers like Bird of Paradise, Heliconia, Tuberose and Chrysanthemum are openly cultivated in an area of 10 acre.

During 2020-21, focus will be given to cultivate flowers in protected structures under

National Horticulture Mission.

Table.2.4 : Details of major Flower cultivating Districts (2018-19)

Sl. No	Name of the Crop	Area (Ha)	Major Flower Growing Districts (in Ha)
1	Jasmine	14,068	1. Madurai (1,530) 2. Erode (1,330) 3. Dharmapuri (1,158) 4. Thiruvallur (1,121) 5. Thiruvannamalai (1,100)
2	Tube Rose	6,324	1. Dharmapuri (2,634) 2. Thiruvannamalai (1,863) 3. Erode (346) 4. Thiruvallur (195) 5. Salem (191)
3	Chrysanthemum	5,452	1. Krishnagiri (1,813) 2. Dharmapuri (1,477) 3. Salem (1,143)
4	Marigold	2,954	1. Krishnagiri (1,739) 2. Dharmapuri (265) 3. Thiruvannamalai (200)
5	Rose	2,788	1. Krishnagiri (1,310) 2. Dharmapuri (698) 3. Dindigul (120) 4. Salem (113)

2.2.4: Spices

The climatic condition prevailing in Tamil Nadu is better suited for cultivation of almost all kinds of spices like Chillies, Garlic, Ginger, Cardamom, Pepper, Cloves, Cinnamon, Curry leaves, Coriander seeds, Turmeric, Tamarind

and Nutmeg. Turmeric, a significant spice crop, is grown in an area of 23,164 Ha. Red chillies (41%) and Turmeric (21%) are the leading Spice crops in Tamil Nadu accounting for over 62% of the total Spices Area.

During 2020-21, it has been planned to implement the area expansion of Spice crops through schemes like National Horticulture Mission, Integrated Horticulture Development Scheme and Tamil Nadu Irrigated Agriculture Modernization Project.

Table.2.5: Details of major Spices growing Districts (2018-19)

Sl. No.	Name of the Crop	Area (Ha)	Major Growing Districts (in Ha)
1	Red Chillies	45,124	1. Ramanathapuram (16,740) 2. Thoothukudi (11,288) 3. Sivaganga (5,696) 4. Thiruvannamalai (1,300) 5. Dindigul (1,268)
2	Turmeric	23,164	1. Dharmapuri (5,746) 2. Erode (5,650) 3. Salem (4,215) 4. Villupuram (2,237) 5. Namakkal (2,125)
3	Tamarind	15,839	1. Dindigul (3,679) 2. Theni (1,950) 3. Madurai (1,524) 4. Dharmapuri (1,469) 5. Krishnagiri (899)

Sl. No.	Name of the Crop	Area (Ha)	Major Growing Districts (in Ha)
4	Coriander Seed	6,408	1. Thoothukudi (1,715) 2. Ramanathapuram (1,533) 3. Virudhunagar (1,420) 4. Tiruppur (750) 5. Coimbatore (276)
5	Black Pepper	5,629	1. Namakkal (1,741) 2. Salem (1,147) 3. The Nilgiris (972) 4. Dindigul (960) 5. Kanyakumari (292)
6	Cardamom	3,813	1. Theni (1,322) 2. The Nilgiris (900) 3. Coimbatore (807) 4. Virudhunagar (326) 5. Dindigul (241)
7	Garlic	1,660	1. Dindigul (1,417) 2. The Nilgiris (243)

2.2.5: Plantation Crops

Area expansion and Rejuvenation of cashew orchards are promoted through Horticulture Schemes.

Under National Horticulture Mission and National Agriculture Development Programme, it has been programmed to bring more area under Cashew during 2020-21.

Table.2.6: Details of major Plantation Crops growing Districts (2018-19)

Sl. No.	Name of the Crop	Area (Ha)	Major Growing Districts (in Ha)
1	Cashew nut	85,661	1.Ariyalur (30,400) 2.Cuddalore (28,658) 3.Pudukkottai (6,207) 4.Villupuram (4,033) 5.Theni (3,558)
2	Tea	69,493	1.The Nilgiris (55,662) 2.Coimbatore (11,191) 3.Theni (1,621) 4.Tirunelveli (804) 5.Kanyakumari (221).
3	Coffee	33,444	1.Dindigul (10,805) 2.The Nilgiris (8,300) 3.Salem (6,991) 4.Theni (3,200) 5.Coimbatore (2,248)
4	Arecanut	6,887	1.Coimbatore (1,953) 2.Salem (1,924) 3.Namakkal (766) 4.Erode (555) 5.Dharmapuri (492)
5	Cocoa	3,404	1.Coimbatore (1,584) 2.Dharmapuri (658) 3.Salem (339) 4.Thanjavur (156)

2.2.6: Medicinal and Aromatic plants

In Tamil Nadu Medicinal plants are cultivated in an area of 15,162 Ha. The major Medicinal plants grown in Tamil Nadu are Coleus and Glory lily. These crops alone account for over 47% of the total cultivated area under Medicinal and Aromatic plants.

Table.2.7: Details of major Medicinal plants growing Districts (2018-19)

Sl. No.	Name of the Crop	Area (Ha)	Major Growing Districts (in Ha)
1	Coleus	3,886	1.Thiruvannamalai (1,650) 2.Villupuram (1,103) 3.Salem (785)
2	Glory lily	3,343	1.Tiruppur (1,707) 2.Dindigul (878) 3.Karur (538)
3	Palmarosa	2,980	1.Dharmapuri (2,512) 2.Thiruvannamalai (396)

2.3.1. Horticulture Department Activities

2.3.1.1. Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)

IMPLEMENTATION OF MICRO IRRIGATION IN TAMIL NADU:

In Tamil Nadu, the Micro Irrigation Scheme is under implementation since 2007-08. From 2015-16 onwards this scheme has been brought under Pradhan Mantri Krishi Sinchayee Yojana (**PMKSY**) "Per Drop More Crop" (PDMC) component, a flagship scheme of Government of India.

Tamil Nadu is the **only State extending 100% subsidy to Small and Marginal Farmers and 75% subsidy to Other Farmers.** This encourages more small and marginal farmers to install drip and sprinkler irrigation systems.

In order to reduce the financial burden of farmers, 12% GST levied on MI components is absorbed by the State Government. In addition

to the Implementing Departments viz., Horticulture, Agriculture and Agricultural Engineering, Department of Sugar has also been roped in to bring more area under Micro Irrigation in Sugarcane.

Table. 2.8: Position of coverage under Micro Irrigation at National Level (PMKSY Portal) as on 13.03.2020

S.No	State	Area Covered (Ha)
1	Tamil Nadu	2,06,854
2	Karnataka	1,38,250
3	Gujarat	1,03,891
4	Andhra Pradesh	80,214
5	Maharastra	76,364
6	Rajasthan	46,732
7	UttarPradesh	40,031
8	Chhattisgarh	23,020
9	Odisha	8,498
10	Uttarkhand	6,696

COVERAGE UNDER MI:

Out of 48.19 Lakh Hectare of net sown area in Tamil Nadu, the area irrigated is

28.33 Lakh Hectare (58%). In the net irrigated area, 17.2 Lakh Hectare is irrigated through Open wells and bore wells which accounts for 60%. The area irrigated by open well and borewell can be brought under micro irrigation. Out of this, so far, an area of 6.07 Lakh Hectare (35%) has been brought under Micro Irrigation. Tamil Nadu is the only state where subsidy is extended for installation of Micro Irrigation system in Tea plantations.

Table. 2.9: Year wise area covered under MI from inception.

S. No.	Fin.Year	Physical Achievement (Area in Ha.)	Financial Achievement (Rs.In.Crore)
1	2007-08	7,820	15.60
2	2008-09	11,597	26.07
3	2009-10	18,009	43.26
4	2010-11	26,154	83.64
5	2011-12	27,550	87.44
6	2012-13	26,538	135.34
7	2013-14	39,780	288.25
8	2014-15	12,518	119.76
9	2015-16	32,289	204.61
10	2016-17	52,314	297.87
11	2017-18	4,444	31.59

S. No.	Fin.Year	Physical Achievement (Area in Ha.)	Financial Achievement (Rs.In.Crore)
12	2018-19	1,41,627	700.69
13	2019-20	2,06,854	1030.59
	Total	6,07,494	3,064.71

An area of 93,773 Ha in Horticulture and 1,13,081 Ha in Agriculture totaling of 2,06,854 Hectare, has so far been brought under Micro Irrigation with an expenditure of Rs.1030.59 Crore during 2019-20. **This has been the highest achievement made ever under MI so far.**

Also, to bring more Sugarcane area (16,000 Ha) under Micro Irrigation additional subsidy of Rs 68.35 Crore has been allotted to Sugarcane crop alone.

A dedicated portal **“Micro Irrigation Management Information System” (MIMIS)** has been developed during 2017-18 and the entire process of implementation right from registration of beneficiaries to final fund release

has been made online. **This online process has simplified the implementation procedure. It aids in quicker processing of the applications and brings in more transparency in the implementation of the scheme.** All these cohesive efforts have enabled to bring more area under MI coverage during 2019-20.

To bring the barren land under cultivation and to save water, Supplementary Water Management Activities (**SWMA**) are linked with Micro Irrigation from the year 2018-19 onwards. In this, subsidy is extended for creation of ground level water storage structures, digging of borewells, laying of conveyance pipes and for Electric motors/Diesel pumpsets.

The State has planned to bring the entire well and tube well irrigated area under MI in a phased manner by 2025. During 2020-21, it has been programmed to bring all villages under

Micro Irrigation and to enhance the income of the farmers, it is proposed to install Micro Irrigation systems in an area of 3 Lakh Ha with a financial outlay of Rs.1637.47 Crore. Also, additionally, 34,000 Ha will be installed with sub surface Micro Irrigation under sugarcane with a financial outlay of Rs.150 Crore.

Table.2.10: Subsidy pattern for Horticulture and Agriculture Crops

S. No	Crop	System Recommended	Spacing	Cost Norms (Rs./ Ha.)	Subsidy extended per Ha. (Excluding GST)	
					SF/MF 100%	Others 75%
A. Horticulture						
1	Flower & Plantation Crops	Sprinkler	-	18,630	18,630	13,973
		Rain Gun	-	27,230	27,230	20,423
2	Mango and Tamarind	Drip	10mX10m	22,426	22,426	16,820
3	Jack	Drip	8mX8m	24,795	24,795	18,596
4	Cashew	Drip	7mX7m	27,185	27,185	20,389
5	Guava, Lime, Orange, Mosambi	Drip	6mX6m	29,257	29,257	21,943
6	Guava, Custard Apple, Lemon, Amla and Mango	Drip	5mX5m	33,074	33,074	24,805

S. No	Crop	System Recommended	Spacing	Cost Norms (Rs./ Ha.)	Subsidy extended per Ha. (Excluding GST)	
					SF/MF 100%	Others 75%
7	Arecanut, Grapes	Drip	3mX3m	45,748	45,748	34,311
8	Pomegranate and Drumstick	Drip	2.5mX2.5m	53,183	53,183	39,887
9	Papaya, Banana	Drip	2mX2m	64,828	64,828	48,621
10	Banana	Drip	1.5mX1.5m	75,755	75,755	56,816
		Drip	1.8mX0.6m	72,442	72,442	54,331
11	Ginger, Vegetable, Gloriosa, Coleus	Drip	1.2mX0.6m	1,01,012	1,01,012	75,759
B. Agriculture Crops						
1	Pulses (Black & Green Gram) Oil Seeds (Ground nut)	Sprinkler 63 mm	-	18,630	18,630	13973
		Sprinkler 75 mm	-	20,780	20,780	15585
		Rain Gun 63 mm	-	27,230	27,230	20423
		Rain Gun 75 mm	-	32,300	32,300	24225
2	Maize, Cotton, Red Gram	Drip	1.2mX0.6m	1,01,012	1,01,012	75759
3	Coconut	Drip	8mX8m	24,795	24,795	18596
4	Oil Palm	Drip	9mX9m	23,464	23,464	17598
5	Sugarcane	Drip	1.2mX0.6m	1,01,012	1,01,012	75759
		Drip	1.5mX0.5m	86,727	86,727	65045

2.3.2: Mission for Integrated Development of Horticulture - National Horticulture Mission (MIDH - NHM)

National Horticulture Mission envisages production and productivity improvement of Horticulture crops, adoption of improved technologies, creation of infrastructure for Post Harvest Management (PHM) and Centre of excellence for Horticulture sector. The scheme was subsumed during 2014- 15 under the Mission for Integrated Development of Horticulture (MIDH) as one of the sub scheme.

National Horticulture Mission is implemented in 26 Districts in Tamil Nadu to ensure holistic growth of Horticulture sector covering Fruits, Vegetables, Root & Tuber crops, Mushroom, Spices, Flowers, Aromatic plants, Cashew and Cocoa. It is a centrally sponsored scheme with the financial assistance of 60% from the Government of India and 40% from the State Government.

This scheme is being implemented in 2019-20 at an outlay of Rs.163.33 crore. Under New Area Expansion, 13,000 Hectare has been covered at an outlay of Rs.23.47 Crore. Protected cultivation like poly green house, shade net house, anti bird net and mulching has been covered in 2,345 Hectare at an outlay of Rs.46.27 Crore. Post- Harvest Management infrastructures such as 691 Pack houses, 976 Low cost onion storage structures and Pre-Cooling units were created at an outlay of Rs.25.80 Crore.

It is proposed to implement the scheme during the year 2020-21 with focus on Hybrid vegetables cultivation, Poly Green House cultivation, integrating with water harvesting structures, Post-Harvest Management and Special centres for Horticulture crops.

2.3.2.1: Centre of Excellence (CoE)

Centre of Excellence is established to achieve higher productivity with adoption of improved technologies. Under National

Horticulture Mission, two Centres of Excellence were established in collaboration with Israeli technical experts. i.e., **Centre of Excellence for Cut flowers, Thally**, in Krishnagiri District and **Centre of Excellence for Vegetables, Reddiyarchatram**, in Dindigul District.

In addition, **Centre of Excellence for Hill vegetables in Nanjanadu**, The Nilgiris, **Centre of Excellence for Tropical fruits viz., Mango, Guava, Acid lime, Sapota and Amla in Kanjanaikenpatty, Trichirappalli** and **Centre of Excellence for Bee Keeping** at SHF, **Kanyakumari** and **Centre of Excellence for Traditional Flower crops (Jasmine)** at **Madurai** are being established.

2.3.3 National Agriculture Development Programme (NADP)

National Agriculture Development Programme was incepted in the year 2007 to ensure holistic development of Agriculture and allied sectors by making farming a remunerative activity, strengthening farmer's effort through

creating infrastructure and helping farmers to increase their income by encouraging them for better production and productivity. This scheme is being implemented with a sharing pattern of 60:40 between Central and the State Government in all Districts of Tamil Nadu based on the component.

This scheme is being implemented in 2019-20 at an outlay of Rs.20.05 Crore. So far, an amount of Rs. 11.68 Crore has been spent on Area expansion of Horticultural crops like Fruits, Vegetables including Onion, Flower crops, Spice crops and Plantation crops in an area of 6,557 Ha. An amount of Rs.4.79 Crore has been spent to provide financial assistance to encourage farmers on advanced cultivation practices like Poly green houses, Shade net and Rain net in an area of 17.80 Ha. An expenditure of Rs.3 Crore has been made to provide financial assistance to farmers to establish permanent

Pandal System for Gourds and other Horticultural crops in an area of 150 Ha. Two Lakh Vegetable seed kits have been distributed to public to cultivate vegetables in their homesteads.

Crop Diversification Programme, a sub-scheme under National Agriculture Development Programme is being implemented in 2019-20 in which the tobacco farmers are assisted to shift their cultivation to other remunerative Horticultural crops at an outlay of Rs.8.88 Lakh.

Cashew Area Expansion Programme, a sub-scheme under National Agriculture Development Programme is being implemented from 2018-19 to encourage farmers to cultivate cashew in Gaja cyclone affected Districts and other Districts of Tamil Nadu. During the year 2019-20, this scheme is being implemented at an outlay of Rs.2.40 Crore. So far, 1000 Ha of

area has been brought under Cashew cultivation at an outlay of Rs.1.20 Crore.

During the year 2020-21, the scheme will be implemented with a focus on components like Onion area expansion, Assistance to Organic cultivation in Vegetables like Greens, Tomato, Brinjal, Bhendi, Cabbage and Cauliflower, Production of Bio-control agents, Establishment of Permanent Pandal system and Establishment of Value chain in Vegetables.

2.3.4 National Mission for Sustainable Agriculture (NMSA)

National Mission on Sustainable Agriculture aims at promoting Integrated Farming System for enhancing livelihood opportunities, ensuring food security and minimizing risks like crop failure. This scheme is being implemented with a sharing pattern of 60:40 between Centre and State. Rainfed Area Development and Paramparagat Krishi Vikas Yojana are the components implemented under this scheme.

2.3.4.1: Rainfed Area Development

The objective of Rainfed Area Development is to integrate multiple components of Agriculture such as agriculture crops, Horticulture crops, Livestock, Fishery, Forestry with agro-based income generation activities and value addition.

During the year 2019-20, Rainfed Area Development is being implemented at an outlay of Rs.19.25 Crore in 13 Districts viz., Cuddalore, Dharmapuri, Erode, Krishnagiri, Nilgiris, Salem, Thiruvannamalai, Thanjavur, Tirunelveli, Trichirappalli, Thoothukudi, Villupuram and Virudhunagar. During the year 2019-20, 1300 Integrated Farming System units each comprising Horticulture based farming, Vermicompost, Apiary units, Milch cows, Goats and Poultry birds were established at 50% subsidy. In addition to this, Value addition and farm development activities like Poly green houses,

Shade net, Post-harvest storage structures, Vermi beds, Training and Demonstration were carried out. It has been proposed to implement this scheme during the year 2020-21 with the same components.

Table. 2.11: Area covered under Protected cultivation (2014-15 to 2019-20)

S.No.	Districts	Area in sq.m
1	Krishnagiri	21,96,000
2	The Nilgiris	1,64,800
3	Theni	1,44,100
4	Dindugul	1,81,600
5	Dharmapuri	1,07,500
6	Vellore	62,000
7	Coimbatore	55,000
8	Madurai	47,000
9	Virudhunagar	40,000
10	Pudukottai	37,000
11	Trichirappalli	37,000
12	Thoothukudi	32,000
13	Thirunelveli	30,000
14	Karur	28,000

S.No.	Districts	Area in sq.m
15	Sivagangai	27,000
16	Villupuram	27,000
17	Tiruppur	24,700
18	Kancheepuram	24,000
19	Perambalur	24,000
20	Salem	23,500
21	Tiruvallur	22,000
22	Thiruvannamalai	20,000
23	Thanjavur	15,500
24	Tiruvarur	12,000
25	Namakkal	10,000
26	Cuddalore	8,000
27	Ariyalur	6,000
28	Erode	6,000
29	Kanyakumari	3,500
30	Nagapattinam	2,000
	Total	34,17,100

2.3.4.2. Paramparogat Krishi Vikas Yojana (PKVY)

Under Paramparogat Krishi Vikas Yojana, Organic farming is promoted through adoption of organic village by cluster approach and

Participatory Guarantee System (PGS) of certification. This is a three year continuous programme.

So far, an expenditure of Rs.7.60 Crore has been made to bring an area of 1020 Ha under Organic cultivation. Additionally, an area of 220 Ha is being covered under Organic cultivation at an outlay of Rs.1.60 Crore.

From 2018-19 onwards, 1000 Ha of Mango was brought under Organic cultivation in Krishnagiri District at an outlay of Rs.3.35 Crore.

2.4.Organic Farming

Though self-sufficiency has been attained in food production, Horticulture Department has taken up the challenge of production of Fruits and Vegetables organically without affecting the environment and health. During 2020-21, it has been planned to promote Organic cultivation of Horticulture crops through Paramparagat Krishi

Vikas Yojana, National Horticulture Development Programme and National Horticulture Mission.

Table.2.12: Major Organic Vegetable growing Districts in Tamil Nadu

Sl. No	District	Area (in Ha)
1	Nilgiris	1287
2	Coimbatore	77
3	Dindigul	55
4	Namakkal	49
5	Tiruppur	47
6	Dharmapuri	40
7	Villupuram	27
8	Madurai	22
9	Vellore	20
10	Kancheepuram	18

Source: Department of Seed Certification.

2.5. Integrated Horticulture Development Scheme (IHDS)

This scheme is being implemented with an objective to increase the area under Horticulture Crops. This is a 100% State sponsored scheme.

During 2019-20, this scheme was implemented at an outlay of Rs.31.37 Crore to

expand Horticulture crops in an area of 24,963 Ha to the farmers of 9 Districts viz., Karur, Kancheepuram, Namakkal, Nagapattinam, Tiruvarur, Thiruvannamalai, Tiruvallur, Thoothukudi and Virudhunagar.

During the year 2020-21, this scheme will be implemented with components like Area expansion of Horticultural crops and Protected cultivation etc.

2.6: National AYUSH Mission - Medicinal Plants (NAM-MP)

The scheme **National AYUSH Mission - Medicinal Plants** is being implemented with a sharing pattern of 60:40 between Centre and the State Government. Under this scheme, assistance of 30%, 50% and 75% in the cost of cultivation is extended for growing medicinal plant species. Farmers of all Districts can avail the assistance under this scheme.

In the year 2018-19, this scheme was implemented at an outlay of Rs.1.73 Crore to cover an area of 765 Ha under medicinal plants.

During the year 2019-20, Government of India has approved an amount of Rs.3.06 Crore for the implementation of the scheme. It has been proposed to implement the scheme during 2020-21 also.

2.7:National Bamboo Mission (NBM)

In order to increase the area under bamboo plantation in non-forest Government and private lands, to improve post-harvest management, to promote skill development and awareness generation, National Bamboo Mission has been restructured and launched in 2018-19. During 2019-20, 600 Ha of area is being brought under Bamboo cultivation at an outlay of Rs.2.36 Crore. It has been proposed to implement the scheme during 2020-21 also.

2.8: TNIAMP (IAMWARM II) Project (Tamil Nadu Irrigated Agriculture Modernization Project - Horticulture)

TNIAMP is a multi Disciplinary Project funded by World Bank and implemented by the Government of Tamil Nadu. The main objective of the programme is to accelerate crop diversification from crops requiring more water to high remunerative and less water requiring horticultural crops, through promotion of hi-tech cultivation technologies and water conservation technologies in the proposed sub basins.

It is being implemented to cover an area of 41,916 Ha under Fruits, Hybrid Vegetables, Spices and Flowers cultivation at an outlay Rs. 210 crore in 66 sub basins of 30 Districts from 2018-19 to 2023-24.

During the first year (2018-19), it was implemented in an area of 2,600 Ha under Horticulture crops at an outlay of Rs.17.62 Crore in 18 sub basins of 22 Districts. The innovative

interventions implemented were Horticultural crop demonstration, Promotion of pesticide free vegetables production, Promotion of Micro irrigation, Climate resilience technology of protected cultivation and Mulching.

During 2019-20, this scheme is being implemented with 2,238 Crop Demonstrations at an outlay of Rs.12.21 Crore in 18 sub basins covering 22 Districts as a Phase-I second year programme. In addition to that, 4,656 crop demonstrations at an outlay of Rs.26.73 Crore is also being implemented in 16 sub basins covering 17 Districts in Phase-II First Year programme.

In 2020-2021 this scheme will be implemented at an outlay of Rs.50.48 Crore.

2.9: Pradhan Mantri Fasal Bhima Yojana (PMFBY)

The Government of Tamil Nadu is implementing PMFBY from kharif 2016 onwards in all Districts except Chennai. Under this

scheme, farmers can insure the notified horticulture crops in notified revenue villages.

Under PMFBY, so far, an amount of Rs.160.87 Crore has been disbursed as Compensation claim to 97,525 farmers for Horticulture crops. 2,15,592 farmers have been enrolled covering an area of 1,12,690 Ha in notified Horticulture crops from 2016-17 to 2018-19.

From Kharif 2019-20 onwards, in addition to the already notified six crops viz Banana, Tapioca, Turmeric, Potato, Onion and Red Chillies, **8 annual crops viz., Bhendi, Brinjal, Cabbage, Carrot, Garlic, Ginger, Coriander, Tomato and 3 perennial crops viz Guava, Grapes and Mango** have been notified in order to bring more Horticulture farmers under Crop Insurance.

During the year 2019-20 alone, so far 1,29,114 farmers have been enrolled covering

an area of 46,738 Ha in notified Horticulture crops.

Table.2.13: Crop wise compensation claim disbursement details

Year	Compensation claim (Rs.in Crores)						
	Onion	Red Chillies	Potato	Banana	Tapioca	Turmeric	Total
2016-17	8.610	46.252	4.030	10.137	1.064	3.262	73.355
2017-18	4.638	37.467	2.069	8.724	0.070	3.489	56.726
2018-19	0.912	23.951	0.234	0.067	0.016	5.609	*30.789
Total							160.870

- Disbursement of claim compensation for 2018-19 is in progress.

2.10:Collective Farming

The Government of Tamil Nadu has announced in the Budget speech 2017-18 to implement an innovative programme for organizing small and marginal farmers into Farmer Producer Groups which will be federated into Farmer Producer Organizations to promote collective farming for credit mobilization, better adoption of technology and facilitate effective forward and backward linkages.

Under this Scheme, a Corpus Fund of Rs.50.61 Crore was utilized for the years 2017-18 and 2018-19 for the purchase of 4,445 Machineries which are collectively used for the cultivation purpose of 1010 FPGs. For the year 2019-20, 505 FPGs were formed by the Department of Horticulture with the fund allocation of Rs.25.39 Crore and the purchase of Machineries for the year 2019-20 is under progress.

It is proposed to implement the scheme during the year 2020 -21 also.

2.11:State Horticulture Farms (SHFs)

The main objective of the **State Horticulture Farms** is timely production and distribution of quality pedigree planting materials of Horticulture crops at a reasonable price to the farmers. Further, these farms also serve as "**Model Demonstration Farms**" on the latest technology, farm mechanization and

modern irrigation technologies etc., to the farmers, besides providing employment opportunities to the landless labourers. There are 69 State Horticulture farms functioning under the Department of Horticulture and Plantation Crops.

ISO 9001 Certificate has been obtained for Centre of Excellences, State Horticulture Farms - Madhavaram, Poonjuthi, Burliar, Kanyakumari, Government Botanical Garden, Government Rose Garden, Sims Park, ECO Park Kanyakumari, Palai Heritage Garden, Achadipirambu, Horticulture Park, Madhavaram and Semmozhi Poonga for its quality management system.

During the year 2018-19, 14.36 Crore planting materials were produced in State Horticulture Farms, Parks and Gardens and

distributed to the farmers. This includes, 13.12 Crore protray vegetable and flower seedlings. It has been programmed to produce 25.23 Crore planting materials in the year 2019-20 and 25.16 Crore planting materials have been produced and distributed so far.

2.11.1: Vegetable seed Production in SHFs:

Seed production of Tamil Nadu Agricultural University notified high yielding varieties of vegetable crops was taken up during 2018-19 in addition to planting material production in State Horticulture Farms. As a first phase, 450 kgs of vegetable seeds were produced and utilized for distribution of two Lakh seed kit packets under NADP Home stead Garden Component. 675 kgs of certified vegetable seeds were produced during 2019-20 and are being distributed to the farmers and homestead gardens through various schemes.

During 2020-21, to reduce the dependency on private firms for Vegetable seeds, it has been planned to produce 325 MT of Truth fully labeled seeds of various vegetables in an area of 369 Ha in State Horticulture Farms.

Table .2.14:TFL Vegetable Seed Production in SHF's 2020-21

S. No	Name of the farm	Name of the crop	Area to be utilized for seed production in kg	Producti on Target in kg
1	Anaikatty	Amaranthus	2.00	300
		Bhendi	2.00	2000
		Lablab	2.00	1400
2	Attur	Amaranthus	0.50	75
		Tomato	1.00	125
		Brinjal	0.50	100
3	Bagutham palayam	Ribbed Gourd	0.50	175
		Small Onion	1.00	850
4	Burliar	Bush Beans	0.05	23
		Lablab	0.05	35
5	Colgrain	Bush beans	1.00	450
		Green peas	5.00	5000
		Potato	2.00	30000
		Carrot	2.00	900
6	Devakottai	Amaranthus	0.50	75
		Bhendi	0.50	500
		Moringa	0.50	50
		Small Onion	0.50	425
		Brinjal	0.50	100
7	Devala	Bitter Gourd	1.00	200
		Lablab	1.00	700
		Bush beans	2.00	900
		Vegetable Cowpea	1.00	700

S. No	Name of the farm	Name of the crop	Area to be utilized for seed production in kg	Production Target in kg
8	G.O Karuman durai	Amaranthus	10.00	1500
		Bush beans	5.00	2250
		Bhendi	4.00	4000
		Bitter Gourd	4.00	800
		Brinjal	8.00	1600
		Lablab	8.00	5600
		Pumpkin	3.00	1050
		Snake Gourd	4.00	1200
		Tomato	8.00	1000
		Ash Gourd	3.00	750
		Bottle Gourd	3.00	1350
		Ribbed Gourd	2.00	700
		Vegetable Cowpea	5.00	3500
9	Jeenur	Amaranthus	3.00	450
		Ash Gourd	1.00	250
		Bhendi	1.00	1000
		Cluster Beans	1.00	600
		Ribbed Gourd	1.50	525
		Bottle Gourd	1.50	675
		Pumpkin	1.00	350
		Snake Gourd	1.00	300
Tomato	1.00	125		
10	Kallar	Bush Beans	0.05	23
		Lablab	0.05	35
11	Kannampalayam	Amaranthus	2.00	300
		Bhendi	2.00	2000
		Brinjal	2.00	400
		Tomato	2.00	250
12	Kanyakumari	Bhendi	0.10	100
		Brinjal	0.10	20
		Tomato	0.10	13
13	Keelapalavur	Bhendi	0.40	400
		Small Onion	0.40	340
14	Keelavalanadu	Lablab	1.00	700
		Vegetable Cowpea	1.00	700
		Tomato	1.00	125

S. No	Name of the farm	Name of the crop	Area to be utilized for seed production in kg	Production Target in kg
15	Kiladhari	Bhendi	1.00	1000
		Small Onion	3.00	2550
		Ribbed Gourd	1.00	350
16	Kudappattu	Bhendi	0.10	100
		Brinjal	0.10	20
		Amaranthus	0.10	15
		Tomato	0.10	13
17	Kudumianmalai	Amaranthus	2.50	375
		Cluster beans	3.50	2100
		Moringa	2.00	200
		Brinjal	1.00	200
		Bhendi	1.00	1000
18	Maniyarkundram	Bush beans	5.00	2250
		Bitter Gourd	3.00	600
		Lablab	3.00	2100
19	Marungulam	Bhendi	0.50	500
		Brinjal	0.50	100
		Amaranthus	0.20	30
20	Melkadirpur	Amaranthus	1.00	150
		Brinjal	2.00	400
		Ribbed Gourd	2.00	700
		Small Onion	2.00	1700
		Bhendi	1.00	1000
		Snake Gourd	2.00	600
21	Melottivakkam	Bottle gourd	2.00	900
		Brinjal	2.00	400
		Moringa	2.00	200
		Tomato	2.00	250
		Cluster Beans	2.00	1200
22	Moovanallur	Bhendi	0.50	500
		Ribbed Gourd	0.50	175
23	Mudalaipatti	Tomato	2.50	313
		Bhendi	2.00	2000
24	Mulluvadi	Cluster Beans	3.00	1800
		Lablab	2.00	1400
25	Nanjanad	Bush beans	2.00	900
		Green peas	8.00	8000
		Potato	8.00	120000

S. No	Name of the farm	Name of the crop	Area to be utilized for seed production in kg	Production Target in kg
		Carrot	2.00	900
26	Nattumangalam	Amaranthus	1.00	150
		Brinjal	2.00	400
		Cluster Beans	2.00	1200
		Moringa	1.00	100
		Tomato	2.00	250
		Snake Gourd	2.00	600
		Bhendi	2.00	2000
		Bottle Gourd	2.00	900
		Ribbed Gourd	2.00	700
27	Navlock	Bhendi	1.00	1000
		Cluster Beans	3.00	1800
		Moringa	1.00	100
		Vegetable Cowpea	2.00	1400
28	Nemam	Brinjal	0.25	50
		Tomato	1.00	125
29	Neyveli	Bhendi	0.40	400
		Brinjal	0.20	40
		Bitter Gourd	0.40	80
30	Oriyur	Bitter Gourd	0.50	100
		Ribbed Gourd	0.50	175
		Bottle Gourd	0.50	225
		Snake Gourd	0.50	150
31	Padasolai	Bush beans	2.00	900
		Lablab	2.00	1400
		Vegetable Cowpea	1.00	700
32	Periyakulam	Small Onion	0.50	425
		Tomato	0.20	25
		Bhendi	0.20	200
33	Pitchivakkam	Amaranthus	1.00	150
		Cluster beans	1.00	600
		Ribbed Gourd	1.00	350
34	Polayampalli	Lablab	0.05	35
		Amaranthus	0.05	8
35	Poovani	Tomato	0.10	13
		Bhendi	0.10	100

S. No	Name of the farm	Name of the crop	Area to be utilized for seed production in kg	Producti on Target in kg
36	Pudurchekkadi	Bhendi	0.50	500
		Bitter Gourd	0.50	100
		Brinjal	0.50	100
		Cluster Beans	1.00	600
		Lablab	0.50	350
		Small Onion	2.00	1700
		Amaranthus	0.50	75
		Snake Gourd	0.50	150
		Vegetable cowpea	1.00	700
37	Sandhaiyur	Bhendi	2.00	2000
		Brinjal	2.00	400
		Moringa	2.00	200
		Tomato	1.50	188
		Vegetable Cowpea	1.00	700
		Amaranthus	1.00	150
		Bottle Gourd	0.20	90
		Snake Gourd	1.00	300
38	Sankaramanallur	Bhendi	2.00	2000
		Bitter Gourd	0.50	100
		Brinjal	0.50	100
		Cluster Beans	1.00	600
		Lablab	1.00	700
		Small Onion	2.00	1700
		Snake Gourd	0.50	150
		Amaranthus	1.00	150
		Bottle Gourd	0.50	225
		Ribbed Gourd	0.50	175
		Vegetable Cowpea	1.00	700
39	Sathanur	Ash Gourd	0.40	100
		Bitter Gourd	0.20	40
		Brinjal	0.40	80
		Ribbed Gourd	0.20	70
		Pumpkin	0.40	140
		Snake Gourd	0.20	60

S. No	Name of the farm	Name of the crop	Area to be utilized for seed production in kg	Production Target in kg
40	SHF Karuman durai	Brinjal	0.50	100
		Bhendi	0.50	500
41	Sirumalai (D)	Bush beans	10.00	4500
		Lablab	15.00	10500
42	Sirumalai (S)	Bush beans	2.00	900
		Brinjal	1.00	200
		Tomato	2.00	250
43	Sriviliputhur	Brinjal	2.00	400
		Moringa	2.00	200
		Snake Gourd	1.00	300
		Tomato	1.00	125
		Amaranthus	2.00	300
		Bhendi	2.00	2000
		Ribbed Gourd	1.00	350
44	Thagarakuppam	Bush beans	2.00	900
		Vegetable Cowpea	1.00	700
		Lablab	1.00	700
45	Thandikudi	Bush Beans	0.10	45
		Lablab	0.10	70
46	Thorakudi	Amaranthus	0.20	30
47	Thummanatty	Bush beans	0.40	180
		Potato	0.40	6000
48	Vallathirakottai	Amaranthus	5.00	750
		Bhendi	5.00	5000
		Bitter Gourd	1.00	200
		Brinjal	8.00	1600
		Cluster Beans	7.00	4200
		Lablab	2.00	1400
		Moringa	2.00	200
		Small Onion	5.00	4250
		Vegetable Cowpea	5.00	3500
		Ribbed Gourd	2.00	700
Ash Gourd	2.00	500		

S. No	Name of the farm	Name of the crop	Area to be utilized for seed production in kg	Producti on Target in kg
		Bottle gourd	2.00	900
		Snake Gourd	5.00	1500
		Tomato	4.00	500
49	Vanduvancherry	Brinjal	0.20	40
		Bhendi	0.20	200
50	Vannikonenthal	Cluster beans	0.20	120
51	Vengalam	Brinjal	0.10	20
		Tomato	0.10	13
		Ash Gourd	0.10	25
		Bhendi	0.10	100
52	Vichanthangal	Brinjal	1.00	200
		Pumpkin	1.00	350
		Ash Gourd	1.00	250
53	Vridhachalam	Brinjal	0.20	40
		Moringa	0.20	20
	Total		369.45	325123

2.11.2: Plants as Return Gifts for Public and Private Functions:

In Tamil Nadu, during functions like Birthday Celebration, Wedding Anniversary, Marriage, Engagement, House warming ceremony, opening ceremony of new shops, etc., return gift are given to the guests. For promoting Environment, people like to present tree saplings as return gift, as the trees and

plants live longer and significantly benefit the environment. This programme brings happiness to both the giver and the taker of the plants and promotes growing of trees and plants.

This programme has been launched during the year 2018-19 for distribution of quality fruit plants and planting materials of other Horticultural crops from State Horticulture Farms for public and private functions at a nominal cost. During the year 2018-19, 3,06,209 plants were distributed in functions and during 2019-20, so far, 4,56,930 plants have been supplied. The scheme will be implemented during the next year also.

2.11.3: Farm Tourism:

To impart knowledge on latest Horticultural technologies to students and farmers, Farm tourism was initiated in all State Horticulture Farms, Parks and Gardens throughout the state. This will help the students and people in urban areas to practically

experience farming. This concept has many interesting parts in which the visitors can directly involve in farm activities. They are provided with natural refreshment and gifted with a plant as memento in remembrance of the farm visit. During 2018-19, 12,326 students visited the farms under farm tourism. During 2019-20, 37,646 students have visited the farms. The scheme will be implemented during the next year also.

2.11.4: Coconut seedling production in State Horticulture Farms:

During the Gaja Cyclone, about 60 Lakh coconut trees were uprooted in 12 Districts. Hence, a special programme for production of 20 Lakh Coconut seedlings has been taken up in 40 State Horticulture Farms, out of which so far 15.21 Lakh Coconut seedlings have been distributed to farmers of Gaja Cyclone affected areas. To ensure the availability of coconut seedlings and promotion of plantation crops,

coconut seedlings will be produced and distributed in all the State Horticulture Farms.

During 2020-21, it has been programmed to produce 20 Lakh coconut seedlings in State Horticulture Farms for direct sales to the farmers.

2.11.5: Chocolate Production cum Demonstration Unit:

A chocolate production unit has been commenced in the State Horticulture Farm, Madhavaram at Chennai during 2018-19. In this unit, various types of Chocolates like Milk Chocolate, Dark Chocolate, Milk Chocolate with nuts are being produced from Cocoa beans and being sold in the TANHODA outlets. This unit acts as a demonstration centre for public and students and also to motivate them to start the enterprise on their own and also to impart training on the production aspects which helps in increasing their income.

Works have been commenced to establish similar units in State Horticulture Farms, Periyakulam, Kannampalayam and Kanyakumari.

2.11.6: Incubation cum demonstration centres:

By setting up a demonstration unit on production of value added products like extraction of oleoresins, concrete and essential oils, from Horticulture produce like flowers, chillies, lemon grass, citronella, Moringa, etc., in State Horticulture Farms, training can be imparted to the farmers on processing and value addition, thereby increasing their remuneration and motivating entrepreneurship.

Incubation cum demonstration centre for Horticulture Value Addition Products in 10 State Horticulture Farms viz., Thimmapuram - Krishnagiri District, Kannampalayam - Coimbatore District, Pudurchekkadi - Thiruvannamalai District, Oriyur - Ramnathapuram District, Baguthampalayam - Erode District, Sandhaiyur, Kodaikanal and

Sirumalai - Dindigul District, Colgraine - Nilgiris District, Sirumalai - Salem District are being established at an outlay of Rs. 2.50 Crore.

2.11.7: ECO Horti Tourism in State Horticulture Farms:

Ecotourism focuses on maintaining local culture and environmental protection. The main objective of Eco Tourism is to promote tourism in a sustainable manner in pristine areas. Hence, the State Horticulture Farms located at the foothills may be ideally converted into ecotourism destinations that not only de-stress, but also rejuvenate people.

Infrastructure and basic amenities required for eco-tourism are being developed in the 5 State Horticulture Farms located in the foot hills viz., Giant Orchard, Karumandurai - Salem District, Kallar, Devala - Nilgiris District, Kodaikanal - Dindigul District and ECO Park Courtallam - Tenkasi District at an outlay of Rs. 2.50 Crore.

2.11.8: Fruits and Vegetables Processing Units:

To minimize the post-harvest losses and to utilize the produce effectively, fruits and vegetables may be processed and converted into food products like jam, jelly, squash, crush, pickle, dry fruits, etc. These food products can be stored and used for longer time than the fresh produce.

Five Fruits and Vegetables Processing units are being established in 5 State Horticulture Farms viz., Athur - Chengalpet District, Vallathirakottai - Pudukottai District, Jeenur - Krishnagiri District, Karumandurai - Salem District and Periyakulam - Theni District at an outlay of Rs.2.50 Crore.

2.11.9: Use of Green energy production in State Horticulture Farms:

Green energy comes from natural sources like sunlight and wind. These energy resources are renewable and are naturally replenished and

have lesser impact on the environment. To tap these natural solar energy, the solar panels are being installed in 15 State Horticulture Farms functioning in the Districts of Cuddalore, Kancheepuram, Kanyakumari, Krishnagiri, Pudukottai, Sivagangai, Thanjavur, Theni, Ranipet and Virudhunagar at an outlay of Rs.3 Crore.

2.11.10: Distribution of seed balls:

Trees are mainly propagated through seeds and seed balls are essential to create greener environment by convenient dispersal mechanism for people. The seeds wrapped in seed ball will keep the seed safely until a conducive environment arise for proper germination.

Five Lakh Seed balls have been produced and distributed from State Horticulture Farms in at outlay of Rs.10 Lakh.

2.11.11: Sowing of Palmyrah seednuts:

Palmyrah being the “State Tree of Tamil Nadu” is grown in all types of soil and adverse conditions. During heavy wind or cyclone, Palmyrah will withstand high wind velocity and acts as wind barrier. All parts of Palmyrah tree are used as food, beverage, fibre, fodder, medicinal and timber.

Considering the acute necessity to conserve Palmyrah trees in Tamil Nadu, during 2019-20, about 50 Lakh Number of Palmyrah seed nuts were procured and planted in the public lands and in the boundaries of State Horticulture Farms.

2.11.12 : TANHODA Outlets:

In State Horticulture Farms, various usufructs like fruits, vegetables, flowers, spices, plantation crops, etc and byproducts like Jam, Jelly, Squash, Pickle, etc are produced and sold

in the farm gates. TANHODA outlets ensure that quality produce, products and other materials like farm tools and implements, inputs for potager garden kits, vegetable seeds, Spice boxes, Dry fruit boxes, FPO products, etc are being sold at a nominal price to the public. TANHODA outlet also facilitates the farmers / FPOs to have choice for selling their products at nominal cost without any intermediaries so that they will get more income.

TANHODA outlets are being established in all Districts at a cost of Rs.3.20 Crore. Rs.1 Crore has been obtained by sales of produce and products during 2019-20 in the outlets so far.

2.11.13: Bio-fertilizers and Bio-control Agents Production Units:

Bio-control agents play a vital role in Integrated Pest and Disease management in Horticultural crops.

During 2019-20, works have been commenced to establish Bio-fertilizers and Biocontrol agents production unit in 32 State Horticulture Farms. Works are completed and production has been commenced in 6 State Horticulture Farms viz., Kannampalayam, Sandhaiyur, Baguthampalayam, Poonjuthi, Poovani and Padasolai. So far, 1,988 kg of Biocontrol agents were produced in these units.

2.11.14 : New Innovations:

Department of Horticulture and Plantation crops had introduced **Seed Ganesha for Ganesh Chathurthi** and **Seed Crackers for Diwali** to create awareness among the public about the pollution caused to the environment by using fire crackers. Nearly 920 Seed Ganesha and 500 Seed cracker boxes have been purchased by the public for festivals, marriages and other functions.

To promote greenery, during **Christmas** 1500 nos of **Christmas tree (*Araucaria excelsa*)** were distributed to public in Chennai.

During 2020-21, it has been planned to form plant health centres and Crop advisory cum Market intelligence cell which would function with an aim to help the farmers to forecast the market price, crop advisory, season and region based remunerative crop cultivation. In addition, this cell will continuously monitor and forecast the price trend in different markets and advise the farmers to move their produce to the place of demand or to convert their produce into value added produce to get assured returns.

2.11.15: Works in Progress:

Modernization works are being carried out in 6 State Horticulture farms namely, Melkadirpur in Kancheepuram District, Virudhachalam in Cuddalore District, Sandhaiyur in Dindigul District, Padasolai in Namakkal District,

Mudalaipatti in Karur District and Navlock in Vellore District at an outlay of Rs.5.83Crore.

For utilizing the unutilized land in 5 State Horticulture Farms viz, Poovani (Virudhunagar District), Mudalaipatti (Karur District), Vallathirakottai (Pudukottai District), Kudumiyamalai (Pudukottai District) and Jeenur (Krishnagiri District), works are being carried out at an outlay of Rs.2.67 Crore.

Under NABARD – RIDF Fund, 19 State Horticulture Farms in 10 Districts are being strengthened with additional infrastructure utilizing an amount of Rs.20.76Crore.

New Horticulture nurseries are being established at Kilathari in Sivagangai District, Ekkadu in Tiruvallur District and Pushpavanam in Nagapattinam Districts.

As per the announcement made by the **Hon'ble Chief Minister** of Tamil Nadu, during

the trifurcation function of Vellore District, steps have been taken to commence a new State Horticulture Farm at Agaramcheri in Vellore District.

Table.2.15: List of State Horticulture Farms

Sl. No.	District	Name of the SHF	Year of Establishment	Area in Ha.
1	Ariyalur	Keelapalavur	2018	7.58
2	Chennai	Madhavaram	1980	4.38
3	Coimbatore	Anaikatty	1986	12.00
4		Kannampalayam	2001	11.20
5	Cuddalore	Neyveli	1985	39.53
6		Vridhachalam	1975	10.43
7	Dharmapuri	Polayampalli	2013	2.73
8	Dindigul	Sandhaiyur	2018	15.20
9		Kodaikanal	1961	1.73
10		Thandikudi	1985	5.45
11		Sirumalai	1980	192.04
12		Center of Excellence Reddiyarchatram	2012	5.30
13	Erode	Baguthampalayam	2018	10.00
14	Chengalpet	Attur	1961	12.24
15	Kancheepuram	Vitchanthangal	1982	23.25
16		Melkadirpur	1982	42.63

Sl. No.	District	Name of the SHF	Year of Establishment	Area in Ha.
17		Melottivakkam	1982	20.60
18		Pichivakkam	1982	34.00
19	Kanyakumari	Kanyakumari	1922	12.64
20		Pechiparai	1967	6.00
21	Karur	Mudalaipatti	1978	23.96
22	Krishnagiri	Thimmapuram	1952	9.51
23		Jeenur	1980	121.96
24		Centre of Excellence, Thally	2012	22.00
25	Madurai	Poonjuthi	2012	5.76
26		Centre of Excellence, Thiruparangundram	2019	2.25
27	Nagapattinam	Vanduvancherry	2018	6.54
28	Namakkal	Semmedu	1974	11.60
29		Padasolai	1989	22.67
30	Perambalur	Vengalam	2018	4.72
31	Pudukottai	Kudumianmalai	1974	118.68
32		Vallathirakottai	1977	521.20
33		Nattumangalam	1985	53.02
34	Ramnad	Oriyur	2013	14.77
35	Salem	G.O. Karumandurai	1981	409.77
36		Maniyarkundram	1982	100.00
37		SHF, Karumandurai	1981	39.35
38		Mulluvadi	1985	48.40

Sl. No.	District	Name of the SHF	Year of Establishment	Area in Ha.
39		Sirumalai	1987	8.00
40		SHF Yercaud	1975	10.26
41		Devakottai	1985	81.19
42		Nemam	1979	38.77
43	Sivagangai	Kilathari	2019	12.81
44		Aduthurai	1988	8.90
45	Thanjavur	Marungulam	1966	10.70
46		Burliar	1871	6.25
47		Kallar	1900	5.40
48		FPU Coonoor	1965	4.05
49		PS Coonoor	1948	10.46
50		Kottery	1974	16.96
51		Doddabetta	1969	2.52
52		Thummanatty	1956	9.80
53		Nanjanad	1917	64.00
54		Devala	1978	68.00
55	The Nilgiris	Colgraine	1989	20.40
56	Theni	Periyakulam	1950	9.32
57	Thoothukudi	Keelavalanadu	2018	3.82
58	Thiruvarur	Moovanallur	2018	8.87
59	Tiruppur	Sankaramanallur	2018	10.12
60	Tirunelveli	Vannikonenthal	2018	10.86
61	Thiruvannamalai	Pudur chekkadi	2018	12.76
62	Trichirappalli	Thorakudi	2013	4.05

Sl. No.	District	Name of the SHF	Year of Establishment	Area in Ha.
63		Center of Excellence, Kanjanaickenpatti	2019	8.00
64	Thirupattur	Thagarakuppam	1985	24.40
65		Kudapattu	1961	10.08
66	Ranipet	Navlock	1981	84.42
67	Kallakurichi	A.Sathanur	2018	10.00
68	Virudhunagar	Poovani	1967	9.46
69		Srivilliputhur	1982	46.27
Total				2635.99

2.12: Parks and Gardens

- The Horticulture Department maintains 27 Parks in 9 Districts of the State. Parks act as recreation centres for the visitors and tourists. It also serves as an educational centre for students and Botanists.
- The Government Botanical Garden in Nilgiris has been face lifted through construction of glass house, fern house, flower galleries and modernization of existing infrastructure facilities at an outlay of Rs.3.89 Crore to attract more numbers of tourists throughout the year.

- Face-lifting of Bryant Park, Kodaikanal is being carried out at an outlay of Rs.6.80 Crore to attract more number of visitors.
- Rose garden and Cut flower demo garden at Kodaikanal which was established at an outlay of Rs.11.05 Crore, was inaugurated by the **Hon'ble Chief Minister** on 19.05.2018.
- ECO Park at State Horticulture Farm, Kanyakumari established in an area of 15 acre at a cost of Rs.4 Crore was inaugurated by the **Hon'ble Chief Minister** on 05.04.2018.
- A new Horticulture Park at Madhavaram, Chennai was established with special features and this park provides recreation to the visitors and walkers in that area.
- ECO Park Courtallam has been upgraded at an outlay of Rs. 1 Crore.
- As announced by the **Hon'ble Chief Minister** of Tamil Nadu under 110 rule on the Floor of the Assembly during 2019-20, Horticulture Heritage Garden is being established at Washermanpet at a cost of Rs.5 Crore.

- As per the announcement made by the **Hon'ble Chief Minister** of Tamil Nadu, steps are being taken to establish a new world class Government Botanical Garden at Yelagiri in Tirupathur District in an outlay of Rs. 50 Lakh.
- Works have been commenced for the establishment of Government Botanical Garden at Vathalmalai in Dharmapuri District at a cost of Rs. 5 Crore.

Table.2.16: Details of Parks & Gardens

Sl. No	District	Name of the Park / Garden	Area (Ha)	Total No. of visitors during 2018-19
1	Chennai	Semmozhi Poonga, Chennai	3.17	4,62,536
2		Horticulture Park Madhavaram	8.5	44,126
3	Dharmapuri	Vathalmalai	34.67	-
4	Dindigul	Bryant Park and Anna Park, Kodaikanal	7.93	4,36,877
5		Chettiyar Park, Kodaikanal	2.02	99,783
6		Rose Garden cum Cut Flower Demonstration Model Unit, kodaikanal	4	15,729
7		Eco park, Sirumalai	5	-

Sl. No	District	Name of the Park / Garden	Area (Ha)	Total No. of visitors during 2018-19
8		Eco park, Thandikudi	1.25	-
9	Kanyakumari	Eco Park, Kanayakumari	6	1,91,462
10	Ramnad	Palai genetic Garden, Achadiprambu	4	67,435
11	Salem	Rose Garden, Yercaud.	5.2	85,461
12		Lake View Park, Yercaud	1.27	47,972
13		Kurinji Genetic Garden, Yercaud	10	74,686
14		Government Botanical Garden, Yercaud-1	8.1	7,875
15		Government Botanical Garden, Yercaud-2	8.1	5,832
16		Anna Park, Yercaud	1.87	2,40,336
17		Eco Park, Karumandurai	10	-
18	The Nilgiris	Government Botanical Garden, Ooty	22	28,91,417
19		Government Rose Garden, Ooty	14.4	10,92,373
20		Sim's Park, Coonoor	12.14	6,39,019
21		Kattery Park	2	95,266
22		Tea Park at Doddabetta	1.7	87,877
23		Arboretum	1.58	30,300

Sl. No	District	Name of the Park / Garden	Area (Ha)	Total No. of visitors during 2018-19
24		Eco park, Kallar	3.5	-
25		Eco park, Devala	12	-
26	Tenkasi	ECO Park, Courtallam	14.89	25,294
27	Tirupatur	Thagarakuppam	10	-
	Total		215.3	

2.13: Tissue Culture Unit:

Tissue Culture Laboratory in the premises of Government Botanical Garden, Ooty was renovated at a cost of Rs.30 Lakh and production of tissue culture plants of fruit crops like Strawberry and flowering plants has been commenced in this unit.

Tissue Culture Laboratory was also established in the premises of State Horticulture Farm, Madhavaram at a cost of Rs.1.25 Crore. In this unit, production of tissue culture plants of fruit crops like Banana, Ornamental plants and flowering plants has been commenced.

2.14: Cold storage facility:

Cold storage facility of 500 MT capacity was established by Agricultural Marketing and Agri Business through Supply Chain Management Project in Government Rose Garden, Ooty and it is being utilized by the Horticulture Department for storing Horticultural produce like Seed potatoes and other produce.

2.15: Horticulture Shows:

Fruit and Flower Shows are being conducted every year during summer season in Parks and Gardens to attract tourists from around the world. Flower shows are organized in Parks and Gardens at Ooty, Yercaud, Kodaikanal and Kanyakumari. Fruit show at Sim's park, Coonoor, Mango show at Krishnagiri, Vegetable show at Kothagiri and Spice show at Gudalur are very popular among tourists 'Saral vizha' is conducted at Eco Park, Coutralam in Tirunelveli which attracts tourists in large number.

2.16: Landscape wing of TANHODA:

TANHODA is maintaining 27 Parks and Gardens all over the State with a beautiful landscape with the help of the technical people in this Department. In urban areas and cities like Chennai, Coimbatore, Trichirappalli and Madurai, landscape is gaining more popularity as people are interested in creating greenery in their surroundings. At present, only private landscape firms without any technical background are involved in landscape activities and get higher profits.

Hence, TANHODA has established landscape wing which has all technical people required for design and execution of the projects. This wing takes up projects on establishment of new landscape, maintenance of existing landscape, kitchen garden, rooftop / terrace garden, etc for various departments, industries and public depending upon their

requirement at a nominal cost. At present, landscape works of Amma Green Park, Guindy, Chennai is being executed by the Landscape wing of TANHODA.

2.17: Horticulture Training Centres

The key objective of the four Horticulture Training Centres functioning at Madhavaram in Chennai, Kudumianmalai in Pudukkottai, Thally in Krishnagiri and Ooty in The Nilgiris, under the Department of Horticulture and Plantation Crops is to impart training to farmers in advanced Horticulture crop cultivation technologies.

In the year 2019-20, Hi-tech horticulture crop cultivation training has been imparted to 3,000 farmers at an outlay of Rs.7.50 Lakh.

During the year 2020-21, it is programmed to impart, hi tech crop cultivation training to 3,000 farmers at an outlay of Rs.7.50 Lakh.

2.17.1: Diploma in Horticulture

Two years Diploma in Horticulture is being offered at Tamil Nadu Horticulture Management Institute, Madhavaram, Chennai, Horticulture Research and Training Centre, Thally, Krishnagiri and Centre of Excellence for Vegetables-Rediyarchathiram, Dindigul with the intake of 50 students annually in each centre.

2.18 :Tamil Nadu Horticulture Development Agency (TANHODA)

Tamil Nadu Horticulture Development Agency is a "Special Purpose Vehicle" functioning since 2004 for implementing various Horticulture Schemes funded by Government of India and Government of Tamil Nadu. It is a registered society under Tamil Nadu Societies Registration Act, 1975.

The schemes operated through TANHODA are

1. Mission on Integrated Development of Horticulture -National Horticulture Mission.

2. Pradhan Mantri Krishi Sinchayee Yojana(PMKSJ)
3. National AYUSH Mission – Medicinal Plants,
4. National Agroforestry and Bamboo Mission,
5. TNIAMP - Tamil Nadu Irrigated Agriculture Modernization Project.
6. 69 State Horticulture Farms and 27 Parks and gardens under the control of Department of Horticulture and Plantation crops.

2.19. Tamil Nadu Horticultural Producers Co-operative Enterprises Ltd (TANHOPE) XN876/94

Tamil Nadu Horticultural Producers Cooperative Enterprises Limited (TANHOPE) was registered on 21.10.1994 as a Primary Horticultural Cooperative Society under Tamil Nadu Cooperative Societies Act 1983 under Section 30. A Managing Committee was formed consisting of 14 members of Horticulture Crop growers as per By-law.

2.20: Staff Strength

To provide Horticultural Technologies and Government schemes to farmers and to coordinate departmental activities, staffs are working in Block, District and State level under the Horticulture department.

During 2018-19, 267 posts (196 Horticulture officers and 71 Assistant Director of Horticulture) were filled on direct recruitment and during 2019-20 130 posts (100 Assistant Director of Horticulture, 26 Deputy Director of Horticulture and 4 Joint Director of Horticulture) were filled by promotion for the upliftment of Horticulture Department.

Table 2.17: Sanctioned Strength

S.No	Designation	Total Nos of posts
1	Technical Staff	2,610
2	Non Technical Staff	1,223
Total		3,833

Table 2.18 : Cadre detail

S.No	Staff details	Total No of posts
1	Additional Director of Horticulture	2
2	Joint Director of Horticulture	6
3	Deputy Director of Horticulture	39
4	Assistant Director of Horticulture	398
5	Horticulture Officer	404
6	Deputy Horticulture Officer	123
7	Assistant Horticulture Officer	1,633
8	Assistant Seed Officer	5
9	Non Technical Staff - (Deputy Director (Admin), Chief Account Officer, Administrative officer, Accounts Officer, Assistant Accounts Officer, Superintendent, Assistant, Junior Assistant, other posts)	1,223
Total		3,833

3. AGRICULTURAL ENGINEERING

3.1. Introduction

Agricultural Engineering Department plays a vital role in sustainable development of agriculture and allied activities by promoting the use of scientific and engineering techniques in the agricultural sector for the benefit of farming community. Tamil Nadu is the pioneer state in the country which has formed an exclusive Agricultural Engineering Department (AED) for promotion of major Agricultural Engineering activities viz., Soil and Water conservation, Water Management, Agricultural Mechanization, Post Harvest Technology and Management, Solar Energy in Agriculture and Strengthening of Farm Infrastructure. Agricultural Engineering interventions help to conserve the soil and water, improve the farm power availability, promote climate resilient technologies and make

farming remunerative by educating the farmers in agricultural processing and value addition technologies, thereby avoiding the migration of rural youth to urban localities.

3.2. Functions of Agricultural Engineering Department

- a) Solar Energy in Agriculture
- b) Agricultural Mechanization
- c) Soil and Water Conservation
- d) Post Harvest Technology and Management
- e) Water Management
- f) Infrastructure

3.3. Solar Energy in Agriculture

Solar based solution for pumping water for irrigation and drying of agricultural produce has become popular and alternate technology, as it is eco-friendly system, with low maintenance and no recurring cost to the farmers. Hence, in order to promote the utilization of solar energy

among the farmers for the farming operations on a large scale, Government is promoting the use of the solar energy in agriculture by providing subsidy assistance to the farmers.

3.3.1. Provision of Off-Grid Standalone Solar Powered Pumping Systems

To help the farmers to meet their energy demand for irrigation with no recurring cost, by using a climate smart technology, the State Government took the initiative of promotion of solar powered pumping systems with subsidy assistance to the farmers in the year 2013-14. From the year 2013-14 to 2018-19, totally 4,826 solar powered pumping systems have been installed in the farmers' fields at a total subsidy of Rs.185.77Crore. The total capacity of the installed solar powered pumping systems is 27.33 MW and the savings in electrical energy obtained is about 3.65 Crore units per year.

Ministry of New and Renewable Energy (MNRE), Government of India has launched a new programme during 2019-20 viz., Pradhan Mantri Kisan Urja Surakshaevam Utthaan Mahabhiyaan (PM-KUSUM) scheme for the promotion of solar energy. Sanction has been obtained from MNRE to the State for installation of 17,500 off-grid standalone solar powered pumping systems from 5 hp to 10 hp capacity with a validity of one year period. The rates and the companies for the implementation of the scheme have been finalized by MNRE through centralized tender. The Letter of Award (LoA) has also been issued to the companies for the implementation of the programme. The programme is started with 70% subsidy to the farmers, for the installation of 4,000 solar powered pumpsets in Phase I during the year 2019-20 with the subsidy assistance of Rs.107.31 Crore. It is proposed to implement

the installation of 13,500 solar powered pumpsets in Phase II, during the year 2020-21 with the subsidy assistance of Rs.365.54 Crore.

3.3.2. Solar Drying Units

In comparison to the traditional way of drying in an open field, a solar drier prevents contamination of produce by dust, insects, etc., thereby ensuring quality and increasing the shelf life of agricultural produce and reducing the post harvest losses. The solar driers help the farmers to transform their harvest into storable and tradable goods, which they can sell during off-season at higher prices. It also helps the farmers to move to the next chain of value addition, by way of which farm income could be increased.

From the year 2014-15 to 2018-19, totally 249 solar drying units with floor area ranging from 400 to 1,000 sq.ft have been installed in

the farmers' fields under National Agriculture Development Programme (NADP) with the subsidy assistance of Rs.5.24 Crore for primary processing and value addition of agricultural produce. The farmers are effectively using the solar drier for drying of various agricultural produces like Coconut, Chillies, Banana, Tomato, Moringa leaves, Curry leaves, Herbal leaves, Cloves, Ginger, Maize and Gingelly etc., During the year 2019-20, Government have sanctioned a sum of Rs.3 Crore as subsidy for the installation of solar drier to Farmers and Farmer Groups. Installation of solar driers for 109 farmers has been completed at a subsidy of Rs.2.71 Crore and the scheme is continued.

It is proposed to provide solar driers to the Farmers and Farmer Groups under National Agriculture Development Programme (NADP) with total subsidy assistance of Rs.2 Crore during the year 2020-21.

3.4. Agricultural Mechanization

For improving the farm power availability at farm level, increasing the agricultural production and productivity by utilizing the available resources and costly farm inputs efficiently and effectively, Agricultural Mechanization plays a key role. The optimum application of seeds, manures, fertilizers, weedicides and pesticides at right time, besides mitigation of labour shortage, reduction in duration for agricultural activities, elimination of hazards and drudgery of different farming operations are possible through Agricultural Mechanization resulting in higher net income of the farmer.

3.4.1. Hiring activities of the Department

Land Development and Minor Irrigation Machinery are hired out to the needy farmers by Agricultural Engineering Department.

3.4.1.1. Land Development Machinery

Agricultural Engineering Department has a fleet strength of 77 Bull Dozers for land levelling and land shaping, 162 Tractors for ploughing and other farming operations and 42 Paddy Combine harvesters. These machinery are hired out to the needy farmers at subsidised hire charges fixed by the Government.

The district wise details of Land Development Machinery available for farmers at subsidised hire charges are furnished in Table.3.1(a) and 3.1(b).

Table 3.1(a).District wise availability of Land Development Machinery

Sl. No.	District	Bull dozer	Tractor
1	Kancheepuram	1	2
2	Chengalpattu	4	7
3	Tiruvallur	4	5
4	Cuddalore	4	10
5	Villupuram	2	5
6	Kallakurichi	2	4

Sl. No.	District	Bull dozer	Tractor
7	Vellore	1	2
8	Ranipet	1	2
9	Tirupattur	-	2
10	Tiruvannamalai	2	3
11	Dharmapuri	2	3
12	Krishnagiri	3	3
13	Salem	2	5
14	Namakkal	3	4
15	Coimbatore	3	3
16	Erode	2	6
17	Tiruppur	4	2
18	Tiruchirapalli	3	5
19	Ariyalur	2	4
20	Perambalur	1	2
21	Karur	2	3
22	Pudukottai	2	4
23	Tiruvarur	2	16
24	Thanjavur	3	13
25	Nagapattinam	-	14
26	Dindigul	4	4
27	Madurai	3	4

Sl. No.	District	Bull dozer	Tractor
28	Theni	2	4
29	Sivagangai	2	2
30	Ramanathapuram	2	3
31	Virudhunagar	2	4
32	Thoothukudi	3	5
33	Tirunelveli	2	4
34	Tenkasi	1	2
35	The Nilgiris	1	1
Total		77	162

Table 3.1(b).District wise availability of Paddy Combine Harvester

Sl. No.	District	Paddy Combine Harvester
1	Chengalpattu	2
2	Tiruvarur	9
3	Thanjavur	8
4	Nagapattinam	9
5	Madurai	4
6	Tirunelveli	10
Total		42

3.4.1.2. Purchase of New and Innovative Agricultural Machinery

New and innovative machinery are introduced to the farmers through Agricultural Mechanization programme by Agricultural Engineering Department and these machinery are being utilized by the farmers for various farming operations.

To help the farmers who cannot afford to buy high cost agricultural machinery, Government have decided to purchase new and innovative agricultural machinery at a cost of Rs.142 Crore for Agricultural Engineering Department for hiring activities at nominal hire charges to the farmers.

For the maintenance and deepening of water harvesting structures and also clearing jungles and bushes in inflow channels created by the Tamil Nadu Watershed Development Agency,

56 new machinery are to be purchased from the Watershed Development Fund by the Agricultural Engineering Department at a cost of Rs.9.93Crore. A sum of Rs.78Crore has been sanctioned under Integrated Watershed Management Programme (IWMP) to the Agricultural Engineering Department for the purchase and maintenance of 814 new agricultural machinery and implements for hiring out to farmers and the action is being taken up.

To renovate the Minor Irrigation Tanks and strengthening of custom hiring activities, administrative sanction has been accorded and action is being taken up to purchase new machinery to Agricultural Engineering Department at a cost of Rs.52.53 Crore under NABARD assistance.

To maintain and strengthen the banks of water bodies and to increase their capacity by

deepening, machinery like Backhoe with Front end Loader, Bulldozer and Total Station etc., are to be purchased for Agricultural Engineering Department and the action is being taken up.

To strengthen hiring activities of Agricultural Engineering Department, action is being taken up to purchase Agricultural Machinery and Implements viz., Tractors, Tractor operated Chisel Plough, Rotavator, Groundnut Digger, Groundnut Combine Harvester and Multi Crop Thresher to the Agricultural Engineering Department and hire out to farmers at nominal hire charge.

To promote mechanization in Sugarcane cultivation, action is being taken up to purchase Sugarcane Detrasher, Sugarcane harvester, Sugarcane stubble shavers and Sugarcane trash shredders, by the Agricultural Engineering Department under hiring activities and to hire out at nominal hire charges for the benefit of

farmers. Also, new and innovative machinery are to be introduced to facilitate the coconut growers by Agricultural Engineering Department.

During the year 2019-20, for the installation of micro irrigation systems for water management, action is being taken up to purchase Trench cutting machines for laying the PVC pipelines at a cost of Rs.1.54 Crore under National Agriculture Development Programme to strengthen the hiring activity.

3.4.1.3. Minor Irrigation Machinery

To cater the needs of the farming community, Agricultural Engineering Department owns 25 Rotary drills in Tiruvallur, Cuddalore, Pudukottai, Tiruvarur and Thanjavur districts for sinking of tube wells in alluvial soil areas, 4 Percussion drills in Tiruvallur district to work in selected alluvial areas and hard rock areas and 25 Mini Drills in Tiruvarur, Thanjavur and Nagapattinam districts.

Further, 28 Hand Boring Sets for sinking of shallow tube wells, 15 Rock Blasting Units for deepening of open wells as well as for blasting and removing rock out crops in farm lands, 21 Digital Resistivity Meters for divining ground water availability for drilling tube wells and bore wells and 2 Electrical Loggers for assessing the lithology are also owned by Agriculture Engineering Department.

3.4.1.4. Disaster Management Machinery

For carrying out relief operation during floods and other natural calamities, Agricultural Engineering Department has 16 tractor operated pumps, 805 Heavy Duty Chain Saws, 61 Trailers and 107 Tractor PTO operated Shredder cum Pulverisers. These machinery are hired out to the farmers in addition to Bulldozers and Tractors for disaster relief works.

The details of Disaster Management Machinery available with the Department are furnished in Table.3.2.

Table3.2.District wise availability of Disaster Management Machinery

Sl. No	District	Tractor operated pumps	Tractor PTO operated shredder cum Pulverisers	Heavy Duty Chain Saws	Tractor Trailers
1	Kancheepuram	-	1	-	1
2	Chengalpattu	4	4	50	2
3	Tiruvallur	3	4	50	-
4	Cuddalore	1	6	150	2
5	Villupuram	1	3	50	3
6	Kallakurichi	-	4	-	1
7	Vellore	-	1	-	1
8	Ranipet	-	1	-	2
9	Tirupattur	-	-	-	2
10	Tiruvannamalai	-	2	-	1
11	Dharmapuri	-	1	-	-
12	Krishnagiri	-	1	-	2
13	Salem	-	2	-	3
14	Namakkal	-	2	-	-
15	Coimbatore	-	4	-	2

Sl. No	District	Tractor operated pumps	Tractor PTO operated shredder cum Pulverisers	Heavy Duty Chain Saws	Tractor Trailers
16	Erode	-	4	-	-
17	Tiruppur	-	2	-	-
18	Trichy	-	5	-	2
19	Ariyalur	-	2	-	1
20	Perambalur	-	1	-	1
21	Karur	-	2	-	2
22	Pudukottai	-	2	100	2
23	Tiruvarur	3	13	100	7
24	Thanjavur	-	11	150	4
25	Nagapattinam	4	9	155	4
26	Dindigul	-	2	-	2
27	Madurai	-	3	-	2
28	Theni	-	3	-	2
29	Sivagangai	-	2	-	2
30	Ramanathapuram	-	2	-	1
31	Virudhunagar	-	2	-	2
32	Thoothukudi	-	3	-	3
33	Tirunelveli	-	2	-	1
34	Tenkasi	-	1	-	-
35	The Nilgiris	-	-	-	1
	Total	16	107	805	61

3.4.2. Promotion of Agricultural Mechanization

Government of Tamil Nadu is giving more emphasis to increase the farm power availability by promoting Agricultural mechanization among the farming Community. Assistance is extended for the purchase of agricultural machinery and implements to the individual farmers, establishment of Hi-Tech machinery hub, Custom Hiring Centres at Block and Village level under "Sub Mission on Agricultural Mechanization (SMAM)".

Direct Benefit Transfer (DBT) – a web based application software is being adopted from 2018-19 for the distribution of agricultural machinery and implements to the individual farmers. The registration of manufacturers, farmers and dealers; uploading the joint photograph comprising of machinery, dealer and farmer; joint verification photograph comprising

of machinery, farmers and department engineer; subsidy approval etc., are done through online in the Government of India DBT portal www.agrimachinery.nic.in

Every year, “Agricultural Machinery and Implements Manufacturing Firms” are being empanelled and approved by Agricultural Engineering Department based on the test report given by the Farm Machinery Training and Testing Institutes and Government of India approved institutions through DBT portal. The beneficiaries can select any type of empanelled and approved agricultural machinery and implements as per their choice for individual machinery and establishment of Custom Hiring Centres.

3.4.2.1. Distribution of Agricultural Machinery and Implements to the Individual Farmers

Under Sub Mission on Agricultural Mechanization (SMAM), the subsidy assistance of

50% to Small, Marginal, SC, ST and Women farmers and 40% to other farmers or the maximum permissible subsidy amount fixed by Government of India whichever is less is given for the distribution of agricultural machinery and implements like Tractor, Power Tiller, Rotavator, Paddy Transplanter, Tractor and Power Tiller driven implements, Power Weeder, Chaff Cutter, Brush Cutter, Multi Crop Thresher, Baler, Coconut Frond Chopper, Sugarcane Stripper, Sugarcane Trash cutter and Combine Harvester etc.

The Government have issued orders to distribute 8,189 agricultural machinery and implements with the subsidy assistance of Rs.160.89 Crore during the year 2019-20. So far, 7,375 agricultural machinery and implements were distributed to the farmers through DBT portal with the subsidy assistance of Rs.138.70 Crore to the farmers and the scheme is continued.

During the year 2020-21, it is proposed to distribute 7,396 agricultural machinery and implements with the subsidy assistance of Rs.201.41 Crore under Sub Mission on Agricultural Mechanisation (SMAM) to the farmers.

Table3.3. Cost norms and Pattern of Assistance under Sub Mission on Agricultural Mechanisation (SMAM) for the distribution of Agricultural Machinery and Implements

(Rs. in lakh)

Sl. No.	Name of the Agricultural Machinery and Implements	For Small, Marginal, SC, ST and Women farmers		For other farmers	
		Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance	Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance
1	Tractor 2 Wheel Drive (8-20 PTO HP)	2.00	50%	1.60	40%
2	Tractor 4 Wheel Drive (8-20 PTO HP)	2.25	50%	1.80	40%
3	Tractor 2 Wheel Drive (above 20-40 PTO HP)	2.50	50%	2.00	40%
4	Tractor 4 Wheel Drive (above 20-40 PTO HP)	3.00	50%	2.40	40%
5	Tractor 2 Wheel Drive (above 40-70 PTO HP)	4.25	50%	3.40	40%
6	Tractor 4 Wheel Drive (above 40-70 PTO HP)	5.00	50%	4.00	40%

Sl. No.	Name of the Agricultural Machinery and Implements	For Small, Marginal, SC, ST and Women farmers		For other farmers	
		Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance	Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance
7	Power tiller (8 BHP and above)	0.85	50%	0.70	40%
8	Self Propelled Rice Transplanter (4 rows)	1.50	50%	1.20	40%
9	Self Propelled Rice Transplanter (above 4-8 rows)	5.00	50%	4.00	40%
10	Post Hole Digger / Augur (Self Propelled)	0.75	50%	0.60	40%
11	Power Weeder (engine operated below 2 BHP)	0.25	50%	0.20	40%
12	Brush Cutter (Operated by engine/electric motor below 3 HP)	0.30	50%	0.25	40%
13	Chaff Cutter (Operated by engine / electric motor below 3 HP and by power tiller and tractor of below 20 BHP tractor)	0.20	50%	0.16	40%
14	Power Weeder (engine operated above 2 BHP)	0.35	50%	0.30	40%
15	Trailer / Trolley (upto 3 Ton capacity)	0.60	50%	0.50	40%

Sl. No.	Name of the Agricultural Machinery and Implements	For Small, Marginal, SC, ST and Women farmers		For other farmers	
		Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance	Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance
16	Chaff Cutter (Operated by engine / electric motor above 3-5 HP and by power tiller and tractor of below 35 BHP tractor)	0.28	50%	0.22	40%
Tractor (above 35 BHP) driven equipments					
17	Mould Board Plough	0.50	50%	0.40	40%
18	Disc Plough	0.50	50%	0.40	40%
19	Cultivator	0.50	50%	0.40	40%
20	Harrow	0.50	50%	0.40	40%
21	Reversible Mechanical plough (2 bottom)	0.40	50%	0.32	40%
22	Reversible Mechanical plough (3 bottom)	0.50	50%	0.40	40%
23	Laser Land Leveller	2.00	50%	1.60	40%
24	Rotavator 5 feet	0.42	50%	0.34	40%
25	Rotavator 6 feet	0.448	50%	0.358	40%
26	Reversible Hydraulic plough (2 bottom)	0.70	50%	0.56	40%

Sl. No.	Name of the Agricultural Machinery and Implements	For Small, Marginal, SC, ST and Women farmers		For other farmers	
		Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance	Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance
27	Reversible Hydraulic plough (3 bottom)	0.895	50%	0.716	40%
28	Ridge Moulder / Bund former (PTO operated)	1.50	50%	1.20	40%
29	Seed cum fertilizer drill/ Zero till seed cum fertilizer drill -9 tynes	0.213	50%	0.170	40%
30	Seed cum fertilizer drill/ Zero till seed cum fertilizer drill - 11 tynes	0.241	50%	0.193	40%
31	Tractor drawn crop reaper	0.75	50%	0.60	40%
32	Post Hole digger	0.75	50%	0.60	40%
33	Groundnut Digger	0.75	50%	0.60	40%
34	Thresher/Multi Crop threshers upto 4 ton/ hr capacity	1.00	50%	0.80	40%
35	Infielder	0.63	50%	0.50	40%
36	Combine Harvester (self propelled, upto 14 feet cutter bar)	8.00	50%	6.40	40%
37	Combine Harvester (track, 6 - 8 feet cutter bar)	11.00	50%	8.80	40%

Sl. No.	Name of the Agricultural Machinery and Implements	For Small, Marginal, SC, ST and Women farmers		For other farmers	
		Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance	Maximum Permissible subsidy per machine/ equipment per farmer	Pattern of Assistance
38	Combine Harvester (track , below 6 feet cutter bar)	7.00	50%	5.60	40%
39	Thresher / Multi Crop threshers (above 4 ton/ hr capacity)	2.50	50%	2.00	40%
40	Sugarcane thrash Cutter	1.25	50%	1.00	40%
41	Coconut Frond chopper	0.63	50%	0.50	40%
42	Hay Rake	1.50	50%	1.20	40%
43	Baler (Round) (14-16 kg per bale)	2.00	50%	1.60	40%
44	Baler (Round) (above 16-25 kg per bale)	5.50	50%	4.40	40%
45	Baler (Rectangular) (18-20 kg per bale)	6.00	50%	4.80	40%
46	Sugarcane Stubble shaver	0.80	50%	0.64	40%

3.4.3. Establishment of Agricultural Machinery Custom Hiring Centres

In order to help the Small and Marginal farmers who are not in a position to purchase and maintain Hi-tech and costly farm machinery on their own, block level and village level custom hiring centres are established by Progressive Farmers, Farmer Groups, Entrepreneurs and Farmer Producer Organisations (FPOs) with subsidy assistance. These Custom Hiring Centres are hiring out the agricultural machinery, implements and equipments to the needy farmers on nominal hire charges.

3.4.3.1. Hi - Tech Sugarcane based Custom Hiring Centres

To promote the mechanization activity in Sugarcane cultivation, the suitable machinery, implements and equipments are proposed through Sugar mills and Entrepreneurs with 40% subsidy assistance to a maximum limit of Rs.60

lakh for a project cost of Rs.150 lakh per sugarcane based Custom Hiring Centre. These centres hire out the sugarcane cultivation machinery to the needy farmers at a nominal hire charges.

Under National Agriculture Development Programme (NADP), 11 sugarcane cultivation based Custom Hiring Centres have been established from the year 2015-16 to 2018-19 with a total subsidy assistance of Rs.5.76 Crore as detailed below.

Table.3.4. Details of Hi-Tech Sugarcane based CHCs

Sl. No.	Year	Hi-Tech Sugarcane based CHCs	
		Phy (in Nos.)	Subsidy (Rs. in lakh)
1	2015-16	4	205.07
2	2016-17	1	71.93
3	2017-18	4	195.52
4	2018-19	2	103.46
Total		11	575.98

During the year 2019-20, it is programmed to establish 10 Sugarcane cultivation based Custom Hiring Centres with a subsidy assistance of Rs.6Crore. So far, 8sugarcane cultivation based Custom Hiring Centres have been established under Sub Mission on Agricultural Mechanisation (SMAM) and the scheme is continued.

3.4.3.2. Block based Custom Hiring Centres

To meet out the agricultural machinery demand in the blocks, the Custom Hiring Centres are established at block level with a set of agricultural machinery, implements and equipments for hiring to the farmers at nominal hire charges. The unit cost for forming a Custom Hiring Centre is Rs.25 lakh. The subsidy assistance for forming Custom Hiring Centre is 40% of the total cost or a maximum amount of Rs.10 lakh per centre and the balance 60% is the beneficiary contribution.

Out of the total subsidy amount, an amount of Rs.5 lakh will be kept in the "Subsidy Reserve Fund Account" operated in the Nationalized Banks for general category beneficiary and Rs.3 lakh for SC/ST category beneficiary with a lock in period of 2 years and the balance amount will be released directly to the beneficiary account. Instead of maintaining the "Subsidy Reserve Fund Account", the beneficiary may also take Fixed Deposit for the amount of Rs.5 lakh for general category and Rs.3 lakh for SC/ST category for the period of 2 years and pledged in the name of the concerned Executive Engineer, Agricultural Engineering Department. After the end of 2 years, the subsidy amount will be released to the beneficiary after verification of availability of all the machinery in the Custom Hiring Centres by the concerned department officials.

From the year 2014-15 to 2018-19, totally 1,510 blockbased Custom Hiring Centres have been established as detailed below.

Table.3.5. Details of Block based CHCs

Sl. No.	Year	Block basedCHCs	
		Phy (in Nos.)	Subsidy (Rs. in lakh)
1	2014-15	22	214.71
2	2015-16	190	1,884.17
3	2016-17	420	4,191.46
4	2017-18	427	4,267.81
5	2018-19	451	4,505.36
Total		1,510	15,063.51

During the year 2019-20, it is programmed to establish 304 block level Custom hiring Centres with a subsidy assistance of Rs.30.40 Crore. So far, 294 block level Custom Hiring Centres have been established under Sub Mission on Agricultural Mechanisation (SMAM) and the scheme is continued.

During the year 2020-21, it is proposed to establish 100 Custom Hiring Centres under Sub Mission on Agricultural Mechanisation (SMAM) with the subsidy assistance of Rs.10 Crore.

3.4.3.3. Village based Custom Hiring Centres

In low farm power availability districts, village based Custom Hiring Centres are established with a group of farmers comprising of minimum eight members to take up their farming operations in time and to increase their net income. Priority is given to the cluster villages under the scheme of "Mission on Sustainable Dry Land Agriculture". Village based Custom Hiring Centres are also established to Women Panchayat Level Federations (PLFs) formed by Tamil Nadu Corporation for Development of Women (TNCDW) Limited.

The unit cost for forming a village based custom hiring centre is Rs.10 lakh. The subsidy assistance for a custom hiring centre is 80% of the total cost subject to a maximum of Rs.8 lakh per centre and the balance 20% amount i.e., Rs.2 lakh per centre will be the

beneficiary contribution. For the establishment of Village based Custom Hiring Centre, to women PLF, in addition to 80% subsidy assistance extended by Agricultural Engineering Department, 15 % amount ie., Rs.1.50 lakh is contributed by Tamil Nadu Corporation for Development of Women (TNCDW) Limited and the balance 5 % amount ie., Rs.0.50 lakh is borne by the Women Panchayat Level Federations.

During the years 2017-18 and 2018-19, totally 738 village level Custom Hiring Centres have been established under National Agriculture Development Programme (NADP) and Sub Mission on Agricultural Mechanisation (SMAM) with a total subsidy assistance of Rs.59.01Crore as detailed below.

Table.3.6. Details of Village based CHCs

Sl. No.	Year	Village based CHCs	
		Phy (in Nos.)	Subsidy (Rs. in lakh)
1	2017-18	307	2,454.98
2	2018-19	431	3,446.95
Total		738	5,901.93

During the year 2019-20, it is programmed to establish 603 Custom Hiring Centres with a subsidy assistance of Rs.48.24 Crore and so far, 302 Village based Custom Hiring Centres have been established under Sub Mission on Agricultural Mechanisation (SMAM) and the scheme is continued.

During the year 2020-21, it is proposed to establish 350 Village based Custom Hiring Centres under Sub Mission on Agricultural Mechanisation with the subsidy assistance of Rs.28 Crore.

3.5. Soil and Water Conservation

Soil and water are the basic essential natural resources getting depleted day by day due to various degradation processes such as soil erosion, deforestation and general mismanagement practices. These vital resources need to be conserved effectively for sustaining the agriculture.

3.5.1. River Valley Project (RVP)

With the objectives of prevention of soil loss, reducing the siltation of multipurpose reservoirs, prevention of land degradation, improvement of soil moisture regime and promotion of land use to match land capability in inter-state catchments, the River Valley Project is implemented. In Tamil Nadu, the River Valley Project is being implemented in South Pennaiyar and Mettur catchments under the National Agriculture Development Programme (NADP) from 2013-14 onwards.

The soil and water conservation measures in community lands are taken up with 100% assistance and construction of stone wall bunds in farmers' field are executed with 50% farmer's contribution.

From the year 2013-14 to 2018-19, catchment area of 22,751 Ha in South Pennaiyar and Mettur of Dharmapuri, Krishnagiri and Erode districts has been covered with 2,802 structures like Gabion check dam, Silt detention tank, Water harvesting structure etc., with a total expenditure of Rs.37.40 Crore.

In the year 2019-20, totally 122 soil and water conservation structures and 28.60 Ha of land development works have been taken up to a value of Rs.3 Crore in Krishnagiri and Erode districts.

During the year 2020-21, it is proposed to construct 108 soil and water conservation structures and to carry out land development

works in 28 Ha at a value of Rs.4.45 Crore under National Agriculture Development Programme (NADP) in Krishnagiri and Erode districts.

3.5.2. Special Area Development Programme (SADP)

Achieving ecological restoration and conservation by adopting integrated watershed based approach in a holistic manner for sustainable livelihood and enhancing agricultural productivity in hilly areas and in the forest fringe villages of Western Ghat areas is the prime objective of Special Area Development Programme.

The soil and water conservation measures are taken up for individual based works with 90% subsidy for ST category, 80% subsidy for SC category and 50% subsidy for other category farmers. Works in community lands are carried out with 100% subsidy.

During the year 2019-20, soil and water conservation measures and land development works to a value of Rs.8.29 Crore have been approved and the works are in progress in ten districts namely, The Nilgiris, Erode, Tiruppur, Dindigul, Theni, Madurai, Virudhunagar, Tirunelveli, Tenkasi and Kanyakumari. The scheme is to be continued during 2020-21.

3.5.3. Dam Rehabilitation and Improvement Project (DRIP)

The World Bank aided Dam Rehabilitation and Improvement project is being implemented in the selected Dams of Water Resource Department and Tamil Nadu Electricity Board. Interventions of Agricultural Engineering Department in Dam Rehabilitation and Improvement project are to prevent siltation of multipurpose reservoirs by adopting multi-disciplinary integrated approach of soil conservation and watershed management

practices in catchment areas. The catchment area treatments in Krishnagiri and Kundha Reservoir project areas were entrusted to Agricultural Engineering Department.

Agricultural Engineering Department has implemented soil conservation activities during the period from 2015-16 to 2017-18 with 809 structures and 21,132 metre of channel alignment works to a value of Rs.14.97Crore.

Proposal has been recommended to World Bank to extend the scheme in the catchment areas of Vaigai project in Theni District and Parapalar, Nanganchar and Kudaganar Reservoir Projects in Dindigul district for a period of 5 years starting from 2020-21 to 2024-25 with a total outlay of Rs.23Crore.

3.5.4. Farm ponds for life saving irrigation

Farm ponds are proven technology for drought mitigation by effectively harvesting the

rain water in the farmer's field itself. Farm Ponds are constructed in the lower portion of the farmers' field to harvest the excess surface run-off and to provide life saving irrigation to the crops in the water scarce period. The farm ponds are also used for fish culture which fetches additional income to the farmers.

3.5.4.1. Creation of Farm ponds with NABARD Assistance

The Government sanctioned 10,000 farm ponds with 100% subsidy at a total cost of Rs.100 Crore with NABARD assistance, as a two years project from 2018-19 to 2019-20 to the farmers of Thanjavur, Tiruvarur, Nagapattinam, Cuddalore, Pudukottai, Ramanathapuram, Sivagangai, Virudhunagar and Thoothukudi districts. During the year 2018-19, a total of 1,938 farm ponds have been completed for an amount of Rs.17.98 Crore.

During the year 2019-20, based on the demand from the farmers, the programme is extended to all the districts except Chennai and The Nilgiris for the construction of 8,202 farm ponds at an outlay of Rs.82.02 Crore. So far, 6,761 farm ponds have been completed for an amount of Rs.58.80Crore.

Out of the sanctioned 10,000 farm ponds so far, a total of 8,699 farm ponds have been completed and the remaining works are under progress.

3.5.4.2. World Bank Aided Tamil Nadu Irrigated Agriculture Modernization Project (TNIAMP)

With an objective of increasing agricultural productivity in irrigated areas, the Tamil Nadu Irrigated Agriculture Modernization Project (TNIAMP) is being implemented with the World Bank assistance over a period of seven years from 2017-18 to 2023-24 with integrated

approach involving various departments. The project outlay of Rs.15.12 Crore is earmarked for Agricultural Engineering Department for taking up the construction of farm ponds in the 66 sub basins as a supplementary source of irrigation at critical stages of crop development. Agricultural Engineering Department is implementing Tamil Nadu Irrigated Agriculture Modernization Project (TNIAMP) in 14 sub basins in phase I, 16 sub basins in Phase II and 10 sub basins in Phase III.

In the Phase I sub basin, 521 farm ponds for an amount of Rs.2.98 Crore have been created. During the year 2019-20, 367 farm ponds at an outlay of Rs.2.75 Crore are being executed in Phase II sub basin areas. It is proposed to take up 500 farm ponds at an outlay of Rs.3.75 Crore in Phase III sub basin areas in the year 2020-21.

3.5.5. Mission on Sustainable Dryland Agriculture (MSDA)

Mission on Sustainable Dryland Agriculture is a flagship scheme, launched by the State Government in the year 2016-17, for the development of 1,000 Dryland clusters with 1,000 Ha each at a total outlay of Rs.802.90 Crore for the benefit of dryland farmers. The main focus of the scheme is to improve the production and productivity of dryland crops viz., pulses, millets and oilseeds. Under this scheme, development activities namely Entry Point Activities, Summer Ploughing, creation of Water Harvesting Structures, formation of Village based Custom Hiring Centre and setting up of Value Addition Machinery (VAM) Unit are taken up by Agricultural Engineering Department.

3.5.5.1. Entry Point Activities (EPA)

Creation of community water harvesting structure is taken up at an unit cost of Rs.5 lakh per cluster in all clusters in consultation with the

Farmers Club and the Cluster Development Team (CDT). From the year 2016-17, 1,299 Water Harvesting Structures comprising 978 Check dams, 83 Community ponds, 19 Village ponds and 219 Deepening of Ooranieshave been executed under MSDA in 1,000 clusters.

3.5.5.2. Summer Ploughing

To help the dryland farmers in the cluster area for carrying out summer ploughing operation, a subsidy assistance of Rs.1,250/- per Ha is being provided to the farmers (50% assistance under NADP and 50% under State fund) as back ended subsidy. Entire area of 10 lakh Ha in 1,000 clusters has been covered under MSDA.

3.5.5.3. Creation of Water Harvesting Structures

Under water harvesting structures, field bunding and farm ponds are created at an unit cost of Rs.7.50 lakh per cluster. Field bunding

covering an area of 60,991 Ha, 3,900 farm ponds and deepening of 116 Ooranies have been taken up under MSDA in 1,000 clusters.

3.5.5.4. Formation of Village based Custom Hiring Centres (CHCs)

A group of farmers with minimum eight members are encouraged to establish village based custom hiring centre in districts of low farm power availability so that they can take up their farming operations in time and increase their net income. The unit cost for formation of a village based custom hiring centre is Rs.10 lakh. The subsidy assistance for a custom hiring centre is 80% of the total cost subject to a maximum of Rs.8 lakh per centre and 879 village level custom hiring centres have been established under MSDA in 1,000 clusters.

3.5.5.5. Setting up of Value Addition Machinery (VAM) Unit

In order to ensure that the dryland farmers cultivating pulses, millets and oilseeds,

get good value addition of the produce at cluster level itself and realise better remuneration, assistance is being given to the Farmer Producers Organisation (FPO) and Farmer Producers Group (FPG) for setting up of Value Addition Machinery (VAM) unit in the dryland clusters. A subsidy assistance of 75% of project cost subject to a maximum of Rs.10 lakh per unit for setting up of value addition machinery unit is being provided for active Farmer Producers Organization (FPO) and Farmer Producers Group (FPG) in a cluster and 185 value addition machinery units have been set up under MSDA. These units will ensure the farmers to realize higher income from their produce.

3.6. Post Harvest Technology and Management

Increasing the net income of the farmer is possible only when the farmer goes for value

addition of agricultural produce at farm gate level by adopting post harvest technologies and management. This will be helpful for achieving the goal of doubling the farmers' income.

3.6.1. Distribution of Post Harvest Technology and Management Machinery

To improve the shelf life of the produce, reduce the quantitative loss of farm produce and for value addition of agricultural produce, the Post Harvest Technology and Management Machinery are distributed to the individual farmer, Farmer Producer Organisations (FPOs), Self Help Groups (SHGs) and User Groups (UGs) of farmers, Co-operative societies of farmers and Entrepreneurs.

To enable the dry land farmers to fetch more income by the way of value adding their produce like minor millets, pulses and oil seeds grown in dry land clusters, farmer operated

Value Addition Machinery(VAM) Units are established under Mission on Sustainable Dry Land Agriculture (MSDA).

Assistance is provided to the Farmer Producer Organizations (FPOs) and Farmer Producer Groups (FPGs) for purchase of a package of machinery to carry out various post harvest operations for value addition of the produce from cleaning to packing of the final product in the dry land clusters.

The package of machinery for oil extraction unit includes groundnut decorticator cum grader, oil expeller, oil filter press, bottling unit; in the package of millet processing units destoner cum grader cum aspirator, dehuller, polisher, pulverizer and roaster are included; dhall mill, destoner cum grader, colour sorter etc., form part of pulses processing unit; automatic form fill machine for packing, gunny

bag closer, recyclable polythene bag sealing etc., are included both in millet and pulses processing unit; animal feed preparation machine combined with package machinery form separate unit. The beneficiary group can select different packages based on the crops grown in their area and the level of value addition to be taken up.

3.7. Water Management

Irrigation is a critical input for success of Agriculture. The water resources of the state have been exploited to a larger extent for irrigation. As a result of limited scope for new irrigation projects and over tapping of ground water, the focus is now mainly on effective water use and management.

Agricultural Engineering Department is involved in water management activities through On Farm Development works in irrigated

command areas by maximizing the water use efficiency, thereby utilizing the water saved to bridge the gap area between irrigation potential created and utilized, to increase the productivity per unit of water utilized.

3.7.1. Interventions in Micro Irrigation under PMKSY-Per Drop More Crop

The micro irrigation works are being carried out in Tamil Nadu under “PMKSY- Per Drop More Crop” component and being implemented by Tamil Nadu Horticulture Development Agency (TANHODA) to enhance the physical access of water to the farm and to improve the on-farm water use efficiency.

The joint inspection of micro irrigation system installed fields along with Agriculture, Horticulture and Sugar Department officials and the responsibility of measurements are entrusted with Agricultural Engineering Department under this scheme for effective

monitoring of implementation. During the year 2018-19, an area of 1,19,226 Ha of joint verification and measurement works have been carried out. During the year 2019-20, an area of 1,67,034 Ha of joint verification and measurement for the works have been carried out and the verification works are under progress.

3.7.2. Reclamation of Problem soils

The problem soils such as alkali or saline soils are formed due to over exploitation of land and water resources. With a view to harness the potential of such problem soils, a Centrally Sponsored Scheme of "Reclamation of Problem Soils" (RPS) is being implemented on pilot basis as a sub-scheme of National Agriculture Development Programme (NADP) from the year 2016-17. Location specific interventions suitable for reclaiming the problem soils to increase the soil fertility and productivity are taken up.

During the year 2019-20, to reclaim an area of 540 Ha in Cuddalore district affected by saline soils, the scheme is being implemented with an outlay of Rs.3.23 Crore.

3.8. Infrastructures

3.8.1. State Agricultural Machinery Information Data Centre (SAMIDC)

The State Agriculture Machinery Information Data Centre (SAMIDC) is being established for promotion of Agricultural Mechanization in Tamil Nadu and to disseminate labour-saving technology. It will also serve as a guiding centre on Agricultural Mechanization for farmers and all-know-about Agricultural Mechanization knowledge hub for the general public. This centre will be endowed with Agricultural Machinery, accessories and implements from all over the country in different forms such as Live Machinery gallery with touch screen info, Mock up models, Photo Galleries,

Audio Visuals covering the state-of-the-art technology and the evolution of Technology. It will also promote Post Harvest Technology and Management Machinery, Green Energy in agriculture by showcasing various makes and models of value addition machinery, solar pumpsets, solar driers and solar fencing.

This Centre will promote “**Farm Tech Tourism**” through the educational institutions in order to create awareness about various Agricultural Machinery and implements, Value Addition Machinery and Renewable Energy among students and to impart knowledge to rural artisans in developing location specific implements. The State Agricultural Machinery Information Data Centre (SAMIDC) will function as a self sustainable revenue generation model and will be unique of its kind in India.

3.8.2. Agricultural Engineering Extension Centre (AEEC)

In order to promote the Agricultural Engineering techniques and to popularize the innovative agricultural machinery among the farming community Agricultural Engineering Extension Centres are being established at the revenue division level.

Since 2017-18, totally 29 Agricultural Engineering Extension Centres have been established with an unit cost of Rs.75 lakh with a total allocation of Rs.21.75 Crore under NABARD-RIDF-XXIII assistance. During the year 2019-20, the Government have sanctioned 7 Agricultural Engineering Extension Centres with a total cost of Rs.7Crore under National Agriculture Development Programme (NADP) and works in all the 7 Centres are in progress.

During the year 2019-20, to strengthen the existing facilities of Agricultural Engineering

Training Centre (AETC) at Trichy, a sum of Rs.2 Crore has been sanctioned under NADP and the work is in progress.

3.8.3. Strengthening of Farm Infrastructure and Extension Centres

The infrastructure and strengthening offarm works for Agriculture, Horticulture and Agricultural Marketing and Agri-Business Departments are being implemented by Agricultural Engineering Department which is the technical Nodal Department of the State Agriculture Ministry in construction and strengthening of other infrastructure.

3.8.3.1. Integrated Agricultural Extension Centres (IAECs)

For providing extension services, distribution of input as well as implementation of all farmer welfare schemes of all agricultural and allied departments, the Integrated Agricultural Extension Centres (IAEC) are constructed at

block level as a single access point for farmers and field level officers.

Agricultural Engineering Department was entrusted with the construction of 131 IAECs under NADP and NABARD assistance of which 50 works are under NABARD – RIDF XXIII and 81 works are under NADP. Construction of 105 IAECs has been completed and balance 26 works are in progress.

3.8.3.2. Soil Testing Laboratory, Pesticide Testing Laboratory and Liquid Bio-fertiliser Production unit

Agricultural Engineering Department was entrusted with the construction of 3 Soil Testing Laboratories, 2 Pesticide Testing Laboratories and 1 Liquid Bio-fertiliser Production Unit during the year 2019-20 under National Agriculture Development Programme (NADP) for Agriculture Department and all the 6 works are in progress.

3.8.3.3. Strengthening of State Seed Farm

Agricultural Engineering Department is implementing creation of infrastructure, maintenance works for farm strengthening in all the State Seed Farms (SSF) and State Coconut Nurseries Farms.

3.8.3.4. Storage Infrastructure Development

Agricultural Engineering Department is taking up the construction of infrastructure like Open Transaction Sheds, Godowns and Cold Storage Units in different districts for Agricultural Marketing and Agri-Business Department.

3.8.3.5. Infrastructure Development in Horticulture Department

Agricultural Engineering Department has been entrusted with creation and maintenance of State Horticulture Farms, Parks and Gardens and

construction of offices and Staff Quarters under National Agriculture Development Programme (NADP), Farm Receipt Account (FRA), National Horticulture Mission (NHM) and NABARD assistance.

3.8.3.6. Infrastructure Development in Seed Certification Department

Agricultural Engineering Department was entrusted with the construction of one Integrated Seed Certification Centre at Tanjavur at a cost of Rs.2.35Crore under National Agriculture Development Programme (NADP) during the year 2019-20 by Seed Certification Department and the work is under progress.

3.9.Functions, Awards and Recognitions

The Agricultural Engineering Department was conferred with **“SKOCH Award”** for its sincere efforts to replenish ground water by “On Farm Rain Water Harvesting” and for “Reclamation of Problem Soils” by SKOCH group,

New Delhi and was also awarded **“Uzhavar Award - Best Government Department”** by News 18 Tamil Nadu TV Channel for empowering and encouraging farmers of Tamil Nadu during 2019-20.

Agricultural Engineering Department participated in the Farmers conclave held between 09.02.2020 and 11.02.2020 organized by Animal Husbandry Department during “Foundation Stone Laying” ceremony for Advanced Institute for Integrated Research on Livestock and Animal Sciences at Thalaivasal in Salem district by the **Hon’ble Chief Minister** of Tamil Nadu and conducted a mega “Advanced Hi-Tech Agricultural Machinery and Renewable Energy Show” which received highest accolades from farming community.

During the occasion, the **Hon’ble Chief Minister** of Tamil Nadu presented **“Best**

Agricultural Engineering Technology
Introducer Award” for development of
“Sugarcane Detrasher” and “Harvest
Equipment for Tapioca” to two innovative
farmers.

3.10. Establishment

One Chief Engineer (Agricultural Engineering), one Chief Engineer (Agricultural Engineering) - River Valley Project, three Superintending Engineers and two Executive Engineers are at Headquarter level to monitor various farmer welfare schemes being implemented in Agricultural Engineering Department.

There are 11 Superintending Engineers at regional level, 31 Executive Engineers at district level, 5 Executive Engineers for special schemes, 125 Assistant Executive Engineers, 849 Assistant Engineers / Junior Engineers at revenue division level, special schemes and 2,987 field and Administrative staff in the department.

The Superintending Engineers are

in-charge of the administrative and technical control of the departmental activities in the region, the Executive Engineers are in-charge of all the departmental activities of the respective districts and the Assistant Executive Engineers are responsible for the implementation of departmental activities at the revenue division level.

During the year 2019-20, 94 Assistant Engineers were recruited in Agricultural Engineering Department through Tamil Nadu Public Service Commission (TNPSC).

Table 3.7. Staff Details

Sl. No.	Category of post	Numbers
1	Chief Engineer (AE)	1
2	Chief Engineer (AE), RVP	1
3	Superintending Engineer (AE)	14
4	Executive Engineer (AE)	38
5	Assistant Executive Engineer (AE)	125
6	Assistant Engineer(AE) / Junior Engineer(AE)	849
7	Field and Administrative staff	2,987
	Total	4,015

4. AGRICULTURAL EDUCATION, RESEARCH AND EXTENSION EDUCATION

4.1. Introduction

Positive agriculture is the prime focus of Tamil Nadu Agricultural University in bringing upliftment of agriculture through quality agricultural education, enhancing the production and productivity of crops through crop improvement, crop production and crop protection technologies through research. Also, efforts are taken to produce quality man power required for agriculture and agro-based industries by imparting state of the art education, prioritize research to meet the global industry needs and outreach activities to reach the unreached through agricultural extension education. To enable the students to face the global challenges, efforts are taken to revise the syllabi to suit the current needs. Students are provided with access to international journals and e-content through wifi-infrastructure and digital library.

Considering the vagaries of monsoon, University is poised for short duration, high

yielding, pest resistant, mechanization adoptable varieties to mitigate the drought, submergence and labour scarcity.

High priority is given to research on pests and disease management including, Fall Armyworm, Spiralling Rugose White fly control. The major initiatives include release of new crop varieties, production and supply of quality seeds, promoting System of Rice Intensification (SRI), Sustainable Sugarcane Initiative (SSI), Improved pulses and oil seeds production technologies, production and supply of bio-control agents, growth promoters, precision farming, integrated farming systems, drought mitigation on rice through Pink Pigmented Facultative Methylo-trops (PPFM) spray, improving the productivity of cotton through growth retarding compounds and drip fertigation, post harvest technologies, food processing and value addition, farm mechanization, imparting training, promotion of improved crop husbandry decisions based on weather based forecast, choice of crops, extent of area and marketing decisions through price

forecasting, besides e-Agriculture, market extension and to help in increasing the income through agri - business promotion. Hence, a comprehensive protocol from farm to consumers' plate has been developed.

Also, efforts are taken to empower farmers by facilitating Agri-business Development in conjunction with the State and National Agricultural Policy. To enable the farmers and rural youth to adopt new technologies and develop their skills in farming, many courses are offered through Open and Distance learning modes. Efforts are taken to transform agriculture into a market driven business to ensure sustainability and strengthen the farming community.

4.2. New initiatives

4.2.1. New cells created

During the year 2019-20, three new cells were created to improve the performance of the University. Creation of Internal Quality Assurance Cell (IQAC) and Faculty Development Cell (FDC) at the Directorate of Planning and Monitoring

besides creation of NAD Cell (National Academic Depository) at the Controllerate of Examinations.

4.2.2. Refurbishing the Botanical Garden

Works have been initiated for refurbishing the University Botanical Garden during the year 2020 - 2021.

4.2.3. New Siddha Hospital started

For the first time in the history of TNAU, a new Siddha Medical Centre was established and inaugurated in TNAU main campus on 03.06.2019.

4.2.4. New YOU TUBE channel "TNAU TV" started

For the first time in the history of TNAU, Educational Media Centre (EMC) started separate official **YOU TUBE channel**, "TNAU TV" and uploaded 56 videos on agriculture based technologies.

4.2.5. Study in India programme

TNAU has linked itself with Study in India programme to rope in more foreign admissions in campus and sixteen students were given letter of

admission. One student has joined B.Sc (Agriculture) from SriLanka. For the UK-India Education and Research Initiative (UKIERI) programme, 30 short courses from Ten departments have been sent.

4.2.6. Establishment of New KVK

A new KVK has been established at Pongalur in Tiruppur district and it is proposed to establish a new KVK at the Nilgiris district with 100% ICAR funding.

4.2.7. National Agricultural Higher Education Programme (NAHEP)

To globalize agricultural education by transforming students' outlook, and to promote entrepreneurship, Tamil Nadu Agricultural University has initiated the Institutional Development Plan under National Agricultural Higher Education Programme (NAHEP) in which it is planned to take around 30 undergraduate students for abroad programme.

4.3. Infrastructure

The following seven buildings constructed at an outlay of Rs.28.057 crore were inaugurated during the year 2019-20:

1. Academic block cum Administrative building at the Agricultural College & Research Institute, Eachangkottai in Thanjavur District with a budget of Rs.10.27 crore with funding assistance from NABARD.

2. Academic block cum Administrative building at the Agricultural College & Research Institute, Vazhavachanur Thiruvannamalai District and with a budget of Rs.10.27 crore with funding assistance from NABARD.

3. Diversified Agricultural Cafeteria with the State of Art Technologies for Third Generation at the Agricultural College & Research Institute Killikulam Thoothukudi District with a budget of Rs.2.447 crore with funding assistance from NADP.

4. Construction of Farmers Trainees' Hostel at Anbil Dharmalingam Agricultural College & Research Institute, Trichirappalli District with a budget of Rs.2.57 crore with funding assistance from NADP.

5. Establishment of Centre of Excellence for Mango Research at Regional Research Station Paiyur in Krishnagiri District with a budget of Rs.1 crore with funding assistance from NADP.

6. Construction of Office building at Citrus Research Station, Sankaran koil, Tirunelveli with a budget of Rs.80 lakh with funding assistance from NADP.

7. Construction of Farm godown building at Citrus Research Station, Sankaran koil, Tirunelveli with a budget of Rs.70 lakh with funding assistance from NADP.

During the year 2019-20, totally, 22 buildings are to be constructed at an outlay of

Rs.70.478 crore for which foundation stones were laid with funding assistance from NABARD.

4.4. Agricultural Education

Tamil Nadu Agricultural University presently offers 10 Under-Graduate, 33 Master and 29 Doctoral degree programmes through its constituent colleges. Three constituent diploma institutes are functioning under the banner of Tamil Nadu Agricultural University offering Diploma in Agriculture / Horticulture.

During the year 2019-20, in diploma, 131 students passed out and 319 students have been admitted. In the Under-Graduate programme, 2,330 passed out and 4,492 students (1,443 in constituent colleges and 3,049 in affiliated institutions) have been admitted. In the Post-Graduate degree programme, 456 passed out and 348 students got admitted. In Doctoral degree programme, 138 students passed out successfully and 174 students got admitted and were bestowed with top notch teaching.

The number of applications received for the admittance to various Under-Graduate programmes have increased manifold from 9,652 during 2011-2012 to 41,750 during 2019-20.

Table: 4.1 District wise constituent colleges

Sl. No.	District	Name of the College
1	Coimbatore	Agricultural College and Research Institute, Coimbatore
2		Horticultural College and Research Institute, Coimbatore
3		Agricultural Engineering College and Research Institute, Coimbatore
4		Forest College and Research Institute, Mettupalayam
5	Madurai	Agricultural College and Research Institute, Madurai
6		Community Science College and Research Institute, Madurai
7	Tiruchirapalli	Anbil Dharmalingam Agricultural College and Research Institute, Navalur Kuttappattu, Tiruchirapalli

Sl. No.	District	Name of the College
8		Horticultural College and Research Institute for Women, Navalur Kuttappattu, Tiruchirapalli
9		Agricultural Engineering College and Research Institute, Kumulur, Tiruchirapalli
10	Thanjavur	Agricultural College and Research Institute, Eachangkottai, Thanjavur
11	Pudukkottai	Agricultural College and Research Institute, Kudumiyamalai, Pudukkottai
12	Thiruvannamalai	Agricultural College and Research Institute, Vazhavachanur, Thiruvannamalai
13	Theni	Horticultural College and Research Institute, Periyakulam, Theni
14	Thoothukudi	Agricultural College and Research Institute, Killikulam, Thoothukudi

Table: 4.2. District wise constituent Diploma Institutes

Sl. No.	District	Name of the College
1	Tiruchirapalli	Institute of Agriculture (English Medium), Agricultural Engineering College & Research Institute, Kumulur, Tiruchirapalli
2	Pudukkottai	Institute of Agriculture (Tamil Medium), National Pulses Research Centre, Vamban, Pudukkottai
3	Kanyakumari	Institute of Horticulture (English Medium), Horticultural Research Station,

4.4.1. Open and Distance Learning Courses

Tamil Nadu Agricultural University also offers correspondence courses at the Directorate of Open and Distance Learning (ODL). Currently, 38 certificate courses are being offered for the benefit of farming community, rural youth, SHGs etc. The University also offers Diploma programme for Input dealers.

During the year 2019-2020, 2,311 students for the Certificate Courses, 238 students for the Diploma in Agri-Inputs, 102 students in PG Diploma were admitted. Also, 57 Farm Science degree students, 36 MBA and M.Sc. degree students, 372 Diploma in Agri. Inputs students and 1,971 students for certificate courses were awarded with the respective certificates.

4.4.2. Students welfare, Career counselling and placement

During 2019-20, through the Directorate of Students Welfare, 181 students were placed in various industries namely; Agro Industry (92), Food Industry (12), NGO / Government (10), Banking (6), Finance (25) and other institutions (36). The Communication Laboratory helps the students to sharpen the soft skills and communication skills. Motivational lectures, coaching classes, mock group discussions and interviews are organized by this centre.

4.5. Agricultural Research

Research is being conducted in 14 colleges and 39 Research Stations across the State, to cater to the location specific and crop specific problems. Research is being funded by mobilizing collaborative, networking and innovative projects from Government, international funding and Indian Council of Agricultural Research.

4.5.1. Newly released crop varieties

Tamil Nadu Agricultural University has released 13 new crop varieties during the year 2019-20 as given below:

S.No.	Crop & Variety	Special Characters
1.	Rice CO 53	Short duration variety (115-120 days) for yield 3718 kg/ha under dry condition, 3866 kg/ha under semi dry condition, Moderately resistant to WBPH; Moderately resistant to multiple diseases viz., leaf blast, neck blast, sheath rot, brown spot and RTD; Suitable for cultivation in drought prone districts of Tamil Nadu viz., Ramanathapuram, Sivagangai and Virudhunagar.

S.No.	Crop & Variety	Special Characters
2.	Rice ADT 54	High Yielding, Medium duration variety with 130- 135 days. Average grain yield of 6307 kg /ha. This variety is resistant to leaf folder, moderately resistant to stemborer pest and blast disease. Medium slender rice.
3.	Blackgram VBN 11	It matures in 70-75 days. The average yield is 899 kg/ha. This variety is suitable for all seasons viz., Adi, Puratasi, Markazhi / Thai and Chithirai pattam. It possess resistance to Mungbean Yellow Mosaic Virus and moderate resistance to powdery mildew diseases.
4.	Sorghum CO 32	Short duration variety (105-110 days) with dual purpose suited for grain and fodder with Grain yield of 2445 kg/ha and Dry fodder yield of 6490 kg/ha. Moderately resistant to shootfly, stemborer, Downy mildew and grain mould. Yellow white grains suitable for cultivation all over Tamil Nadu both under rainfed and irrigated conditions

S.No.	Crop & Variety	Special Characters
5.	Banana CO 2	Crop duration is 12-13 months (planting to harvest). Resembles the commercial cv. Ney Poovan in bunch appearance. This improved culture has medium tolerance to nematodes. The yield potential of the culture is 32 t / ha. It is suitable for planting during October to January. It can be propagated by suckers; planted at a spacing of 1.8 m x 1.8 m. Recommended for cultivation in Coimbatore, Erode, Theni, Trichirappalli and Kanyakumari districts in Tamil Nadu.
6.	Tenai ATL 1	This variety has a duration of 80-85 days. It recorded 2117 and 2785 kg / ha of grain and straw yield respectively under rainfed condition. It is tolerant to shoot fly incidence and occurrence of blast and rust diseases. Suitable for the dry lands, hilly and tribal areas in Dharmapuri, Tiruvannamalai, Vellore, Salem, Namakkal, Villupuram, Virudhunagar and Krishnagiri districts of Tamil

S.No.	Crop & Variety	Special Characters
		Nadu.
7.	Sugarcane CoC 13339	The variety recorded mean cane yield of 141.81 t / ha. It is moderately resistant to red rot, smut and yellow leaf diseases. It is suitable for all sugarcane growing districts of Tamil Nadu and Puducherry.
8.	Cotton CO 17	Compact and erect plant type, Early maturing (125 - 135 days), Non branching, Synchronized boll maturity, Suitable for two pickings, Gives average seed cotton yield of 2504 kg/ha. Moderately resistant to root rot and <i>Alternaria</i> leaf blight, Suitable for high density planting system, Suitable for rice fallow, winter rainfed and summer irrigated tracts of Tamil Nadu.
9.	Tomato Hybrid Co 4	The hybrid has long harvesting period with duration of 150 days. It gives an average yield of 92.3 t / ha. Suitable spacing is 60x45 cm. Suitable for all the tomato growing districts in Tamil Nadu during June- July and December- January under irrigated

S.No.	Crop & Variety	Special Characters
		conditions.
10.	Cassava YTP 2	It has a duration of 270-300 days. It gives an average yield of 46.20 t/ha. It shows no visual symptom of Cassava Mosaic Disease incidence. It is suitable for all the tapioca growing districts under irrigated conditions and Kalvarayan and Pachamalai hills under rainfed conditions.
11.	Aggregatum onion Co 6	Bulb Production (Season : May – September; Duration : 130 days) Seed production (Season: December – April; Duration : 140 days). Easy to peel. It gives bulb yield of 19.10 tonnes / ha and Seed yield of 250 - 300 kg /ha. Suitable for growing under irrigated condition in Perambalur, Namakkal, Tiruppur, Cuddalore and Coimbatore districts.
12.	Manathakkaali CO 1	The duration is 160-180 days and Green herbage yield is 30-35 t/ha. The Total alkaloid content is 0.38 %, Rich in ascorbic acid (21.66 mg/g) and iron content (6.10 mg /100g), 19% increase in herbage yield over

S.No.	Crop & Variety	Special Characters
		check.
13.	Manila Tamarind 02	Semi branching and spreading growth habit with regular and cluster bearing habit. High yield of 90 kg/tree/year (13.50 t / ha). Economic yield obtained from 5 th year onwards. Suitable for dry land cultivation, problematic soil and water logged conditions.

4.5.2. Research Schemes

Research interventions are being taken up at Tamil Nadu Agricultural University with focused projects sanctioned by different funding agencies.

Special Area Development Programme (2019-2020)

For the year 2019-20, the following project was cleared by the State Planning Commission (SPC) under Special Area Development Programme (SADP) with a budget outlay of Rs.60.65 lakh.

- Empowering Socially challenged sector at Usilampatti through medicinal plants cultivation and value addition (Sanctioned amount: Rs.60.65 lakh).

State Balanced Growth Fund (2019-2020)

For the year 2019-20, the following three projects were cleared by the State Planning Commission (SPC) under State Balanced Growth Fund (SBGF) with a budget outlay of Rs.100 lakh.

1. Integrated Horticulture based cropping system for livelihood security in Andipatti and Kadamalaikundu blocks in Theni District. (Sanctioned amount: Rs.55 lakh).
2. Promotion of sustainable Agriculture for empowerment of Malayali tribes of Pachaimalai. (Sanctioned amount: Rs.35 lakh).
3. Empowering of Tribal women farmers through improved backyard poultry in

Dharmapuri district of Tamil Nadu.
(Sanctioned amount: Rs.10 lakh).

National Agriculture Development Programme (NADP)(2019-2020)

The following two projects are implemented under National Agriculture Development Programme (NADP) during 2019-20 at an outlay of Rs.306.30 lakh.

1. Popularization of warm temperate fruits (Pear, Plum, Peaches and kiwi) in Tamil Nadu (Rs.110.50 lakh).
2. Demonstration of production technologies of lesser known fruits – Avacado and litchi in lower Palani hills and Jamun & Manila Tamarind in arid zones of Tamil Nadu (Rs.195.80 lakh).

World bank scheme

Tamil Nadu Irrigated Agriculture Modernization Project (TNIAMP) has been sanctioned by World Bank through the Government of Tamil Nadu for the period 2017-2023 at a total outlay of Rs.8538.63 lakh to

TNAU with the overall objective of promoting climate resilient activities and market led agriculture in 18 river sub basins across the State.

4.6. Agricultural Extension Education

4.6.1. Krishi Vigyan Kendras (KVK)

Under Tamil Nadu Agricultural University, 14 Krishi Vigyan Kendras (KVK) are functioning. 87 On-Farm Testing (OFTs) and 159 Front Line Demonstrations (FLDs) were conducted by the KVKs during 2019-20 besides organizing training programmes for farmers to equip them with technical skills and capacity building.

Table: 4.3. Krishi Vigya Kendra under TNAU

Sl. No.	District	Location
1	Cuddalore	Virudhachalam
2	Dharmapuri	Papparapatty
3	Kanyakumari	Thirupathisaram
4	Madurai	Madurai

Sl. No.	District	Location
5	Pudukkottai	Vamban
6	Ramanathapuram	Ramanathapuram
7	Salem	Sandhiyur
8	Tiruvallur	Tirur
9	Thiruvarur	Needamangalam
10	Trichirappalli	Sirugamani
11	Vellore	Virunjipuram
12	Villupuram	Tindivanam
13	Virudhunagar	Aruppukottai
14.	Tiruppur	Pongalur

4.6.2. Educational Media Centre (EMC)

The Educational Media Centre of TNAU produced 85 video programmes and conducted 93 video shows during the year 2019-20 to infuse

the concept of seeing is believing for farmers/public.

4.6.3. TNAU Agritech Portal (<http://agritech.tnau.ac.in>)

The Agritech portal contains about 11 lakh pages of information related to agriculture and allied sciences in Tamil and English.

4.6.4. Android Apps on Expert System

Android Apps on Expert System has been developed in Tamil and English languages for crops namely; paddy, sugarcane, ragi, coconut, banana and for animal husbandry enterprises like cow and buffalo, goat rearing and poultry. Totally, 12 Android Apps were uploaded in the Google Play Store.

4.6.5. Agricultural Technology Information Centre (ATIC)

Agricultural Technology Information Centre's sales counter is opened for the benefit of farmers. This centre retails the seeds of vegetables, greens and crop boosters, coconut tonic, tree killer,

honey, fungicides and compact discs of TNAU technologies. It guides the farmers and answers the queries of farmers instantly through telephonic conversations.

4.6.6. Uzhavarin Valarum Velanmai

'Uzhavarin Valarum Velanmai' a monthly Tamil magazine of Tamil Nadu Agricultural University, Coimbatore is published since 1975. During 2019-20, a total of 10,766 subscribers viz., 2,955 annual subscribers and 7,811 life subscribers were on rolls.

4.6.7. Farmers Mela / Exhibitions

Krishi Vigyan Kendras of TNAU successfully organized large scale special awareness campaigns namely *Pradhan Mantri Kisan Samman Nidhi Yojana (PM-Kisan)*, *Jal Shakti Abhiyan*, Tree Planting Drive, *Swachhta Hi Sewa* and the Celebration of 150th Birth Anniversary of Mahatma Gandhi. A total of 12,222 farmers participated in these awareness campaigns and benefitted.

Tamil Nadu Agricultural University participated in the CODISSIA Agricultural fair –

2019. Over 45,000 visitors including farmers got benefitted.

4.6.8. Kisan Call Centre (KCC)

It provides yeoman service to the farmers through a toll-free number 1551 or 1800-180-1551. The caller can interact in their local language with the experts. This Centre functions on all working days between 7.00 am and 10.00 pm. During the year 2019-20, totally, 1,56,197 calls were attended and technical advice rendered.

4.6.9. Community Radio Station

The **Community Radio Station**, 'TNAU Vivasayee FM 107.4, is functioning since 2010 catering to the needs of 10,000 farm families, youth, self help groups and general public that serve the geographic communities of 10 km radius from TNAU. The CRS broadcast agricultural content relevant to the farmers of the Coimbatore region from Monday to Friday between 10 am to

12 pm. Totally 1,114 programmes were broadcast through Community Radio.

4.7. TNAU – Information and Training Centre, Chennai

The TNAU Information and Training Centre functioning at Chennai is involved in conduct of various training programmes related to Agricultural sciences and its allied sector. During the year 2019-2020, the centre has conducted 61 training programmes viz., Roof gardening, vermi-composting, mushroom cultivation, herbal gardening, bonsai making, organic farming, bio fertilizers, composting technology, urban solid waste management, bee keeping, medicinal plants production and marketing, flower arrangement and bouquet making, chocolate making, preparation of millet products, preparation of chat items, herbal cookery, preparation of vegetarian gravies, preparation of juice, jam and pickles, preparation of soups and salads, preparation of millet based bakery products, decorative candle making, preparation of instant food. A total of 1,520 participants were benefitted which includes 872 women participants.

4.8. Seed Production Programme

During 2019-20, a total quantity of 129 tonnes of breeder seeds, 428 tonnes of foundation seeds, 116 tonnes of certified seeds and 744 tonnes of Truthful Labelled Seeds (TFL) seeds and 22.8 Lakh seedlings of various crops were produced and distributed.

During 2020-21, it is targeted to produce approximately 198 tonnes of breeder seeds, 486 tonnes of foundation seeds, 308 tonnes of certified seeds and 486 tonnes of TFL seeds of principal agricultural and horticultural crops. Besides, 21 Lakh seedlings of various horticultural crops are to be produced and distributed.

4.9. The Agro Climate Research Centre

Agro Climate Research Centre (ACRC) is issuing medium range weather forecast since 2011 to increase the block level weather forecast accuracy to >80 per cent. As a first of its kind in India, TNAU has launched "TNAU-Agro Advisory Services" the completely automated Web cum Mobile App by utilizing the weather information to disseminate weather based agro advisories to

farmers mobile as SMS for 108 crops, 6 crop stages and 54 weather scenarios.

In addition, in collaboration with India Meteorological Department, Agro Climate Research Centre (ACRC) and other 5 TNAU centres of GKMS – AMFU – Gramia Kisan Mansan Sewa Agro Metrological Field Unit have issued 15 lakh SMS per day on every Tuesday and Friday. Totally, 104 weather based agro advisories bulletins with 5 - 6 advisories, location specific to each district for agricultural crops, horticultural crops, plantation crops, animal husbandry and extreme weather events. Seasonal Climate forecast for South West Monsoon and North East Monsoon have been disseminated on last week of May and September, respectively.

4.10. Price Forecast and Market Intelligence

Domestic and Export Market Intelligence Cell (DEMIC) functioning at the Directorate of Centre for Agricultural and Rural Development Studies, generates price forecasts for major agricultural and horticultural crops grown by farmers in Tamil Nadu Irrigated Agriculture Modernization Project

(TN-IAMP) basins of Tamil Nadu. Under the scheme price forecasts for 14 major crops including cereals, pulses, oilseeds, cotton, fruits, vegetables, spices and condiments etc., are disseminated to the farmers. The market advisories are given well before sowing and before harvest of these crops, which help farmers to take appropriate sowing, selling/storing decision in a scientific basis in order to realize better farm profit. These advisories are disseminated through print and electronic media well in time.

4.11. Agri-Business Development

Directorate of Agri- Business Development is involved in Agribusiness Incubation, technology, hybrids and machinery commercialization, consultancy services, Venture Capital Scheme, student entrepreneurship, Executive Development Programme, Institutional Development Plan and Unnat Bharat Abhiyan 2.0.

During the year 2019-20, 122 new incubates were enrolled in all the six Agri-Incubation Forums of TNAU. Technology Business Incubator,

DABD, TNAU, Coimbatore is implementing RKVY- RAFTAAR Programme with a grant of Rs.233 lakh. In TNAU private seed sector consortium, two companies have enrolled as members. Maize hybrid COH (M) 9 and COH (M) 8 were licensed for commercial seed production. Malai Vembu MTP 2 (*Melia dubia*) was also commercialized.

Consultancy services on water demand management in Bhavani river basin and TNAU-InAgMA Integrated Agro- Project on Smart Farming in Malaysia are being co-ordinated by DABD Four trainings on “Agricultural Export and Import”, one training on “Entrepreneurship Development to Coconut Farmers” and one training on “Managing Agri Business Incubation Centre” were conducted.

Unnat Bharat Abhiyan 2.0 (UBA) a flagship national program of Ministry of Human Resource Development, Government of India is operated by DABD as a Regional Co-ordinating Institute to work with the people of rural India in identifying

development challenges and evolving appropriate solutions for accelerating sustainable growth.

4.12. Intellectual Property Rights

Tamil Nadu Agricultural University has so far, obtained 11 patents and 64 findings have been filed for obtaining patent. Tamil Nadu Agricultural University has also registered 64 crop varieties under Protection of Plant Varieties and Farmers Rights (PPV&FR) as extant varieties.

4.13. Sustainable Development Goals

Tamil Nadu Agricultural University is operating several projects for achieving the Sustainable Development Goals.

1. To conserve the traditional rice and other cereal crop varieties 27,724 varieties are being preserved at the Ramiah Seed Gene Bank at -20°C.
2. To conserve the soil health through sustainable organic farming, the quality standards of 18 types of organic inputs have been validated.

3. To address the changing climate situations, multi functional agro-forestry model has been developed and demonstrated.
4. Automated climate controlled green house (600 m²) and ventilated poly house (500 m²) were established. Students have raised high value horticultural crops *viz.*, tomato, capsicum and cucumber.
5. To overcome acute labour shortage and to reduce the drudgery in agriculture, complete farm mechanization and automation from sowing to harvest for crops like rice, sugarcane, maize and cotton have been developed. All these machineries were demonstrated to the farmers through the Agricultural Research Stations.
6. Due to excess application of fertilizers, the soil health gets deteriorated. To circumvent this issue, biofertilizers like azolla, rhizobium, phosphobacteria, azospirillum, VAM and azotobacter are applied to the soil, which not only reduce the fertilizer dose but also augment the microbial population for improving the soil health.

7. To enhance crop growth, microbial consortium has been developed and tested for various crops and recommended for blanket application.
8. To enhance efficiency of seeds, encapsulation with nanofiber has been tested in pulses, quite recently.
9. Pre-harvest spray of Enhanced Freshness Formulation 2 percentage (EFF-2%) to extend shelf-life of fruits (mango, guava, grapes) have been developed. Due to this, fruit retention and shelf-life gets extended, under storage conditions.
10. Research studies have been undertaken to assess the performance of field crops at elevated temperature.
11. In collaboration with the India Meteorological Department medium and short range weather forecasting is advocated, to help the farmers for planning the cultivation operations based on weather. This information is disseminated to the registered farmers through the Mobile App in the form as SMS.

5. SUGAR

5.1. Status of Sugar Industry

Sugarcane is an important cash crop which is the basic raw material for sugar industries. The sugar industry plays a vital role in the development of rural economy and provides employment to major rural population.

During the recent years, the area under sugarcane cultivation has declined due to various reasons such as failure of monsoon, uneven distribution of rainfall, depletion of ground water, increased cost of cultivation due to higher labour cost, shortage of harvesting labourers.

The sugar mills in the State have crushed 40.64 Lakh MT of sugarcane and produced 3.40 Lakh MT of sugar with an average recovery of 8.48% during 2019-20 sugar season from 1.10.2019 to 29.02.2020.

5.2. Steps Taken by the Government to Sustain Sugarcane Cultivation

To increase and sustain sugarcane cultivation and to increase the sugar recovery, the Government has taken various steps viz., implementation of Sustainable Sugarcane Initiative (SSI) scheme, distribution of breeder seed materials and tissue culture seedlings for the rejuvenation of Co 86032 and other new sugarcane varieties, trash shredding, distribution of quality budchip seedlings, inter cropping, bio-control measures and micro irrigation scheme under National Agriculture Development Programme (NADP) and Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) to encourage the sugarcane farmers. Considering the welfare of the sugarcane farmers, the above schemes will be extended in the 2020-21 financial year.

5.3. Micro Irrigation

To sustain sugarcane cultivation and to improve sugarcane productivity and sugar recovery, steps are being taken to bring more

area under drip irrigation by utilizing 100% subsidy assistance to small and marginal farmers and 75% to other farmers under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) scheme. For the purchase of additional components by the farmers which are not covered under PMKSY scheme, the State Government has made a special allocation of Rs.68.35 Crore during 2019-20 financial year and have taken necessary steps to bring more sugarcane area under drip irrigation by utilising the above fund. This special allocation will enable the farmers to install Micro Irrigation without any additional expenditure on their own. In 2018-19 financial year, drip irrigation was installed in 5588 Ha. of sugarcane area. During the current 2019-20 financial year, work orders have been issued for 19744 Ha. and as on 29.02.2020 drip irrigation is installed in 9442 Ha.

Utmost importance is given for the implementation of micro irrigation scheme in sugarcane cultivation.

5.4. Mechanization in sugarcane cultivation

To reduce the cost of cultivation of sugarcane, mechanization of cane cultivation is encouraged right from land preparation to cane harvesting and post harvest operations. Various farm implements viz., Power tillers, Power weeders, Rotary mulchers, Trash shredders and Sugarcane harvesters are distributed to sugarcane farmers at subsidized rates @ 50% for small and marginal farmers and 40% for other farmers under Sub-Mission on Agricultural Mechanization (SMAM) scheme through Agricultural Engineering Department. Considering the welfare of the sugarcane farmers, this scheme will be continued in the year 2020-21 also.

5.5. Sugarcane varietal improvement

To identify location specific varieties for each sugar mill's area and to improve yield and sugar recovery, sugarcane varietal trials are being laid out in various locations of the State in co-ordination with Sugarcane Breeding Institute, Tamil Nadu Agricultural University, Coimbatore. The varietal trials conducted by the Sugarcane Breeding Institute, Coimbatore revealed that Co 11015 variety seems to be superior to the existing Co 86032 variety both in quality and yield. This is an early maturing variety gives better recovery than Co.86032 even at the age of 8 to 10 months. At present, the area covered under Co 11015 is 1,050 Ha. Steps are being taken to cover 5,000 Ha area under Co 11015 variety in Cooperative, Public and Private Sector Sugar Mills.

Further, a new sugarcane variety released from Sugarcane Research Station, Melalathur namely CoG 6 which is suitable for tannery

effluent and saline soil areas of Vellore, Tirupattur and Ranipettai Districts is being encouraged to cultivate in the Sugar Mills areas of above Districts.

5.6. Cane development activities

To ensure the distribution of quality seed materials to all the sugarcane farmers, a three-tier nursery programme is intensively implemented and monitored from 2017-18 planting season onwards. Further, to reduce the cost of cultivation, sugarcane farmers are encouraged to adopt wider row planting. Model cane plots have been laid out in all the sugar mills areas where the advanced cultivation technologies are adopted to get higher cane yield. To reduce the cost of chemical fertilizers and to save the environment, the sugarcane farmers are being encouraged to use bio-fertilizers for sugarcane cultivation.

Disease free and healthy Tissue culture seedlings multiplied in the Sugarcane Breeding

Institute, Coimbatore and other recognized Institutions are purchased and distributed to the sugarcane farmers with a subsidy of Rs.56,250/- per Ha. Tissue culture seed materials purchased and distributed to 44.11 Ha. in the year 2018-19 and 20.60 Ha. in the year 2019-20 as on 29.02.2020.

To ensure all the sugarcane farmers of Cooperative and Public Sector Sugar Mills to get quality tissue culture seedlings at nominal cost, a tissue culture laboratory is established in Kallakurichi-1 Cooperative Sugar Mills which will commence its production during 2020-21 financial year.

5.7. Transitional Production Incentive

Tamil Nadu Government, in order to find out permanent solution to the problems faced by the Sugar Mills and to ensure farmers to get Fair and Remunerative Price (FRP) in time, announced fixation of Revenue Sharing based cane price fixation from 2017-18 crushing

season. The Government enacted Tamil Nadu Sugarcane (Regulation of Purchase Price) Act 2018 and published the same in Tamil Nadu Government Gazette dated 12.07.2018. To protect the interests of the farmers by assuring them a price of not less than the 2016-17 crushing season State Advised Price (SAP) of Rs.2750/- per metric tonne, the Government have paid **Transitional Production Incentive** to the sugarcane farmers from the 2017-18 crushing season. To pay the difference of Rs.200/- per M.T (Fair and Remunerative Price of Rs.2550/- announced by Government of India for 2017-18 crushing Season and State Advised Price of Rs.2750/- announced by Government of Tamil Nadu for 2016-17 crushing season) the Government released Rs.136.43 Crore directly to Bank accounts of 1,46,058 sugarcane farmers as Transitional Production Incentive. To pay the difference of Rs.137.50 per M.T (Fair and Remunerative Price of Rs.2612.50 announced by

Government of India for 2018-19 crushing season and State Advised Price of Rs.2750/- announced by Government of Tamil Nadu for 2016-17 crushing season), a sum of Rs.98.03 Crore was released directly to Bank accounts of 1,00,918 sugarcane farmers as Transitional Production Incentive as on 29.02.2020.

The Government have also extended the payment of Transitional Production Incentive to 2019-20 crushing season and has allocated Rs.165 Crore in 2020-21 Budget Estimate. The Government have allocated Rs.110 Crore Budget Estimate to distribute Transport subsidy up to Rs.100/- per M.T. for the sugarcane crushed in 2019-20 crushing season for the first time.

6. SEED CERTIFICATION AND ORGANIC CERTIFICATION

Agriculture is the first and foremost sector which paves the way for the development of all other allied sectors. Food is the most essential and undeniable requirement for survival and development. To attain self sufficiency in food production and to meet the growing needs of the increasing population, utmost priority and focused attention is given for Agriculture sector by Government of Tamil Nadu.

In Agriculture, Seed is the most important input which influences not only the yield potential but also the quality and uniformity of the produce which ultimately decides the market value.

One of the most critical management decisions of the farmer is the selection of appropriate Seed source and variety. The Seed quality can affect the yield potential of a crop more than any other input factor. Thus the

income of the farmer totally depends upon the use of Certified Seeds.

To ensure quality Seeds supply for the benefit of farmers in time and to encourage organic farming, the Department of Seed Certification and Organic Certification is functioning with the following wings.

1. Seed Certification
2. Seed Quality Control
3. Seed Testing
4. Organic Certification

6.1. Seed Certification:

The Seed Certification wing of this Directorate involves in regulation and Certification of notified crop varieties in accordance with the provisions of The Seeds Act, 1966 and The Seeds Rules, 1968 to secure and make available Seeds

with standard qualities of germination, physical purity and genetic purity as prescribed under the **Indian Minimum Seed Certification Standards (IMSCS).**

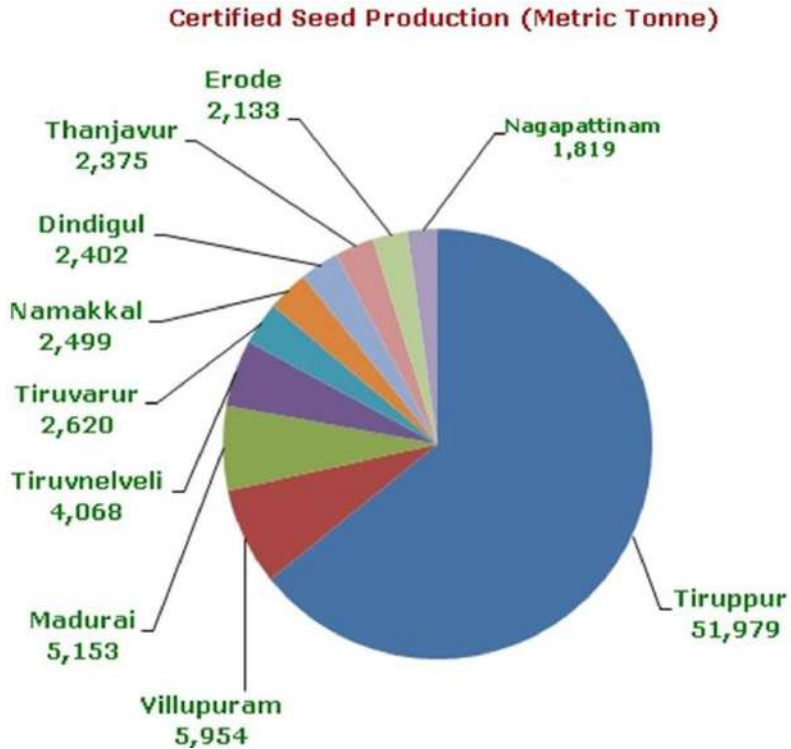
This Department has achieved the targeted production of Certified Seeds in paddy and millets. whereas, there is a need to increase the Certified Seed production in Pulses and Oil Seeds. Concerted efforts are being taken up by this Department for production of Certified Seeds in pulses, Oil Seeds and Vegetables through Seed Certification programmes.

During the year 2019-20, an area of 55,457 hectare Seed farms have been registered under Seed Certification programme for Certified Seed production and a total quantity of 97,845 Metric Tonnes of Seeds have been Certified under various crops.

Table 6.1: AREA REGISTERED AND QUANTITY CERTIFIED UNDER SEED CERTIFICATION 2019-20

S.No.	Headquarters	Area registered in Hectare	Quantity Certified in Metric Ton
1	Kancheepuram	1,164	1,721
2	Tiruvallur	943	840
3	Cuddalore	2,088	1,661
4	Villupuram	3,544	5,954
5	Vellore	1,189	625
6	Tiruvannamalai	1,897	1,424
7	Salem	1,742	632
8	Namakkal	791	2,499
9	Dharmapuri	864	332
10	Krishnagiri	1,001	604
11	Coimbatore	1,042	1,667
12	Erode	2,420	2,133
13	Tiruchirappalli	1,510	755
14	Perambalur	882	1,292
15	Karur	512	235
16	Pudukkottai	871	894
17	Thanjavur	8,042	2,375
18	Nagapattinam	2,465	1,819
19	Thiruvarur	4,920	2,620
20	Madurai	2,016	5,153
21	Theni	789	1,756
22	Dindugal	1,878	2,402
23	Ramanathapuram	665	360
24	Sivagangai	431	387
25	Virudhunagar	1,037	536
26	Tirunelveli	2,438	4,068
27	Thoothukudi	1,339	940
28	Kanyakumari	133	182
29	Tiruppur	6,844	51,979
	Total	55,457	97,845

6.1.1. CERTIFIED SEED PRODUCTION - TOP 10 DISTRICTS



An area of 57,000 hectare has been programmed to be registered under Certified Seed production and to produce 1.10 Lakh Metric Tonnes of Certified Seeds during the year 2020-21.

6.2. Seed Quality Control:

By implementing The Seeds Act 1966, The Seeds Rules 1968, The Seeds (Control) Order, 1983 and The Environment (Protection) Act, 1986, the Seed inspection wing of this Department regulates the distribution of quality Seeds in the State. This Department has issued 10,744 Seed selling licenses to Seed selling points under the Seeds (Control) Order, 1983 to regulate and distribute quality Seeds to the farming community at right time.

These Seed selling points are inspected by the Seed Inspectors atleast once in three months mandatorily and Seed samples are drawn for quality check from the Seed lots kept for sale. The samples are analyzed in the notified Seed testing laboratories. Based on the results obtained, actions are initiated against the sub standard Seed lots. Contraventions of Seed legislations

detected by the Seed Quality Control wing are dealt with legal actions.

A total number of 66,447 Seed selling points have been inspected and 69,482 Seed samples have been drawn for quality check during the year 2019-20. A quantum of 1,316 Metric Tonnes of sub standard Seeds from 2,607 Seed lots have been stopped from sale to the farmers. Out of 1,331 sub standard seed samples identified through seed testing, Departmental action were initiated against 1,079 sub standard seed samples and legal action were initiated for remaining 252 sub standard seed samples

It is programmed to inspect 68,500 Seed selling points and to draw 69,500 Seed samples for quality check during the year 2020-21.

6.3. Seed Testing:

Seed quality describes the potential performance of a Seed lot viz., trueness to

variety, germination potential, vigour and devoid of inert matter, other crop Seeds, weed Seeds and disease incidence. Seed testing is an inevitable tool to determine if Seed meets prescribed quality standards, thereby assess their suitability for planting and to minimise the risks of planting low quality Seeds. Also, it helps to determine the need for drying and processing and specific procedures that should be used.

There are 33 notified Seed Testing Laboratories (STLs) functioning in Tamil Nadu viz., 29 Seed Testing laboratories in different Districts, 1 Grow out test farm, 1 DNA Finger Printing Laboratory, 1 State Referral Seed Testing laboratory and 1 Bt testing laboratory in Coimbatore under the control of the Directorate.

The 29 notified Seed Testing Laboratories functioning at district level to ascertain Seed qualities viz., Moisture, Physical purity and

Germination as per the Indian Minimum Seed Certification Standards (IMSCS). Certified Seed samples of the Seed Certification wing and Official samples of the Seed quality control wing are received and tested in the notified Seed testing laboratories. Also, these laboratories serve farmers by receiving Service samples, test and provide test report at a nominal fee of Rs.30/-. A total number of 86,822 Seed samples were analyzed for quality check during 2019-20 and it is proposed to analyze 95,500 Seed samples for the year 2020-21.

6.3.1. Bt Seed testing Laboratory:

This Laboratory attached to the Directorate of Seed Certification and Organic Certification analyze the Bt toxin of Cotton Seeds sent by the Seed Inspectors. On an average, 2,000 Seed samples are tested in Cotton for presence of Bt toxin every year.

6.3.2. Referral Laboratory:

This laboratory functions in the premises of the Directorate of Seed Certification and Organic Certification, Coimbatore to monitor and maintain uniformity for accuracy in analysis among notified Seed Testing laboratories functioning at district level in the State. On an average, 1,500 referral samples are tested every year in this laboratory.

6.3.3. ISTA accredited Seed testing laboratory:

The Seed testing laboratory functioning in Coimbatore is a member of **International Seed Testing Association (ISTA), Zurich, Switzerland since 2007**. This laboratory got the accreditation from '**International Seed Testing Association**' (ISTA) in the year 2014 and reaccredited during the year 2017. **The Seed Testing Laboratory IN 16, Coimbatore is the only public sector laboratory in India having accreditation of ISTA.** This Laboratory

has the facilities and technical competence to analyse Seed samples to International standards and it was awarded with **“The Best Performing Laboratory in India”** by the Government of India, Ministry of Agriculture & Farmers welfare.

This laboratory is accredited for the scope of germination, Other Crop Seeds (OCS) and physical purity test for crops like cereals, pulses and vegetables and also sampling of Seed lots. Being an ISTA accredited laboratory, it is authorized to issue Orange International Certificates (OIC) and Blue International Certificates (BIC) to the Seed exporters which ensure Seed quality to International standards. Till date, 79 Certificates have been issued and the Seed exporters were benefited.

There is a growing demand in the International Seed Market for vegetable Seeds. The ISTA accredited Seed Testing Laboratory of

Coimbatore is the gateway, even for small entrepreneurs to become exporters.

6.3.4. Grow out test Farm:

A technique called Grow out Test is used to assess the genetic purity of crop varieties/Hybrids under field condition to ascertain the trueness of a variety or Hybrid. In Grow Out Test, plots are examined throughout the growing season with a special emphasis during flowering to maturity. Plants are examined for the distinguishing morphological characters and screened for genetic purity. The officials of Seed Certification and Seed law enforcement wings of the Department periodically send Seed samples to the Grow out Test farm for assessing genetic purity of Seeds to ascertain the trueness of Seed. On an average, 3,600 samples are tested every year in Grow Out Farm.

6.3.5. DNA Finger Print Laboratory:

Grow Out Test at field level will take 2-3 months to complete the genetic purity test. Detection of genetic purity of a variety within a short span of 3-4 days can be done by using DNA Finger Print technique. Hence, a modernized DNA Finger Print Laboratory was established in the Directorate of Seed Certification & Organic Certification for quick detection and confirmation of genetic purity of the Seed lots received so as to facilitate quick distribution of quality Seeds to the farmers at the right time. **This DNA Finger Print Laboratory is first of its kind in the country and has been notified during 2014 as "State DNA Finger Printing Laboratory" by Tamil Nadu Government.** This laboratory has a potential to ensure the genetic purity of 16 Notified paddy varieties which are predominantly cultivated in the State.

6.4. Training:

The field level functionaries and officials of this Department are to perform different functions of Certification, Inspection and Testing such as field inspections, Seed processing, Seed sampling, Seed testing and in Seed legislations. To promote quality Seed production and distribution, the following training programs are organized by the training wing of this Department.

6.4.1. Orientation Training:

The newly positioned technical officers of this Department are imparted with training on Seed Certification procedures, field inspections, identification of crop varieties, processing, sampling, tagging procedures and online execution of **SPECS (Seed Production, Enforcement and Certification System)** software involved in Seed testing and Seed quality control.

6.4.2. Refresher Training:

The technical officers of this Department are trained on the latest techniques on Seed production, Seed testing and Seed inspection.

6.4.3. Training to Seed Producers:

To increase the quality Seed availability and to improve quality Seed production, the Seed producers are imparted with training on various field and Seed standards.

6.4.4. Training to Seed Dealers:

To ensure the quality Seed availability to the farmers, training is given to the Seed dealers on sale of quality Seeds, Seed storage and on the regulatory aspects of Seed legislation.

During the year 2019-20 a total number of 47,320 Seed producers and Seed dealers have been trained. It is programmed to train 47,320 Seed producers and Seed dealers during the year 2020-21.

6.5. Organic Certification:

Tamil Nadu Organic Certification Department (TNOCD) was established in 2007 to carry out Inspection and Certification of organic production system in accordance with NPOP (National Programme for Organic Production) launched by Government of India in the year 2000 and notified in October 2001 under the Foreign Trade (Development and Regulation) Act 1992.

Tamil Nadu Organic Certification Department has been accredited by **APEDA (Agriculture and Processed Food Products Export Development Authority), New Delhi, Ministry of Commerce and Industry and the ID allotted to TNOCD is NPOP/NAB/0019.** This Department carries out Certification of the following activities:

1. Crop production
2. Organic food processing
3. Organic input Manufacturing units
4. Organic Trade and Export

The procedures and the quality system followed in the Organic Certification is on par with the standards of the European Union. **TNOCD has the largest number of individual farmers and also stands first in the whole country for the number of transaction certificates issued solely under NPOP.** TNOCD also imparts training to the registered organic farmers on NPOP and TNOCD standards.

The Tamil Nadu Organic Certification Department has issued Scope Certificates for 1,549 farmers under the National Programme on Organic Production (NPOP) standards. Moreover Transaction Certificates for a production quantity of 224 Metric Tonnes with a value of Rs.95.68 Lakh has been issued by Tamil Nadu Organic Certification Department. Also, Organic products fetch an increase in the sale price of around 20 per cent in the domestic market. Organic Processing Certificates have been issued for virgin

coconut oil production. Organic Trading Certificates have also been issued to upscale Organic product marketing.

During the year 2019-20, an area of 27,125.23 acres of land has been registered under Organic Certification excluding the area under Forest Products collection area.

TABLE 6.2: DETAILS ON AREA REGISTERED BY FARMERS REGISTERED UNDER ORGANIC CERTIFICATION 2019-20

S. No	Headquarters of Organic Certification Inspector	Jurisdiction (Districts)	Area Registered (Acres)
1	Coimbatore	Coimbatore, Tiruppur, Nilgiris, Erode, Salem, Namakkal, Dharmapuri and Krishnagiri	11,637.75
2	Trichy	Trichy, Karur, Perambalur, Ariyalur, Pudukkottai, Thanjavur, Thiruvarur and Nagapattinam	1,185.52
3	Madurai	Madurai, Virudhunagar, Tirunelveli, Sivagangai, Ramanathapuram, Theni, Dindugal, Thoothukudi and Kanyakumari	7,420.45
4	Vellore	Vellore, Tiruvannamalai, Villupuram, Kancheepuram, Tiruvallur and Cuddalore	6,881.51
		Total	27,125.23

6.5.1. Strengthening of Organic Certification:

In order to promote Organic farming in Tamil Nadu, **establishment of District level Organic Certification Centres has been announced during the Budget Speech 2019-20.** Accordingly, the Department of Organic Certification has been strengthened with the establishment of Organic Certification Centres in all the Districts. With the vision to increase the area under organic farming and regulating the organic certification methodology, the Joint Director of Seed Certification post in the State level has been re-designated as Joint Director of Seed Certification & Organic Certification (JDSC&OC), 29 Assistant Director of Seed Certification posts in the District level has been re-designated as Assistant Director of Seed Certification & Organic Certification (ADSC&OC). Further, 26 Seed Certification Officer posts in the District level has also been re-designated as Seed Certification Officer & Organic Certification

Inspector (SCO&OCI) and 4 Organic Certification Inspector (OCI) posts have been newly created on redeployment in addition to the existing 4 Organic Certification Inspector at District level. In addition to this, 1 Quality Manager, 1 Evaluator (Organic Certification), 2 Organic Certification Inspector posts have already been created at Directorate of Seed Certification and Organic Certification for executing the Organic Certification activities effectively.

The implementation and adoption of these result oriented path breaking initiative for promoting organic certification in Tamil Nadu will bring large number of farmers under organic certification. This Eco-friendly poison free food production paved a way to increase export opportunities and demand driven toxic free produce to the consumer besides increasing farmers' income.

6.6. "SPECS" (Seed Production, Enforcement and Certification System) Online:

The IT wing of the Directorate of Agriculture has developed an exclusive software **"SPECS" (Seed Production, Enforcement and Certification System)** to make all the technical activities of the Department of Seed Certification online to quicken the process of Certification activities and to link all the activities of the Certification Department to bring better monitoring and more transparency in the system. It is pertinent to note that this kind of **online monitoring is the first of its kind among Indian Seed Certification Agencies.**

The "SPECS" online module has been working successfully in all districts and now all stakeholders are acquainted with this electronic system and getting benefited on its quickness, transparency and accuracy.

6.7. Infrastructure Development:

Hon'ble Chief Minister of Tamil Nadu inaugurated the Conference Hall in the premises of this Directorate in January 2020

which was constructed with a budget outlay of Rs.155.43 Lakh under National Agriculture Development programme (NADP) for conducting training programmes for Farmers, Seed producers, Seed dealers, Department officials and Department meetings which will pave the way for better execution of Seed Certification activities.

In order to serve better to the farming community through quality Seed production, an integrated Seed Certification Complex will be constructed in an extent of 25 cents at Kattuthottam, Thanjavur district with a budget out lay of Rs.235 Lakh sanctioned under NADP 2019-20.

To strengthen the implementation of online Certification process through SPECS software,

141 number of laptops were purchased for Field level officers amounting to a sum of rupees Rs. 55 Lakh under NADP 2019-20. For taking up quality Seed analysis and to sustain the accuracy in Seed testing, a sum of Rs.30.90 Lakh has been sanctioned for renovation of two Seed Testing Laboratories viz., Madurai and Kanchipuram under NADP 2019-20.

6.8. Establishment:

The Department of Seed Certification and Organic Certification is functioning distinctly with the staff strength of 345 Technical and 500 Ministerial staff.

Tiruppur District is contributing 53 per cent of total quantity of Seeds Certified in Tamil Nadu. Hence, the Government of Tamil Nadu created a new office of Assistant Director of Seed Certification exclusively for Tiruppur District and is functioning from 01.07.2019 onwards.

Table 6.3: Department of Seed Certification and Organic Certification- Staff Strength

Name of the post	Sanctioned Strength
A. Technical Staff	345
Director of Seed Certification & Organic Certification	1
Joint Director of Seed Certification & Organic Certification	1
Joint Director of Seed Inspection	1
Deputy Director of Seed Inspection	15
Quality Manager	1
Assistant Director Seed Certification	1
Assistant Director Seed Certification & Organic Certification	29
Evaluator (Organic Certification)	1
Seed Testing Officer	7
Seed Certification Officer	119
Seed Certification Officer & Organic Certification Inspector	26
Agricultural Officer	63
Seed Inspector	70
Organic Certification Inspector	10
B. Ministerial Staff	500
Total Staff Strength	845

7. AGRICULTURAL MARKETING AND AGRI BUSINESS

The Department of Agricultural Marketing and Agri Business has been playing an important role in marketing the farmers produce and get economic returns for their produce. With the increasing demand for the value-added food products, processed foods and advancements in the processing of Agriculture Produce, the state focuses on creating awareness among farmers on the need to shift to market led Agriculture.

To enable farmers to shift to market led Agriculture, the state is committed to empower the farmers as groups by promoting farmer producer organization (FPO), train and guide in agri-business entrepreneurial skills and support them in starting business through value addition and post harvest management.

Interests of small and marginal farmers are safeguarded by way of opening a platform for

e-trading through e-NAM and through Price Support Scheme.

Increasing awareness among consumers on the quality of produce, especially perishables like Vegetables and Fruits necessitates the need for creating infrastructures related to post harvest operations like assembling, grading, storage, transportation and distribution, that are being delivered through Supply Chain Management Programme.

Foreseeing the demand for the processed food, the state has initiated steps for establishing Food parks in Tamil Nadu, which will open opportunities to the farmers to involve them in processing their produce without becoming a prey to the perishable nature of their farm harvest and create an opportunity for establishing agribusiness.

To achieve the goal of market led Agriculture, Acts and Policies are unveiled to support the farmers not only in marketing activities but also financially. Food Processing Policy, FPO Policy and Contract Farming Act have

been unveiled. Action is under progress for formulating Tamil Nadu Agri Export Policy.

The major activities of the Department:

1. Creating platform for marketing the Agricultural produce through Regulated Markets, Farmers Market etc.
2. Creating and strengthening the infrastructure facilities for Post harvest handling and marketing like Godowns, Transaction sheds, Cold Storage Units, Drying yards.
3. Creation of e-trading facilities for transparent transactions in the Regulated Markets under e-NAM.
4. Establishment of Supply Chain activities for perishable Commodities to the farming community to reduce the post harvest loss.
5. Promoting Farmer Producer Organizations (FPOs) through TNSFAC and Collective farming to empower small and marginal farmers.

6. Encouraging Agri entrepreneurs by promoting value addition and food processing.
7. Disseminating market price and price forecast to the registered farmers through SMS for getting better price.
8. Protecting the small and marginal farmers from price fall by promoting Price Support Scheme through NAFED for procurement of pulses, Copra etc.,
9. AGMARK Certification to ensure quality produce to the consumers.
10. Capacity Building programme for farmers/Officials on post harvest management, processing, value addition, grading, etc for updating their skills.
11. Facilitating direct marketing between farmers and consumers and enable them to get remunerative price.

7.1. AGRICULTURAL MARKETING ACTIVITIES

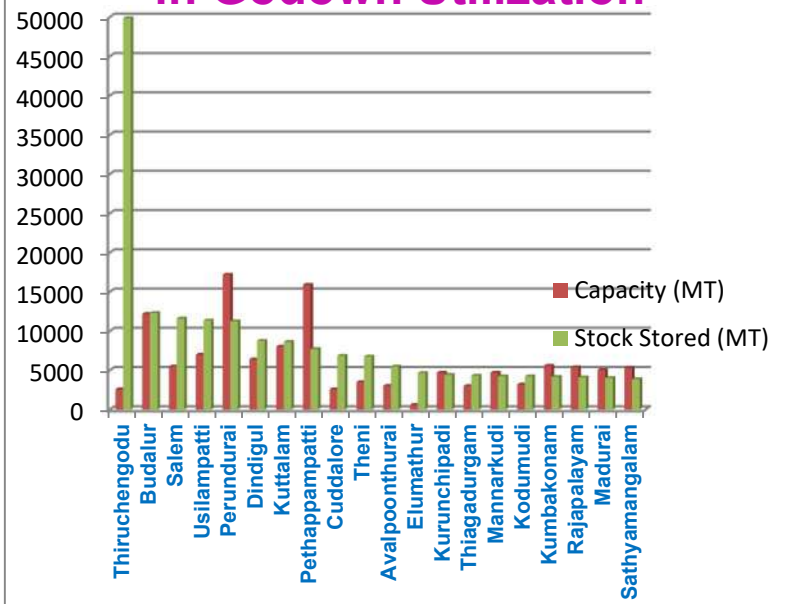
7.1.1 Market Committees and Regulated Markets

Regulated Markets are established for better regulation of buying and selling of Agricultural produce. Every market committee is established in the notified area for transaction of the notified agricultural produce. **In Tamil Nadu, 26 Market Committees have been established under which 282 Regulated Markets are functioning as per the provisions of Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987, Rules 1991. 2 more Regulated Markets, one in Melsithamur under Villupuram Market Committee and the Other Veppur under the Cuddalore Market Committee have been sanctioned and their establishment is under progress.**

For trading of Agricultural produce, Regulated Markets act as a common platform between farmers and traders. Agricultural

produce brought to Regulated markets by farmers are sold by adopting the secret bid method. No fee is collected from farmers for the services rendered. One percent of the sale value of the produce is collected as market fee from Traders. Besides, license fee is also collected from traders and weighmen. **During 2019-20, about 24.58 Lakh MT of agricultural produce were sold by farmers and Rs.111.84 Crore was collected as market fee.** Facilities like storage godown, transaction sheds, drying yard, farmers' rest room, traders shop, cold storages, market complex with cold storages, etc., are provided in the regulated markets. To meet the immediate money requirement of farmers and to protect farmers from distress sale during glut seasons, pledge loan facility is extended to the maximum of Rs.3 Lakh. **During 2019-20, about 1456 farmers availed pledge loans to the tune of Rs.33.43 Crore.** No interest is charged for first 15 days of loan period. Interest at the rate of 5% will be charged beyond 15 days.

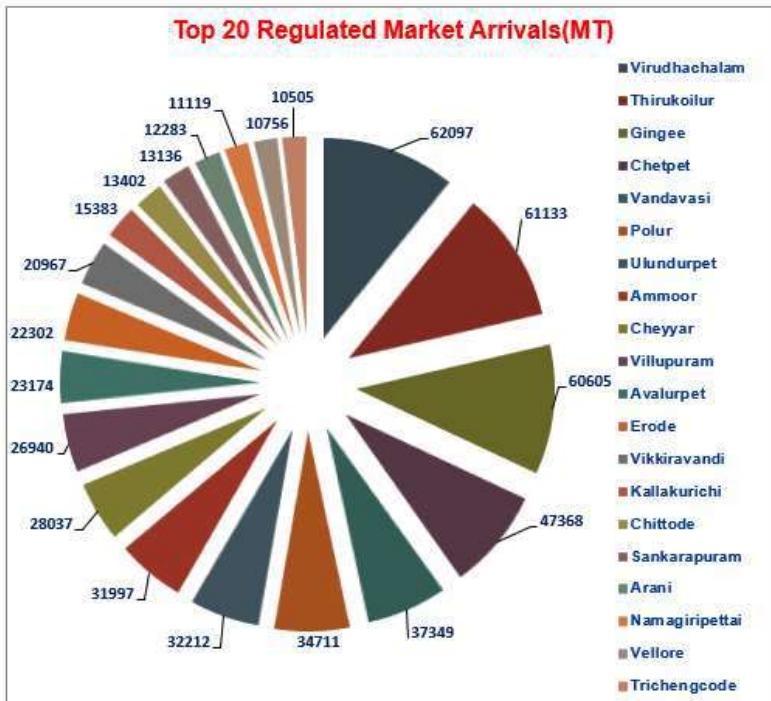
Top 20 Regulated Markets in Godown Utilization



Traders can also avail pledge loan up to a maximum of Rs.2 Lakh at 9% rate of interest to meet their short-term requirements. **During the year 2019-20, pledge loan was issued to the tune of Rs.2.20 Crore to 125 traders.**

Market information is an important tool in any agricultural marketing system. In order to

provide regular and timely information on prices of agricultural commodities prevailing in regulated markets, under Marketing Research and Information Network (MRIN) scheme 184 regulated markets are linked to the portal (agmarknet.gov.in).



**Table 7.1 District and Market Committee wise
Regulated Markets**

S. No	Market Committee	District		No. of RMs	Name of the Market
1.	Kancheepuram	1	Kancheepuram	3	Kancheepuram, Uthiramerur, Sunguvarchatram
		2	Chengalpet	4	Madurantagam, Thirukkalukundram, Acharapakkam, Chengalpet
		3	Tiruvallur	8	Tiruthani, Tiruvallur, Redhills, Ponneri, Pallipattu, Uthukottai, Gummidipoondi, Nasarethpettai
2.	Cuddalore	4	Cuddalore	10	Virudhachalam, Cuddalore, Panruti, Thittakudi, Kattumannarkoil, Chidambaram, Kurinjipadi, Sethiyathope, Srimushnam, Bhuvanagiri
3.	Villupuram	5	Villupuram	10	Tindivanam, Thirukoilur, Villupuram, Gingee, Thiruvannainallur, , Avalurpet, Marakkanam, Vikravandi, Ananthapuram, Valathi.
		6	Kallakurichi	8	Ulundurpet, Chinnasalem, Kallakurichi, Thiyagadurgam, Sankarapuram, Manalurpet, Moongilthuraipattu,

S. No	Market Committee	District		No. of RMs	Name of the Market
					Thirunavalur.
4.	Vellore	7	Vellore	3	Vellore, Gudiyatham, Katpadi.
		8	Tiruppathur	3	Thirupattur, Vaniyambadi, Ambur.
		9	Ranipet	6	Arcot, Kaveripakkam, Kalavai, Ammoor, Thimiri, Arakkonam.
5.	Tiruvannamalai	10	Tiruvannamalai	18	Tiruvannamalai, Arani, Vandavasi, Chetpet, Cheyyar, Polur, Chengam, Pudupalayam, Vanapuram, Vettavalam, Thellar, Mangalamamandoor, Desur, Peranamallur, Dhusi, Kilpennathur, Adamangalampudur, Naidumangalam.
6.	Salem	11	Salem	14	Salem, Athur, Sankagiri, Konganapuram, Kolathur, Mecheri, Vazhapadi, Thammampatti, Thalaivasal, Omalur, Kadayampatti, Gangavalli, Karumanthurai, Edapadi.
7.	Namakkal	12	Namakkal	6	Namakkal, Rasipuram, Tiruchengode, Paramathivelur, Namagiripettai, Cholakkadu.
8.	Dharmapuri	13	Dharmapuri	7	Dharmapuri, Palacode,

S. No	Market Committee	District		No. of RMs	Name of the Market
					Pennagaram, Harur, Pappireddipatti, Kambainallur, Papparapatti
		14	Krishnagiri	9	Krishnagiri, Hosur, Kelamangalam, Pochampalli, Uthangarai, Kaveripattinam, Bargoor, Rayakottai, Denkanikkottai.
9.	Coimbatore	15	Coimbatore	10	Annur, Karamadai, Coimbatore, Sulur, Anaimalai, Pollachi, Malayadipalayam, Negamam, Kinathukkadavu, Thondamuthur
10.	Tiruppur	16	Tiruppur	15	Kunnathur, Kangayam, Vellakoil, Dharapuram, Moolanur, Alangiam, Muthur, Tiruppur, Avinashi, Sevur, Palladam, Udumalpet, Madathukkulam, Pethappampatti, Pongalur.
11.	Erode	17	Erode	18	Erode, Avalpoonthurai, Kodumudi, Sivagiri, Chithode, Bhavani, Boothapadi, Anthiyur, Mylampadi, Kavundhampadi, Gobichettipalayam, Nambiyur, Vellankoil, Sathyamangalam, PunjaiPulliyampatti, Thalavadi, Perundururai, Elumathur

S. No	Market Committee	District		No. of RMs	Name of the Market
12.	Tiruchirapalli	18	Tiruchirapalli	10	Manapparai, Thuraiyur, Lalgudi, Tiruchirapalli, Thottiyam, Manachanallur, Thuvarankurichi, Pullambadi, Thathaiyangarpet, Kattuputhur
		19	Karur	4	Kulithalai, Karur, Iruputhipatti, Chinnadharapuram
13.	Perambalur	20	Perambalur	2	Perambalur, Poolambadi
		21	Ariyalur	4	Ariyalur, Jayankondam, Andimadam, Melanikuzhi
14.	Pudukkottai	22	Pudukkottai	10	Alangudi, Aranthangi, Pudukkottai, Gandarvakkottai, Avudayarkoil, Keeranur, Keeramangalam, Ponnamaravathi, Illuppur, Karambakkudi
15.	Thanjavur	23	Thanjavur	13	Athiramapattinam, Ammapettai, Budalur, Kumbakonam, Madukkur, Orathanadu, Pattukottai, Papanasam, Peravoorani, Thanjavur, Vallam, Thirupananthal, Pappanadu
16.	Tiruvarur	24	Tiruvarur	8	Koradacheri, Kudavasal, Valangaiman, Thiruthuraiipoondi, Poonthottam, Mannarkudi, Tiruvarur, Vaduvur.

S. No	Market Committee	District		No. of RMs	Name of the Market
17.	Nagapattinam	25	Nagapattinam	8	Keevalur, Kuttalam, Mayiladuthurai, Nagapattinam, Sembanarkoil, Sirkazhi, Vedaranayam, Thirupoondi
18.	Madurai	26	Madurai	6	Thirumangalam, Usilampatti, Melur, Madurai, T.Kallupatti, Vadipatti
19.	Theni	27	Theni	7	Theni, Cumbum, Bodinayakanur, Chinnamanur, Andipatti, Uthamapalayam, Periyakulam
20.	Dindigul	28	Dindigul	8	Dindigul, Ottanchatram, Palani, Vedesendur, Vadamadurai, Gopalpatti, Natham, Batlagundu
21.	Ramanathapuram	29	Ramanathapuram	6	Ramanathapuram, Paramakudi, Kamuthi, Thiruvadanai, Rajasingamangalam, Mudukulathur
22.	Virudhunagar	30	Virudhunagar	7	Virudhunagar, Rajapalayam, Sathur, Aruppukottai, Srivilliputhur, Watrap, Vembakkottai
23.	Sivagangai	31	Sivagangai	7	Sivagangai, Thiruppuvanam, Manamadurai, Singampuneri, Karaikudi, Ilayankudi, Devakkottai

S. No	Market Committee	District		No. of RMs	Name of the Market
24.	Tirunelveli	32	Tirunelveli	4	Ambasamudram, Valliyur, Tirunelveli, Thisayanvilai
		33	Tenkasi	7	Thenkasi, Sankarankovil, Pavoorchatram, Thiruvenkadam, Sivagiri, Alangulam, Kadayanallur
		34	Thoothukudi	9	Kovilpatti, Thoothukudi, Pudur, Kadambur, Kalugumalai, Srivaikundam, Vilathikulam, Ettayapuram, Sathankulam
25.	The Nilgiris	35	The Nilgiris	4	Udagamandalam, Kothagiri, Coonoor, Gudalur
26.	Kanniyakumari	36	Kanniyakumari	6	Eathamozhi, Vadaseri, Kaliyakkavilai, MondayMarket, Kulasekaram, Thoduvatti
			Total	282	

**Table 7.2 Infrastructure available in
Regulated Markets (Nos.)**

S. No	Market Committee	No. of Regulated Markets	Regulated Markets in Own Land	Godown	Transaction Shed	Drying Yard	Trader Shops
1	Kancheepuram	15	8	11	8	16	-
2	Vellore	12	8	26	15	11	-
3	Tiruvannamalai	18	14	26	45	12	10
4	Cuddalore	10	7	11	23	15	10
5	Villupuram	18	14	31	55	18	-
6	Salem	14	10	15	16	16	-
7	Dharmapuri	16	8	16	8	20	10
8	Coimbatore	10	10	30	19	30	10
9	Erode	18	15	38	33	34	10
10	Tiruchirapalli	14	10	16	16	20	-
11	Thanjavur	13	7	21	20	5	-
12	Pudukkottai	10	2	4	2	4	-
13	Madurai	6	4	9	4	7	-
14	Ramanathapuram	6	6	9	3	9	25
15	Tirunelveli	20	16	28	17	15	10
16	Kanniyakumari	6	5	11	3	4	-
17	Theni	7	5	12	4	7	-
18	Dindigul	8	6	9	6	8	-
19	Tiruvarur	8	7	13	9	8	-
20	Nagapattinam	8	5	16	6	5	-

S. No	Market Committee	No. of Regulated Markets	Regulated Markets in Own Land	Godown	Transaction Shed	Drying Yard	Trader Shops
21	The Nilgiris	4	-	-	1	-	-
22	Tiruppur	15	13	59	29	45	-
23	Perambalur	6	4	7	15	8	-
24	Namakkal	6	4	8	4	5	-
25	Virudhunagar	7	4	12	4	5	-
26	Sivagangai	7	5	9	2	7	-
	Total	282	197	447	367	334	85

7.1.2 e-National Agriculture Market (e-NAM)

Government of India launched e-NAM (National Agriculture Market), a pan India electronic trading platform, to facilitate farmers, traders, buyers, exporters and processors with a common e-platform for trading commodities at the National Level. e-NAM is implemented by Government of India in 585 Mandis in 16 States, 2 Union Territories since April 2016 in three phases.

After requisite amendments made, in the Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987, e-NAM has been implemented in Tamil Nadu since October 2017.

7.1.2.1 Benefits of e-NAM

1. Transparency in trade and better price discovery to farmers.
2. Farmers and Traders have access to large National markets.
3. Encourage direct participation of Bulk buyers, processors, exporters in local Markets.
4. Unified Single license for trader valid for all markets within the State.
5. Quick auction process, prices commensurate with the quality of produce and online payment to farmers bank account directly.
6. Establishing quality assaying systems for quality assurance to promote inter State trade.

7.1.2.2 Present Scenario of e-NAM in Tamil Nadu

Out of 282 Regulated markets in the state, the following 23 Regulated Markets were integrated under e-NAM in phases and implemented since October 2017.

Table.7.3 Regulated Markets integrated with e-NAM

S. No	Market Committee	District	e-NAM Market
1	Vellore	Ranipet	Ammoor
2			Kalavai
3	Coimbatore	Coimbatore	Annur
4			Anaimalai
5	Dindigul	Dindigul	Dindigul
6	Erode	Erode	Anthiyur
7			Sathyamangalam
8			Gobichettipalayam
9			Perundurai
10	Ramanathapuram	Ramanathapuram	Paramakudi
11	Villupuram	Villupuram	Thirukovilur
12			Gingee
13		Kallakurichi	Ulundurpettai
14			Kallakurichi
15	Tiruppur	Tiruppur	Thiruppur
16			Udumalpet
17			Pethappampatti
18			Vellakoil

S. No	Market Committee	District	e-NAM Market
19	Theni	Theni	Cumbum
20	Cuddalore	Cuddalore	Virudhachalam
21	Namakkal	Namakkal	ParamathiVelur
22	Trichirappalli	Trichirappalli	Lalgudi
23	Madurai	Madurai	Madurai

Further, the following 40 Regulated markets will be integrated into e-NAM shortly.

Table.7.4 Regulated Markets to be integrated with e-NAM

S. No	Market Committee	District	eNAM Market
1	Tiruvannamalai	Tiruvannamalai	Cheyvar
2			Arani
3			Desur
4			Vettavalam
5			Polur
6			Chetpet
7			Kilpennathur
8			Vandavasi
9	Villupuram	Villupuram	Tindivanam
10			Vikkiravandi
11			Villupuram
12			Avalurpet
13		Kallakurichi	Sankarapuram
14			Thiyagadurgam

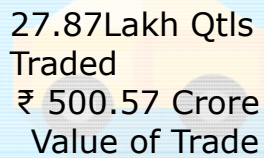
S. No	Market Committee	District	eNAM Market
15	Erode	Erode	Erode
16	Cuddalore	Cuddalore	Panruti
17	Dindigul	Dindigul	Natham
18			Palani
19			Oddanchatram
20	Coimbatore	Coimbatore	Pollachi
21			Negamam
22	Tiruppur	Tiruppur	Moolanur
23	Vellore	Vellore	Vellore
24			Gudiyatham
25		Tirupathur	Tirupathur
26			Vaniyambadi
27	Madurai	Madurai	Usilampatti
28	Nagapattinam	Nagapattinam	Kuthalam
29			Mayiladuthurai
30			Sembanarkoil
31			Sirkali
32	Kancheepuram	Kancheepuram	Kancheepuram
33		Chengalpattu	Maduranathangam
34	Theni	Theni	Theni
35	Virudhunagar	Virudhunagar	Rajapalayam
36			Virudhunagar
37	Ramanathapuram	Ramanathapuram	Mudhukalathur
38			Kamuthi
39			Rajasingamangalam
40	Dharmapuri	Dharmapuri	Harur

7.1.2.3 Funding e-trading projects

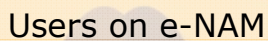
To facilitate e-trading, Tamilnadu has sanctioned Rs.148 Crore for strengthening infrastructure facilities like Godowns, Bidding room, Grading and Assaying Hall, Transaction sheds and Drying yards in e-NAM markets and in APCMS Markets. Meanwhile, Government of India has also released Rs.28.10 Crore under Agri Tech Infrastructure Fund for integration of 63 Regulated Markets under e-NAM.

7.1.2.4 Performance of e-NAM Markets

Tamil Nadu has emerged as the leading state in promoting e-trading in the Regulated marketing system in the country. So far, **27.87 Lakh Quintal** of agricultural produce valued at **Rs.500.57 Crore** have been transacted through e-NAM platform in 23 Regulated Markets and e-payment through e-NAM portal has been made to 64,064 farmers to a tune of Rs.184.36 Crore.



27.87Lakh Qtls
Traded
₹ 500.57 Crore
Value of Trade



Users on e-NAM

2.86 Lakh Farmers
2211 Traders
91FPOs



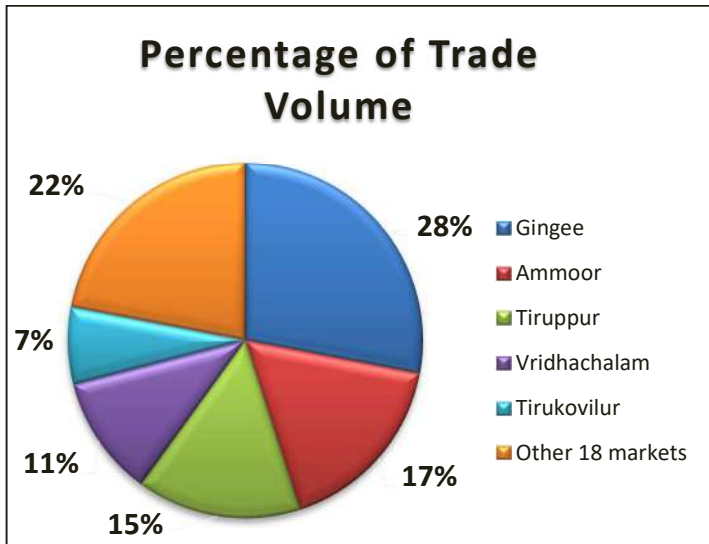
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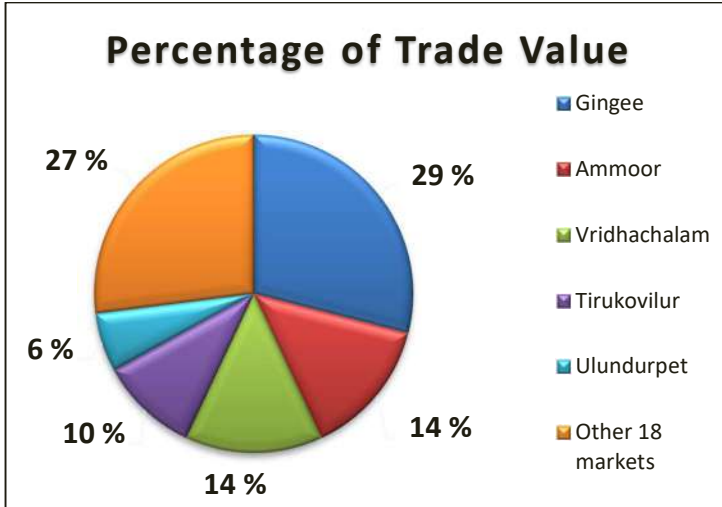
Regulated
Markets
Integrated

Table.7.5 Performance of e-NAM Regulated Markets

S. No	District	Regulated Market	Cumulative Total Trade (Lakh Qtls)	Cumulative Total Value (Rs. in Crore)	e-Payment through eNAM (Rs in Crore)
1	Ranipet	Ammoor	4.55	68.71	19.55
2	Ranipet	Kalavai	1.54	22.13	6.15
3	Coimbatore	Annur	0.09	3.73	0.67
4	Coimbatore	Anaimalai	0.21	18.19	4.96
5	Dindigul	Dindigul	0.40	13.55	2.96
6	Erode	Anthiyur	0.17	9.13	4.66
7	Erode	Sathyamalam	0.25	8.92	2.26
8	Erode	Gobichetty palayam	0.08	4.12	0.61
9	Erode	Perundurair	0.06	3.62	3.50
10	Ramanathapuram	Paramakudi	0.16	6.12	0.13
11	Villupuram	Tirukovilur	1.96	48.39	26.82
12	Villupuram	Gingee	7.91	143.37	47.64
13	Kallakurichi	Ulundurpet	1.54	28.05	24.17
14	Kallakurichi	Kallakurichi	0.64	13.53	6.73
15	Tiruppur	Tiruppur	4.24	2.88	2.73
16	Tiruppur	Udumalpet	0.31	7.87	6.86
17	Tiruppur	Pethappampatti	0.14	2.63	2.44
18	Tiruppur	Vellakovil	0.24	15.22	12.17

S. No	District	Regulated Market	Cumulative Total Trade (Lakh Qtls)	Cumulative Total Value (Rs. in Crore)	e-Payment through eNAM (Rs in Crore)
19	Theni	Cumbum	0.14	2.86	0.76
20	Cuddalore	Vridhachalam	2.98	67.98	1.54
21	Salem	Paramathivelur	0.07	6.00	5.15
22	Trichirappalli	Lalgudi	0.01	0.05	0.02
23	Madurai	Madurai	0.18	3.52	1.88
		Total	27.87	500.57	184.36





7.1.2.5 Unified Single License

The State has introduced Unified Single Licence to traders for trading in all the Regulated markets in the state. **So far 1,363 Unified Single Licences have been issued to the traders.** Unified Single License paves the way to access all the markets within the state besides carrying out the Interstate Trade, thereby benefiting the farmers and traders to access the National level markets.

7.1.2.6 Intermandi and Interstate Trade through e-NAM

Unified Single License enables traders to trade in multiple markets at the same time through the e-NAM portal. So far, 98 Traders have participated in intermandi trade since August 2019.

A beginning has been made in interstate trading via e-NAM portal for the first time on 23.10.2019, when a trader from Madurai Regulated Market traded with Kadappa Regulated Market in Andhrapradesh. This paves the way for interstate trading and helps to increase the marketing opportunity of the produce and thereby helping the farmers to fetch better price.

7.1.3 Infrastructure facilities

The Department has taken up various project to augment and maintain various infrastructure facilities in Regulated Markets through various funding sources as detailed below:-

7.1.3.1 NABARD- Rural Infrastructure Development Fund (RIDF)

NABARD provide loans to the State Government and State owned Corporations for quick completion of ongoing projects of rural infrastructure under Rural Infrastructure Development Fund.

From 2011-12 to 2018-19, infrastructure facilities such as Storage godowns, Cold Storages etc have been created under this fund at a total cost of Rs.221.64 crore for the benefits of farmers.

Augmentation of Cold Storage facilities at a total cost of Rs.100 crore will be taken up under this fund during the year 2020-21.

7.1.3.2 NABARD- Warehouse Infrastructure Fund (WIF).

NABARD from 2014-15 has extended its financial allocation to rural sector in the name of Warehouse Infrastructure Fund (WIF). This fund envisages extension of loans to Public and Private sectors for construction of warehouses,

silos, cold storages and other cold chain infrastructure.

Since 2014-15, marketing and supply chain infrastructure have been created for projects such as Supply Chain Management in 10 Districts, e-trading in Regulated Markets, Augmentation of market infrastructure and Construction of Godowns in Regulated Markets at a total cost of Rs.777.60 Crore.

During 2019-20, projects for a total cost of Rs.320.39 crore have been sanctioned under this fund.

1. Augmentation and maintenance of facilities in 90 Regulated Markets for a total cost of Rs.217.92 Crore.
2. Extension of Supply Chain Management project for fruits and vegetables to 8 more Districts viz., Salem, Erode, Tiruvallur, Kancheepuram, Tiruvannamalai, Cuddalore, Villupuram and Karur at a total financial outlay of Rs.102.47 Crore.

7.1.3.3 Agricultural Market Infrastructure Fund:

A project for strengthening of 100 Farmers markets will be implemented in 2020-21 at a cost of Rs.50.70 Crore under this Fund.

7.2. Agri Business Activities

7.2.1. Supply Chain Management for Fruits, Vegetables and other perishables in 10 Districts of Tamil Nadu

This project is one of the flagship projects in Agricultural Marketing. It envisions integrating and strengthening the supply chain of fruits and vegetables in the State. Supply Chain Management Project (TNSCM), is implemented in 10 Districts viz., Krishnagiri, Dharmapuri, Coimbatore, The Nilgiris, Tiruchirapalli, Dindigul, Theni, Ramanathapuram, Thoothukudi and Tirunelveli at a total cost of Rs.482.36 Crore.

The project aims to

1. Provide integrated and complete Supply Chain Management and infrastructure.

2. Provide necessary support for market integration of farmers with major market centres, processors and consumers.
3. Reduce post-harvest losses of fruits, vegetables and other perishables.
4. Ensure remunerative price to the farmer.
5. Bring in other stakeholders to make them part of the supply chain
6. Expand outreach benefitting the farming community.

64 Primary Processing Centres with Post harvest infrastructure facilities such as Pack house, Cold storage, Storage Godowns etc equipped with State of the art facility for cleaning, washing, sorting, grading, packing and forward transactions using single / multiple vegetable and fruit process lines have been established. Modern infrastructure like Gamma Radiation processing facility, Individually Quick Freezing (IQF) facilities, Vapour Heat Treatment facilities, pack house accredited by the Agricultural and Processed Food Products Export

Development Authority (APEDA) to meet the standards of export market are created in some Primary Processing Centres.

Table 7.6 Details of Primary Processing Centres (PPC)

Sl. No.	District	Name of the PPC	Primary Processing Machinery
1	Krishnagiri (10)	Hosur	Fruits and vegetables
		Kamandoddi	Fruits and vegetables
		Denkanikottai	Fruits and vegetables
		Thattiganapalli	Root vegetables
		Royakottai	Fruits and vegetables
		Alapatti	Pack House
		Kundarapalli	Pack House
		Krishnagiri	Tamarind
		Kaveripattinam	Root vegetables
		Pochampalli	Fruits and vegetables
2	Dharmapuri (5)	Pennagaram Cooperative Marketing Society	Cold Storage
		Palacode	Fruits and vegetables
		Dharmapuri	Tamarind
		Harur	Fruits and vegetables
		Paparapatti	Tamarind
3	Coimbatore (7)	Chikkadasampalayam	Banana
		Sulur	Fruits and vegetables
		Vadakkipalayam	Pack House
		Pooluvapatti	Fruits and vegetables

Sl. No.	District	Name of the PPC	Primary Processing Machinery
		Pichanur	Fruits and vegetables
		Anaimalai	Tender Coconut and Neera
		Pollachi	Frozen Grated Coconut
4	The Nilgiris (9)	Hosahatty	Root vegetables
		Anikorai	Root vegetables
		Dhavanai	Root vegetables
		Ooty Rose Garden	Cold Storage
		Nilgiris Cooperative Marketing Society	Fruits and vegetables
		New Alanji	Root vegetables
		Sullikoodu	Root vegetables
		Uppatti	Banana
		Aiyyankolli	Banana
5	Trichirappalli (12)	Lalgudi	Banana
		Mannachanallur - I	Onion
		Mannachanallur - II	Banana
		Thiruchendurai	Pack House
		P.K.Agaram	Onion
		Arasalur	Banana
		Pidaramangalam	Banana
		Thuraiyur Cooperative Marketing Society	Onion
		Uppiliapuram (South)	Onion
		Thathaiyangarpettai	Onion
		Kallikudi	Pack House
M.Puthur	Banana		

Sl. No.	District	Name of the PPC	Primary Processing Machinery
6	Dindigul (5)	Palani	Fruits and vegetables
		Palani Co -operative Marketing Society	Auction hall
		Gopalpatti	Tamarind
		Kavunji	Root vegetables
		Vedasanthur	Moringa
7	Theni (5)	Theni	Moringa
		Chinnamanur	Pack House
		Cumbum - I	Fruits and vegetables
		Cumbum - II	Banana
		Periyakulam	Mango
8	Ramanathapuram (3)	Paramakudi	Red Chillies
		Mudhukulathur	Pack House
		Kamuthi Co -operative Marketing Society	Pack House
9	Thoothukudi (3)	Srivaikundam	Pack House
		Pudur	Pack House
		Vilathikulam	Red Chillies
10	Tirunelveli (5)	Ramaiyanpatti	Fruits and vegetables
		Valliyoor	Fruits and vegetables
		Pavoorchatram	Onion
		Sankarankovil	Lemon
		Kadayanallur	Lemon

To encourage farmers participation in running the Primary Processing Centres, Farmer Producer Organisations have been selected as Market Integration Partners to operate the Primary Processing Centres. Currently 25 Primary Processing centres are operated by 13 Farmer Producer Organisations. 719 MT of fruits and vegetables have been processed in these Primary Processing Centres in the last four months. The rest of the Primary Processing Centres will also be offered to Farmer Producer Organisations, besides the 5 PPCs operated by Agricultural Producers Cooperative Marketing Societies.

Further, a Primary Processing Centre for flowers cum International Flower Auction Centre will be established at Hosur, Krishnagiri District at a cost of Rs.20.20 Crore for the benefit of flower growers and exporters in the State.

The project will be extended to 8 more Districts viz., Salem, Erode, Tiruvallur,

Kancheepuram, Tiruvannamalai, Cuddalore, Villupuram and Karur at an outlay of Rs. 102.47 crore with financial assistance of NABARD.

7.2.2. Promotion of Food Parks

7.2.2.1 Tamil Nadu Food Processing Policy:

To reduce the post harvest losses in Tamil Nadu, various initiatives are taken by the Department of Agricultural Marketing and Agri Business for increasing the percentage of processed food, especially Fruits and Vegetables from the current level of 2% to 10%.

As envisaged in the **Tamil Nadu Food Processing Policy 2018**, which provides incentives and support measures such as Land allotment, Water and Power supply, Subsidies, Concessions, Stamp duty exemption, Single window facility etc; the Government of Tamil Nadu is taking steps to establish Food Parks in 10 locations in the State as announced in Budget Speech 2018-19 in a phased manner.

The Department of Agricultural Marketing and Agri Business is the Nodal Agency in implementation of Food Processing Policy and Food Park projects.

As announced in 2018-19, action is being taken to set up Mega Food Park at Gangaikondan in Tirunelveli district with a total outlay of Rs.77.94 Crore. Further, 8 Small Food Parks / Agro Processing Clusters will be set up at **Theni, Dindigul, Krishnagiri, Tiruvannamalai, Salem, Cuddalore, Madurai and Villupuram districts as detailed below:**

Table 7.7 Agro Processing Clusters – Project Cost						
					Unit: L.Rs.	
S. No.	Agro Processing Cluster	GoI Grant portion	Equity Portion	Term Loan Portion	Unsecured loan Portion	Total Project Cost
1	Salem	597.53	505.04	506.00	916.65	2525.22
2	Dindigul	673.57	580.36	581.00	1066.86	2901.79
3	Krishnagiri	589.37	541.18	540.00	1012.07	2682.62
4	Cuddalore	597.93	561.96	562.00	1020.13	2742.02
5	Theni	599.55	525.68	526.00	977.20	2628.43
6	Madurai	579.12	641.32	694.00	1292.17	3206.61
7	Tiruvannamalai	574.87	512.13	510.00	953.62	2550.62
8	Villupuram	599.01	511.29	515.00	931.17	2556.47
	Total	4810.95	4378.96	4434.00	8169.87	21793.78

Private investment for setting up of Food Processing units based on the focus crops in these areas will be encouraged within these Food Parks.

Food parks to be established in 2020-21

As announced in the Budget speech of 2020-21, 7 small Food Parks / Agro Processing Clusters viz., **Ariyalur, Perambalur, Karur, Nagapattinam, Tenkasi, Dharmapuri** and **Ramanathapuram** will be established by getting grant from Government of India.

7.2.3 Neera

Neera, is a delicious and highly nutritive juice drawn from unopened inflorescence of a Coconut tree. Many value added products such as Palm jaggery, Palm syrup, Palm sugar chocolates, squash, cake etc., can be produced from Neera which gives additional scope for product diversification.

Tamil Nadu Neera rules was issued during 2017 which provide opportunity for

Coconut Farmer Producer Companies to produce Neera from Coconut.

So far, Neera license has been issued to 13 Coconut Farmer Producer Companies for Neera tapping. So far, around 9 lakh litres of Neera has been tapped by the Coconut Producer Companies having Neera License. Neera and its value added products have been sold for an amount of around Rs.13 Crore.

Table 7.8 Sale details of Neera and its value added products

S No	Name of the Coconut Producer Company (CPC)	Neera Produced (litre)	Neera Value Added Products Produced (Kg)	Total Turn Over (Rs in Lakh)
1	Vinayaka CPC, Coimbatore	3,05,150	4,264	403
2	Anaimalai CPC, Coimbatore	1,55,330	6,542	234
3	Coimbatore CPC, Coimbatore	1,58,030	4,833	227
4	Erode Gopi Velan Vanigam CPC, Erode	82,820	649	130
5	Udumalpet CPC, Tiruppur	44,990	406	57

S No	Name of the Coconut Producer Company (CPC)	Neera Produced (litre)	Neera Value Added Products Produced (Kg)	Total Turn Over (Rs in Lakh)
6	Madathukulam CPC, Tiruppur	36,195	0	54
7	Dindigul CPC, Dindigul	36,066	3	54
8	Erode Neera CPC, Erode	28,209	135	44
9	Pudukkottai CPC, Pudukkottai	14,547	1,027	32
10	Theni CPC, Theni	14,190	0	21
11	Kanniyakumari CPC, Kanniyakumari	3,190	0	5
12	Peravurani CPC, Thanjavur	12	0	0.02
TOTAL		8,78,729	17,859	1261

7.2.4. Promotion of Farmer Producer Organizations (FPOs)

Tamil Nadu Small Farmers Agri Business Consortium (TNSFAC) is the nodal agency for the promotion of Farmer Producer Organizations (FPOs) having Farmer Interest Groups (FIGs) as its building blocks, utilizing various scheme funds. Its aims and

objectives are to promote and help the farmers in strengthening the linkages and other aspects from farm gate to ultimate market with the objective of enhancing farmer incomes.

Farmer Producer Organization (FPO) is a group of farmers registered under a relevant Act or its Rules such as Part IX A of Companies Act, 1956, FPGs formed under Collective Farming Scheme and registered under Tamil Nadu Societies Registration Act, 1975, Consortium of FPGs/FPCs and Coconut Producer Companies/ Federations.

Tamil Nadu Government has been supporting FPOs since 2014-15. Till 2019-20, the State Government has supported 175 FPCs through Tamil Nadu Small Farmers Agribusiness Consortium (TNSFAC) with funding from various Government schemes. While agencies like NABARD have also been promoting FPCs (170 FPCs), 167 FPCs are self promoted. Currently, there are 538 FPCs registered from Tamil Nadu State.

Government of Tamil Nadu supports and promotes FPCs through various schemes.

Empowering FPOs

The Government has released a **Policy for Promotion of FPOs** on 09.02.2020, which provides proactive involvement of the State Government and its machinery in not only forming FPOs but also in ensuring that such FPOs continue to flourish in the State, so that the farmer members benefit through their collectivization and organization. The Government has also approved a comprehensive scheme for providing access to adequate and affordable financing to FPCs through Financial Institutions. Tamilnadu is the first state in the country to provide such a comprehensive scheme to finance FPOs. The scheme consists of three components as given below:

1. **Mezzanine Capital Assistance (MCA) to enhance the quantum of credit - MCA** will augment the capital

contribution of the FPC members in their initial years for carrying out various business activities by enhancing their margin money.

2. **Credit Guarantee Scheme (CGS) to access credit** - Credit Guarantee Scheme will encourage and provide comfort to the institutional lenders to lend to the FPCs through Credit Guarantee by providing 50% guarantee cover for loans not exceeding Rs.1 crore.
3. **Revolving Fund Support (RFS) to avail concessional credit** - Currently, the financial institutions charge interest rates ranging between 12-14% for extending credit to FPCs which is on par with any other business activity. By blending cost free funds from the Government and market borrowed funds from NABKISAN, the scheme will reduce the lending rate for the FPCs to about 8-9%.

The Scheme envisages benefiting more than 10 lakh farmers by covering more than 1000 FPCs in the next four years.

Currently, the support to FPOs are extended for provision of Dhal Mills, Millet Processing Units, Seed Processing Units etc.,. Besides, FPOs are also engaged as Market Integration Partners in running 25 Primary Processing Centres under Supply Chain Management Project.

7.2.5. Promotion of Agri Export Clusters:

Agriculture Export policy was unveiled by GOI in December 2018 with a vision to double the agricultural exports and the farmers' income. To augment this vision, the State is also progressing towards finalisation of its Agriculture Export Policy.

Commodity based cluster development is one of the major strategies for realising

the objective of promoting exports from the State which will enable the exporters to tap the food production strengths of respective locations. Agri Export Clusters will be promoted in the state with the financial assistance from Government of India and State Government.

These clusters will help small and marginal farmers to address the critical issues such as availability of work force, raw materials, creation of infrastructure, usage of machineries and equipments etc., Farmers will be assisted with technical inputs for Good Agricultural Practices (GAP) and capacity building to harvest better quality produces. Farmers will also be facilitated to realize higher prices for their produce/ value added products in domestic and international market through exports.

7.2.6. The Tamil Nadu Agricultural Produce & Livestock Contract Farming and Services (Promotion and Facilitation) Act, 2019

Farmers often do not get profitable price for their produces especially during the peak harvest season.

Contract Farming envisages an agreement between the farmers and purchaser to produce and supply the required agricultural produce or livestock at a pre-agreed price before the commencement of cropping season.

Though Contract Farming was in practice in Tamil Nadu, in Sugarcane, Poultry and medicinal plants, the farmers' interests were not protected through a legal framework.

Hence, the Government have enacted Tamil Nadu Agricultural Produce & Livestock Contract Farming and Services (Promotion and Facilitation) Act, 2019 to bring the farmers entering into Contract under the legal framework. By doing so, Tamil Nadu

became the first State to introduce such an Act.

7.2.7 Value addition centre/ machinery/ equipments under NADP Scheme

1. **Five Numbers of Mobile Tomato Puree Vending Machines** have been provided at a cost of Rs.2 crore to reduce the post harvest loss during glut and to aid in value addition of tomato. These machines have been leased out to the FPOs.
2. **Maize Market Promotion Centre** established at a cost of Rs.3.78 Crore at Mangalur in Cuddalore district, will benefit the Maize growing farmers in Cuddalore and Perambalur Districts in manufacturing of value-added products like preparation of cattle feed, flour. Machineries like Grader cum Destoner for making poultry feed, flour have been provided in the centre.
3. **Coconut Value Addition Centre** at a cost of Rs.16 Crore is being established

at Shenbagaraman Pudur of Kanyakumari District for the benefit of the Coconut farmers. The centre will focus to strengthen the concept of creating coconut value addition parks at regional levels. This facility will help to promote coconut processing activities at Kanyakumari district and adjacent districts by small scale entrepreneurs to cater to the domestic and international needs.

7.2.8 Cold Storage Facilities:

To prevent loss due to deterioration of perishable fruits and vegetables, cold storage facilities are created in Tamil Nadu. At low temperature, the shelf life is enhanced and the risk of distress sale by farmers is reduced. The farmers make a reasonable profit by utilising the cold storage facilities in the districts. So far, 111 Numbers of cold storage facilities with the capacity to handle 13,565 MTs have been created under NADP, RIDF, Part II Schemes, APEDA and TNSAMB

Fund. Under the Supply Chain Management scheme, 56 numbers of cold storage facilities of capacity 3,908 MTs were created during 2018-19, which will meet the requirement of vegetable and fruits growing districts of Coimbatore, The Nilgiris, Krishnagiri, Dharmapuri, Dindigul, Theni and Trichirappalli. 2 MTs capacity cold storage structures are created in 27 Uzhavar Sandhais. Thus, the present total capacity of cold storage in the State is 17,527 MTs. The scheme wise details of cold storage facilities created in the state are furnished below:

Table 7.9. Cold Storage Facilities created

S. No	Scheme	Number of Cold Storage Units	Capacity of the Cold Storage Units in MTs
1	NADP	21	8,130
2	RIDF	80	5,165
3	SCM	56	3,908
4	Part II Scheme	4	200
5	APEDA	6	70
6	TNSAMB Fund	27	54
	Total	194	17,527

The capacity wise number of cold storage facilities is furnished below:

Table 7.10. Unit Capacity wise Cold Storage Facilities

S. No	Unit Capacity (MT)	Number of Units	Total Capacity (MT)
1	2,000	2	4,000
2	1,000	4	4,000
3	500	8	4,000
4	200	2	400
5	175	1	175
6	150	1	150
7	110	3	330
8	100	11	1,100
9	75	2	150
10	50	10	500
11	40	5	200
12	25	86	2,150
13	15	6	90
14	13	2	26
15	10	16	160
16	7	1	7
17	5	7	35
18	2	27	54
	Total	194	17,527

It is proposed to establish modern cold storage hubs in Tiruvallur, Salem, Coimbatore, Madurai and Thoothukudi districts and 80 nos of 5 MT Solar Micro Cold Storage structures in Tamil Nadu. The modern cold storage hubs will cater to the needs of big markets, while the small structures will cater to the need for cold storage facility at farm end. **This project will be implemented in 2020-21 at a cost of Rs.100 Crore under NABARD assistance.**

By implementation of this project, an additional capacity of 20,900 MT of cold storage facilities will be established in Tamilnadu.

7.2.9. Integrated Farmers Market Complex in 5 locations

Agriculture sector needs well-functioning markets to drive growth, employment and economic prosperity in rural areas. An efficient marketing system through

integrating all markets from pre-harvest to post-harvest activity would be developed to benefit both farmers and consumers. In this regard, **Integrated Farmers Market Complex would be established in 5 locations in Tiruvannamalai, Dharmapuri, Madurai, Trichirappalli and Tirunelveli** on pilot basis with a project cost of Rs.50 Crore under NABARD-Agriculture Marketing Infrastructure Fund.

With a view to promote forward and backward linkages to the farmers for pre-harvest and post harvest activities, the Integrated Farmers' Market Complex will serve as a common platform at a single point with infrastructure facilities required for forward and backward linkages like input shops, service centres and sales outlets.

7.2.10. AGMARK Grading

AGMARK is a quality certification mark on Agricultural Food products in India. AGMARK was legally enforced by the Agricultural Produce (Grading and Marking)

Act of 1937 (and amended in 1986) by Directorate of Marketing and Inspection, Government of India. Presently "**AGMARK**" standards cover quality specifications for 225 commodities. This scheme is a voluntary scheme.

This scheme aims to ensure Quality of food products and to provide unadulterated food products to the consumers.

In Tamil Nadu, 30 State AGMARK Grading Laboratories and 1 Principal Laboratory are functioning. In these Laboratories, food products like Rice, Pulses, Ghee, Honey, Ground Spices, Whole Spices, Sago, Vegetable Oils, Gram Flour, compounded Asafoetida etc., are graded. During 2019-20, agricultural commodities to the tune of 23.98 lakh quintals were graded and grading charges of Rs.77.92 lakh have been collected as State revenue.

7.2.11. Farmer Markets

To enable remunerative price to Small/Marginal farmers producing vegetables and fruits and to provide fresh fruits and vegetables to consumers at a price less than retail prices, 179 Uzhavar Sandhais (Farmers Market) are functioning in Tamil Nadu. Through these markets, the role of middle men in marketing the farm produce, especially vegetables and fruits is eliminated and direct marketing by small/Marginal farmers to consumers is facilitated. Facilities such as shops to farmers, electronic balances, drinking water and sanitary facilities are provided in Farmers Market at free of cost. Daily price details of Uzhavar sandhais are uploaded in mobile app. During the year 2019-20, on an average, 2,223 MT of fruits and vegetables worth Rs.8.18 Crore were sold per day in Farmers Markets and 8,210 farmers and 4.07 Lakh consumers were benefitted. Strengthening of 100 Farmers markets under NABARD -

Agricultural Market Infrastructure Fund will be taken up at a cost of Rs. 50.70 Crore.

7.2.12. Tamil Nadu Irrigated Agriculture Modernization Project (TNIAMP)

Tamil Nadu Irrigated Agriculture Modernization Project (TNIAMP) is being implemented for six years from 2017-18 to 2022-23 in 66 sub-basins with a project outlay of Rs.125 Crore.

Objectives

TNIAM Project aims to promote farmer Producer Organizations, investment support to these FPCs, supporting Business expansion grant to existing FPCs and creating opportunities for Agri business development for Agri entrepreneurs and Modernisation of Regulated Markets to get remunerative price for Agricultural Produce.

Activities:

1. Under this project, the prime activity is formation of 80 New Farmer Producer Organisations.
2. Support to existing 40 Farmer Producer Companies for expansion of business, grant for 2 years (75% of TNIAMP Grant & 25% FPC Contribution)
3. Modernisation and Digitization of three Regulated Markets at Srimushnam, Kurinjipadi & Sivagiri
4. Piloting e-Negotiable Warehouse Receipt (e-NWR) in four selected godowns.
5. Facilitating Public Private Partnership mechanism through Interface Workshop, Seminars, Facilitation workshop for Agro entrepreneurs and Capacity building training.
6. Promoting Agri enterprises through setting up of Agri Business Promotion Facility (ABPF).

In phase - I for 18 sub basins, the project is implemented with an outlay of Rs.51.72 Crore for three years. During 2019-20, the project is being implemented at a cost of Rs.10.45 Crore.

In Phase-II, for 16 sub basins, the project is implemented with an outlay of Rs.26.38 Crore for three years. During 2019-20, the project is being implemented at a cost of Rs.5.42 Crore.

7.3. HUMAN RESOURCE MANAGEMENT

This Department strives to promote better marketing of farm Produce and to create platform for establishing Agri Business activities to farmers by implementing various schemes, disseminating market and agri business related Agricultural Technologies and update the Market information' to farmers through field functionaries and thereby enhance their income and Socio-economic condition of farmers. In this

Department 1,308 Department staff and 1,672 Market Committee staff are functioning in the State.

Table 7.11 Details of Department Staff

S. No	Name of the Post	Sanctioned Post
1	Additional Director of Agriculture	1
2	Joint Director of Agriculture	3
3	Deputy Director of Agriculture	32
4	Assistant Director of Agriculture	8
5	Agricultural Officer	170
6	Deputy Agricultural Officer	47
7	Asst. Agricultural Officer	627
8	Administrative Officer	1
9	Asst. Accounts Officer	1
10	Other non-technical staff	418
	Total	1,308

Table 7.12 Details of Market Committee Staff		
S. No	Name of the Post	Sanctioned Post
1	Secretary / Deputy Director of Agriculture	2
2	Senior Secretary	2
3	Secretary / Assistant Director of Agriculture	11
4	Secretary	11
5	Superintendent	202
6	Engineering Supervisor	9
7	Supervisor	345
8	Other non-technical staff	1,090
	Total	1,672

7.4. TAMIL NADU STATE AGRICULTURAL MARKETING BOARD

The State Agricultural Marketing Board was established in the year 1970. In accordance with the "Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987" Tamil Nadu State Agricultural Marketing Board was reconstituted as Statutory Board.

7.4.1 Source of Income

Market Committees are paying 15 percent of its revenue under Section 8(1) and 24(1) of the Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987 to the Tamil Nadu State Agricultural Marketing Board. Fifty percent of the received amount is earmarked for Market Development Fund, which is utilized for the market developmental activities. The balance fifty percent is allocated to Board fund towards establishment charges.

7.4.2. Reorganization of Publicity Wing of the TNSAMB and Creation of Special Agro Export Promotion Cell and Food Processing Cell

In 2019-2020 Budget, it was announced that the Department of Agriculture and Agri Business will set up a Special Agro Export Promotion Cell which will facilitate the farmers and exporters. Accordingly, the publicity units of TNSAMB were reorganized to form a Special Agro

Export Promotion Cell and Food Processing Cell to facilitate farmers.

7.4.3 Functions of Tamil Nadu State Agricultural Marketing Board

7.4.3.1. Capacity Building Training

Tamil Nadu State Agricultural Marketing Board has established a State Level Training Centre in Salem to cater to the training needs of the staff of the Agricultural Marketing & Agri Business Department. Training programmes on Grading, Food Processing, Value addition, Grain storage, Agricultural Market Extension and computer applications are being conducted to the staff. Farmers are also trained in Value addition, Regulated Markets and e-trading. Besides this, special training programmes are also conducted for Market Integration Partners under Supply Chain Management Programme and Farmer Producer Organisations in Business planning.

During 2019-20, 16 training programmes were conducted at a cost of

Rs.9.80 Lakh for 391 technical staff, farmers and CEOs of Farmer Producer Organisation.

It is programmed to organize 30 training programmes for the benefit of 402 staffs and 200 farmers during 2020-21.

7.4.3.2. Construction Works

Tamil Nadu State Agricultural Marketing Board has an Engineering Wing which takes up the maintenance of infrastructure like Godowns, Transaction shed, Cold storage units in Regulated Markets. It also executes infrastructure creation like Modern Storage Godowns, Transaction Sheds, Rural Business Hubs, Market Complex with cold storage facilities and Primary Processing Centres under programmes like NADP, WIF/NABARD, e-NAM, e-trading, Supply Chain Management. Establishment of AMMA Green Park at Guindy, Chennai is also executed by the Engineering wing.

During the year 2019-20, works were executed at an outlay of Rs.423.84 crore.

Similar works will be executed during 2020-2021.

7.4.4 Other Schemes Implemented by TNSAMB

7.4.4.1 Price Support Scheme (PSS) - Procurement of Pulses and Copra at Minimum Support Price

To protect farmers from price fall, Price Support Scheme is being implemented in the State since 2017-18. Tamil Nadu State Agricultural Marketing Board (TNSAMB) is serving as the State Level Supporter for this programme. Regulated Markets at districts are functioning as the Primary Procurement Centre (PPC) which procure the produce from the farmers on behalf of NAFED, which is the central procurement agency designated by Government of India for this programme. The produces with Fair Average Quality (FAQ) are procured from the farmers and cost of it is being paid on the Minimum Support Price (MSP) through online.

7.4.4.1.1 Pulses

During 2017-18, 1,548 MT of Blackgram was procured from 1,307 farmers worth of Rs.8.36 crore. Farmers were paid Rs.52 per Kg as Minimum Support Price and Rs.2 per Kg as bonus.

During 2018-19, 5,689 MT of Greengram, 400 MT of Redgram and 3154 MT of Blackgram were procured from 8,289 farmers worth of Rs.59.61 crore. As a Minimum Support Price of Rs.56.75 per Kg for Redgram, Rs.56 per Kg for Blackgram and Rs.69.75 per Kg for Greengram were paid to the farmers through online.

Similarly during Kharif 2019-20, Blackgram and Greengram were procured from farmers. As a Minimum Support Price of Rs.57 per kilogram for Blackgram and Rs.70.50 per Kilogram for Greengram were paid to the farmers online. Further it is programmed to procure 5,000 MT of Redgram also. So far 408 MT of Redgram

were procured from 377 farmers at a cost of Rs.2.37 Crore.

It is also programmed to procure 15,000 MT of Blackgram and 10,000 MT Greengram during Rabi 2019-20.

7.4.4.1.2. Copra

During 2019-20, it was programmed to protect the farmers of the districts where coconut is grown largely. About 311 MT of Copra was procured at the cost of Rs.2.96 crore from 1,314 farmers. The Minimum Support Price for Ball copra was Rs.99.20 per Kg and Rs.95.21 per Kg for milling copra.

Due to the intervention of the Government, farmer's produces were protected from price fall. Further the open market price of the produces was also found to be at par with the procurement price.

Table 7.13. District-wise Farmers Markets

S. No.	District	Nos.	Farmers' Markets
1	Ariyalur	2	Ariyalur, Jeyankondam
2	Coimbatore	8	R.S.Puram, Singanallur, Pollachi, Mettupalayam, Kurichi, Sulur, Vadavalli, Sundarapuram
3	Cuddalore	5	Cuddalore, Chidambaram, Viruthachalam, Panruti, Vadalur
4	Dharmapuri	5	Dharmapuri, Pennagaram, Palacode, Harur, A.Jattihalli
5	Dindigul	5	Dindigul, Palani, Chinnalapatti, Kodaikkanal, Batlagundu
6	Erode	7	Sampath Nagar, Gobichettipalayam, Sathiyamagalam, Periyar Nagar, Perundurai, Kangeyam, Dharapuram
7	Kancheepuram	4	Kancheepuram, Padappai, Sunguvarchatram, Kundrathur,
8	Chengelpet	10	Pallavaram, Chengalpet, Medavakkam, Nanganallur, Madhuranthagam, Keelkattalai, Jameenrayapettai, Guduvancheri, Thirukalukundram, Kannaginagar
9	Kanyakumari	2	Vadaseri, Myladi

S. No.	District	Nos.	Farmers' Markets
10	Karur	5	Karur, Kulithalai, Velayuthampalayam, Pallapatti., Vengamedu
11	Krishnagiri	5	Hosur, Krishnagiri, Kaveripattinam, Denkanikottai, Avallapalli
12	Madurai	7	Annanagar, Chokkikulam, Palanganatham, Usilampatti, Thirumangalam, Melur, Anaiyur
13	Nagapattinam	3	Mayiladuthurai, Nagapattinam, Sirkali
14	Namakkal	6	Namakkal, Tiruchengode, Rasipuram, Kumarapalayam, Paramathivelur, Mohanur
15	Nilgiris	4	Udhagamandalam, Coonoor, Kothagiri, Gudalur
16	Perambalur	2	Perambalur, Veppanthattai
17	Pudukottai	6	Pudukottai, Aranthangi, Alangudi, Gandarvakottai, Karambakkudi, Viralimalai
18	Ramanathapuram	3	Ramanathapuram, Paramakudi, Kamuthi
19	Salem	11	Sooramangalam, Ammapet, Athur, Thathakapatti, Mettur, Attayampatti, Hasthampatti, Elampillai, Thammampatti, Jalagandapuram, Edapadi
20	Sivagangai	4	Sivagangai, Devakottai, Karaikudi, Tirupatthur

S. No.	District	Nos.	Farmers' Markets
21	Thanjavur	5	Thanjavur, Kumbakonam, Pattukottai, Tirukattupalli, Papanasam
22	Theni	7	Theni, Cumbum, Bodinayakanur, Periyakulam, Devaram, Andipatti, Chinnamanur
23	Tirunelveli	4	Palayamkottai, Kandiyaperi, Melapalayam, Ambasamudram
24	Tenkasi	2	Sankarankoil, Tenkasi
25	Tiruppur	4	Udumalpet, Tiruppur (North), Tiruppur (South), Palladam
26	Tiruvallur	6	Tiruthani, Tiruvallur, Ambattur, Paruthipattu, Naravarikuppam, Perambakkam
27	Tiruvanna- malai	8	Tiruvannamalai, Polur, Arani, Cheyyar, Chengam, Vandavasi, Keelpennathur, Tamarainagar
28	Tiruvarur	7	Tiruthuraipoondi, Mannargudi -1, Tiruvarur, Needamangalam, Muthupettai, Mannargudi -2, Valangaiman
29	Trichirappalli	7	Anna Nagar, K.K.Nagar, Thuraiyur, Manapparai, Musiri, Thuvakudi, Lalgudi
30	Tuticorin	2	Tuticorin, Kovilpatti

S. No.	District	Nos.	Farmers' Markets
31	Vellore	4	Vellore, Katpadi, Gudiyatham, Kagithapattarai,
32	Ranipet	2	Ranipet, Arcot
33	Tirupathur	3	Tirupathur, Natrampalli, Vaniyampadi
34	Villupuram	3	Tindivanam, Villupuram, Gingee,
35	Kallakurichi	3	Sankarapuram, Ulundurpet, Kallakurichi,
36	Virudhunagar	8	Aruppukottai, Rajapalayam, Srivilliputhur, Virudhunagar, Sivakasi, Sathur, Kariyapatti, Thalavaipuram

Table 7.14 District wise cold storages

S. No	District	Place of cold storage	Capacity (MT)
1.	Coimbatore (18 Nos.)	Pollachi	25
2.		Senjeri	25
3.		Anaimalai	25
4.		Thondamuthur	25
5.		Annur	25
6.		Karamadai	50
7.		Sikkadasampalayam	500

S. No	District	Place of cold storage	Capacity (MT)
8.		Kinathukadavu	500
9.		Vadakipalayam	25
10.		Singanallur US	15
11.		Sulur PPC	150
12.			25
13.			100
14.			40
15.		Anaimalai PPC	40
16.		Pollachi PPC	40
17.		Vadakkipalayam PPC	40
18.		Chikathasapalayam PPC	40
19.	Cuddalore (3 Nos.)	Cuddalore	25
20.		Panruti	25
21.		Virudhachalam	25
22.	Dharmapuri (7 Nos.)	Dharmapuri	1,000
23.		Harur	25
24.		Pennagaram	25
25.		Palacode	50
26.		Palacode PPC	50
27.			50
28.		Pennagaram PPC	110

S. No	District	Place of cold storage	Capacity (MT)
29.	Dindigul (9 Nos.)	Dindigul	25
30.		Ottanchathram	25
31.		Ottanchathram	5
32.		Palani	25
33.		Palani	5
34.		Batlagundu	5
35.		Gopalpatti	25
36.		Palani PPC	500
37.		Gopalpatti PPC	500
38.	Erode (7 Nos.)	Avalpoondurai	25
39.		Kodumudi	25
40.		Anthiyur	25
41.		Sathyamangalam	25
42.		Punjai puliyampatti	25
43.		Sathyamangalam	100
44.		Gopichettipalayam	1,000
45.	Kanyakumari (1 No.)	Thingal Sandhai	25
46.	Karur (1 No.)_	Karur(Rayanur)	25
47.	Krishnagiri (20 Nos.)	Krishanagiri	50
48.		Krishanagiri	25
49.		Pochampalli	25
50.		Uthangarai	25

S. No	District	Place of cold storage	Capacity (MT)
51.		Hosur	25
52.		Hosur	50
53.		Hosur PPC	175
54.		Hosur PPC	100
55.		Hosur PPC	75
56.		Hosur PPC	25
57.		Alapatti PPC	25
58.		Krishnagiri PPC	25
59.		Kaverypattinam PPC	25
60.		Rayakottai PPC	110
61.		Rayakottai PPC	110
62.		Kaamanthotti PPC	50
63.		Pochampalli PPC	75
64.		Pochampalli PPC	500
65.		Pochampalli PPC	25
66.		Thenkannikottai PPC	25
67.	Madurai (1 No.)	Tirumangalam	25
68.	Namakkal (4 Nos.)	Namagiripettai	25
69.		Paramathivelur	25
70.		Thiruchengodu	25

S. No	District	Place of cold storage	Capacity (MT)
71.		Mohanur	5
72.	Nilgiris (9 Nos)	Hosahatti PPC	10
73.		Anikorai PPC	10
74.		Davanai PPC	25
75.		Uthagai Rose Park PPC	500
76.		Kothagiri PPC	10
77.		New Alanji PPC	10
78.		Sullikoodu PPC	7
79.		Upatti PPC	10
80.		Ayyankoli PPC	10
81.	Perambalur (2 Nos.)	Chettikulam	50
82.		Perambalur	25
83.	Ariyalur (1 No.)	Ariyalur	25
84.	Pudukottai (2 Nos.)	Illupur	100
85.		Alangudi	25
86.	Ramanatha puram (6 Nos.)	Paramakudi	100
87.		Kamudhi	25
88.		Ettivayal	2,000
89.		Paramakudi PPC	10
90.		Muthukulathur PPC	10

S. No	District	Place of cold storage	Capacity (MT)
91.		Kamuthi PPC	10
92.	Salem (7 Nos.)	Salem	25
93.		Athur	25
94.		Vazhapadi 1	25
95.		Vazhapadi 2	25
96.		Gengavalli	25
97.		Mecheri 1	25
98.		Mecheri 2	100
99.	Sivagangai (1 No.)	Singampunari	25
100.	Thanjavur (2 Nos.)	Valapakudi	100
101.		Thanjavur	25
102.	Theni (10 Nos.)	Cumbum	25
103.		Theni	25
104.		Odaipatti	50
105.		Chinnamanur	5
106.		Cumbum	500
107.		Theni PPC	25
108.		Cinnamanur PPC	25
109.		Cinnamanur PPC	13
110.		Cumbum PPC	25
111.		Cumbum PPC	25
112.	Thoothukudi (10 Nos.)	Kovilpatti	25

S. No	District	Place of cold storage	Capacity (MT)
113.		Thoothukudi	25
114.		Pudur	25
115.		Kazhugumalai	25
116.		Sri Vaigundam	5
117.		Vilathikulam	100
118.		Ettaiyapuram	25
119.		Sathankulam	25
120.		Puthur PPC	10
121.		Vilathikulam PPC	10
122.	Tirunelveli (6 Nos.)	Ambasamudram	25
123.		Ambasamudram	200
124.		Valliyur	25
125.		Tirunelveli	25
126.		Ramayanpatti PPC	10
127.		Valliyur PPC	10
128.	Tenkasi (7 Nos.)	Sankarankoil	500
129.		Thenkasi	25
130.		Pavoorchathiram	1,000
131.		Kadayanallur	200
132.		Pavoorchathiram PPC	10

S. No	District	Place of cold storage	Capacity (MT)
133.		Sankarankovil PPC	10
134.		Kadayanallur PPC	10
135.	Tiruvannamalai (7 Nos.)	Thiruvannamalai	25
136.		Vettavalam	25
137.		Chengam	25
138.		Chethupattu	25
139.		Polur	25
140.		Vandavasi	25
141.		Cheyyar	25
142.	Trichy (10 Nos.)	Thiruchendurai	1,000
143.		Thuvarankurichi	100
144.		Thuraiyur	100
145.		Annanagar	5
146.		Kallikudi	2,000
147.		M.Puthur PPC	13
148.		Lalgudi PPC	15
149.		Pidaramangalam PPC	15
150.		Arasoolur PPC	15
151.		Manachanallur PPC	15
152.	Tiruppur (5 Nos.)	Vellakoil	25

S. No	District	Place of cold storage	Capacity (MT)
153.		Palladam	25
154.		Avinashi	25
155.		Udumalpet	25
156.		Pongalur	50
157.	Vellore (1 No.)	Vellore	25
158.	Tirupathur (3 No.)	Vaniyampadi	25
159.		Tirupathur	25
160.		Jolarpettai	25
161.	Villupuram (2 Nos.)	Villupuram	25
162.		Thindivanam	15
163.	Kallakurichi (2 Nos.)	Kallakurichi	25
164.		Ulundurpet	25
165.	Virudhunagar (3 Nos.)	Virudhunagar	100
166.		Rajapalayam	25
167.		Arupukottai	25
			17473
Uzahavar Santhai (27 No x 2MT)			54
Grand Total			17527

8. Tamil Nadu Watershed Development Agency (TAWDEVA)

8.1. Introduction:

Tamil Nadu Watershed Development, Agency was designated as a single Agency to implement Watershed Development Projects in a scientific manner with the prime objective to conserve the natural resources and develop the resources in a sustainable and participatory way to improve the livelihoods of the watershed community besides improving the agricultural productivity.

Over the years, water shed programmes like Drought Prone Areas Programme (DPAP), National Watershed Development Project for Rainfed Areas (NWDPA), Integrated Wastelands Development Programme (IWDP) and Integrated Watershed Management Programme (IWMP) have been implemented

through the 24 District Watershed Development Agencies (DWDAs) in 26 districts.

Watershed Development Programmes currently implemented by Tamil Nadu Watershed Development Agency are.

1. Pradhan Mantri Krishi Sinchayee Yojana - Watershed Development (PMKSY - WD)- Erstwhile Integrated Watershed Management programme (IWMP)
2. Watershed Development Fund (WDF) assisted by NABARD.
3. Climate Proofing of Rainfed Watersheds in Salem and Virudhunagar Districts of Tamil Nadu under National Adaptation Fund for Climate Change (NAFCC).

Furthermore, Tamil Nadu Watershed Development Agency has been designated as the Nodal Agency for the following schemes to

coordinate with the implementing departments, Government of India and State Government.

1. National Agriculture Development Programme (NADP)
2. National Mission for Sustainable Agriculture (NMSA)
3. Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)

8.2 Restructuring of TAWDEVA

As the main mandate of TAWDEVA and its associated DWDAs is the implementation of Watershed Development projects, the functioning of these agencies is dependent on the sanctioning of relevant projects to the State by Government of India. As a policy of Government of India, no new projects have been sanctioned by GoI under PMKSY - Watershed Development for implementation beyond the year 2020-21. Hence, TAWDEVA has been

restructured by abolishing the 24 District Watershed Development Agencies and attaching the Deputy Director (Planting Technologist) and Assistant Director of Agriculture (Extension Officer) with the Joint Director of Agriculture of concerned Districts to implement Micro Irrigation apart from carrying out the balance works under Watershed Development Programme, works under National Adaptation Fund for Climate Change, Watershed Development Fund and PDMC - Other intervention - SWMA. The present setup at the State Level Nodal Agency (SLNA) and NADP & NMSA wings at the State Head Quarters is continued since TAWDEVA acts as a Nodal Agency for Government of India schemes.

In future, in the event of sanction of new watershed projects by GoI, the District Watershed Development Agencies will be recreated with required staff strength to implement the project effectively as mandated by the guidelines.

8.3 Pradhan Mantri Krishi Sinchayee Yojana - PMKSY Watershed Development (PMKSY - WD) (The erstwhile Integrated Watershed Management Programme) PMKSY

Under PMKSY-Watershed Development the watershed development activities like Entry Point Activities (EPA), Institution & Capacity Building (ICB), Natural Resources Management (NRM), Farm Production System and Micro-Enterprises (FPS), Livelihood Support System (LSS) are carried out. Earlier, this scheme was implemented in 26 Districts covering 2,763 watersheds. Of these 2,763 watersheds, all activities have been completed in 1,632 watersheds and balance works are being carried out in 1,131 watersheds. Watershed Development Activities being taken up under PMKSY - WD component are detailed below.

Table 8.1 Watershed Activities & Components

Sl. No.	Components	Activities
i.	Water Resources Development (Natural Resource Management)	Formation of New Tanks/Ooranies, Farm ponds, Desilting of existing Tanks and Supply Channels.
ii.	Common Property Development (Natural Resource Management)	Construction of Check dams, Cattle ponds, Supply Channels, Desilting Of Ooranies, Desilting of Tanks and Ponds.
iii.	Farm Production System and Micro Enterprises	A grant of maximum of Rs. 24,000 is provided to carry out farm based activities and non-farm activities to Farmers.
iv.	Plantation	Plantations relating to Horticulture, Socio- Agro Forestry, Fodder Development, Crop Demonstration and Homestead Garden.
v.	SHG and Livelihood Support System Activities for Landless farmers	Revolving fund of Rs.24,000/- is provided to Self Help Groups and individual beneficiaries.

During the year 2018-19, an amount of Rs.90.98 crore was sanctioned towards the Central and State share on 60:40 basis and released during the year 2019-20 for the implementation of watershed Development component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) in the State and the funds have been released to the District Watershed Development Agencies and the details of fund allocation are given below.

Table 8.2
PMKSY - (Watershed Development)
Financial Allocation (2019-20)

(Rs. in crore)

Sl.No	Districts	Allocation
1	Coimbatore	2.27
2	Cuddalore	2.23
3	Dharmapuri	0.72
4	Dindigul	0.22
5	Erode	0.92

6	Kancheepuram	1.07
7	Karur	0.35
8	Krishnagiri	0.66
9	Madurai	0.36
10	Namakkal	1.54
11	Perambalur	2.86
12	Pudukottai	1.86
13	Ramnad	0.74
14	Salem	1.55
15	Sivagangai	0.40
16	Theni	1.01
17	Thoothukudi	2.04
18	Tirunelveli	0.68
19	Tiruvallur	0.15
20	Tiruvannamalai	0.32
21	Trichirappalli	4.66
22	Vellore	1.25
23	Villupuram	2.36
24	Virudhunagar	1.11
Total		31.32

The district wise physical achievement details for the financial outlay of Rs.31.32 crore under PMKSY - Watershed Development Activities are as below.

Table 8.3 Natural Resource Management Activities (2019-20)
(in Nos)

SI No	District	Physical (NRM Activities)					Total
		Farm Pond	Check Dam	Percolation Pond & Village Pond	Renovation of Pond & Deepening of Kanmoi	Recharge Shaft	
1	Coimbatore	-	1	-	-	-	1
2	Kancheepuram	-	2	1	-	-	3
3	Krishnagiri	-	-	-	-	21	21
4	Namakkal	-	24	-	3	20	47
5	Perambalur & Ariyalur	-	6	-	21	-	27
6	Pudukkottai	5	6	5	18	11	45
7	Ramanathapuram	-	-	-	3	-	3
8	Salem	12	20	5	15	-	52
9	Sivagangai	-	-	1	-	-	1
10	Trichirappalli	-	69	5	37	5	116
11	Villupuram	1	3	-	1	13	18
	Total	18	131	17	98	70	334

**Table 8.4 Farm Production System and
Livelihood Support System Activities
achievement details (2019-20)**

(in Nos.)

Sl.No	District	Sprayers	Agriculture Implements	Others (**)	No. of SHGs	Individual Beneficiaries	Total
1	Coimbatore	-	-	-	171	140	311
2	Cuddalore	840	585	-	-	-	1425
3	Dharmapuri	-	-	-	161	163	324
4	Kancheepuram	-	-	-	237	178	415
5	Krishnagiri	-	-	-	149	155	304
6	Ramnad	-	-	-	175	-	175
7	Sivagangai	241	510	-	-	-	751
8	Theni	-	-	-	100	92	192
9	Thoothukudi	171	183	-	271	0	625
10	Trichirappalli	-	-	-	375	357	732
11	Tirunelveli	-	-	-	158	137	295
12	Vellore	-	-	-	30	-	30
13	Villupuram	123	194	-	-	-	317
14	Virudhunagar	662	904	437	-	-	2,003
Total		2,037	2,376	437	1,827	1,222	7,899

(**) Agro Forestry Plantation, Horticulture Plantation etc.

During the year 2020-2021, it is planned to take up works for consolidation, Monitoring and Evaluation of 270 projects for closure of PMKSY-Watershed Development component.

Under Consolidation Phase, guidelines have been issued for the maintenance of Watershed assets created and increasing the Farm Production through mechanisation in IWMP watersheds by utilizing an amount of Rs.103 crore pertaining to Watershed Development Fund of IWMP, Revolving Fund recovery amount and consolidation phase.

Under Monitoring & Evaluation component, video conference will be established facilities at the O/o the Agricultural Production Commissioner & Principal Secretary to Government, Agriculture Department, the State level offices of Agriculture, Horticulture, Agricultural Marketing & Agri Business and Agricultural Engineering departments, TAWDEVA

and the district level offices of Agriculture and Horticulture Departments.

8.4 Watershed Development Fund (WDF) assisted by NABARD:

The Watershed Development Fund scheme assisted by National Bank for Agriculture and Rural Development (NABARD) is being implemented through Tamil Nadu Watershed Development Agency since the year 2004. It is funded by State Government (with 50% loan) and NABARD (50% grant assistance)

Out of 147 projects being implemented by NABARD under the 50:50 sharing pattern with State government, 102 Projects have been handed over by National Bank for Agriculture and Rural Development to Tamil Nadu Watershed Development Agency for the Full Implementation Phase. Out of these 102 projects, 91 projects have been handed over from Tamil Nadu Watershed Development

Agency after completion of the first part of the Full Implementation phase and the remaining 11 projects of Full Implementation Phase are under progress in Tamil Nadu Watershed Development Agency. WDF is implemented through Non Governmental Organizations (NGOs).

Table 8.5 Major Components of WDF

(i)	Physical Area Treatment	Activities like Stone Filled bunds, Contour trenches, Water Absorption Trenches, Dug wells, Recharge pits, Farm ponds, Percolation Ponds, Sunken Ponds, Agro Forestry, Agro-Horticulture, Silvi-pasture, Grass seeding in watershed areas.
(ii)	Drainage line treatment	Activities like Stone gully plugs, Renovation of water harvesting structures, Desilting of ponds, tanks, repair of supply channels.
(iii)	Livelihood Support for landless women	Income generating activities for Self Help Groups and landless Women.
(iv)	Training	Training to Watershed Association Communities and beneficiaries in the Watershed - through Participatory Rural Appraisal and help them to develop a need based watershed specific plan.

During the year 2018-19, State Government has sanctioned Rs.2.748 crore for 6 new watershed projects which has been released to 5 districts and the details of achievement are as below.

Table 8.6 WDF Scheme - Achievement Details (2018-19)

(Rs.in lakh)

Sl.No	District	Name of the Project	Name of the NGO	50% of Project Cost	Fund released for 2019-20	Expenditure
1	Pudukkottai	Odukkur	GCF	36.654	24.436	12.218
2	Pudukkottai	Mampatti	GSS	49.253	39.246	16.418
3	Tiruvallur	Koppur	VRDS	46.375	30.916	15.458
4	Tiruchirapalli	Ayyampalayam	Scope	44.938	29.958	14.245
5	Cuddalore	Karaikadu	HIH	53.797	17.932	13.141
6	Madurai	Kesampatti	IADF	43.804	29.202	14.601
Total				274.821	171.690	86.081

8.5. Climate Proofing of Rainfed Watersheds in Salem and Virudhunagar Districts of Tamil Nadu under National Adaptation Fund for Climate Change (NAFCC)

The prime objective is to improve climate resilience and build adaptive capacities of the communities to climate change in the rainfed areas of Tamil Nadu. At present the project is being implemented in 20 Watersheds of Salem and Virudhunagar Districts to treat an area of 15,990 ha with a project outlay of Rs.23.80 crore sanctioned as Grant-in-aid by the Ministry of Environment, Forests & Climate Change of Government of India over a project period of four years from 2019-20 to 2022-23 with NABARD as the Project Implementing Agency and TAWDEVA as the Executive Entity.

So far, Rs.4.01 crore has been released by NABARD as 1st instalment to carry out Entry Point Activities, Water Resource, Soil Health and Crop Management Activities, Livelihood Support Activities and Micro Enterprises in Salem and Virudhunagar Districts of Tamil Nadu.

Table 8.7 Financial Allocation (2019-20)

Climate Proofing of Rainfed Watersheds in Salem and Virudhunagar Districts of TAMIL Nadu under National Adaptation Fund for Climate Change (NAFCC)

(Rs. in crore)

S. No	Name of Component and activity	Amount released in 1st installment					
		Salem		Virudhu nagar		Grand Total	
		Phy	Fin	Phy	Fin	Phy	Fin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I	Entry Point Activities	18	0.180	18	0.180	36	0.360
II	Water Resource and Soil Health Management Activities	310	1.094	456	1.244	766	2.338
III	Crop Management Activities	244	0.223	272	0.142	516	0.365
IV	Livelihood Support Activities & Micro Enterprises	70	0.246	46	0.164	116	0.410
V	Add on Activities (Climate Proofing)	92	0.088	156	0.134	248	0.222
VI	Capacity building	48	0.117	32	0.085	80	0.202
VII	Project Management Charges 3% of intervention cost	-	0.058	-	0.060	-	0.118
VIII	NIE Fee 3% Project cost	-	0.000	-	0.000	-	0.000
GRAND TOTAL		782	2.006	980	2.009	1,762	4.015

9. DEMAND NO.5 AGRICULTURE BUDGET ESTIMATE 2020-21

(Rupees in Thousands)

	Revenue	Capital	Loan	Total
DEMAND FOR GRANT – Voted	11,387,31,27	376,41,77	130,75,00	11,894,48,04
Appropriation Charged	15	...	...	15

Net Expenditure (Rupees in Thousands)

Head of Account		2018-19	2019-20	2019-20	2020-21
		Accounts	Budget Estimate	Revised Estimate	Budget Estimate
2059	PUBLIC WORKS	2,58,50	2,66,75	2,68,00	2,70,75
2401	CROP HUSBANDRY	7,793,01,69	8,695,74,64	9,065,39,77	9,649,08,97
2402	SOIL AND WATER CONSERVATION	141,90,40	91,96,37	175,36,31	401,89,27
2408	FOOD STORAGE AND WAREHOUSING	....	100,00,00	51,61,85	243,31,39
2415	AGRICULTURAL RESEARCH AND EDUCATION	425,39,64	594,87,51	659,54,11	602,69,75
2435	OTHER AGRICULTURAL PROGRAMMES	201,15,48	300,04,29	312,34,46	255,96,39

Head of Account		2018-19	2019-20	2019-20	2020-21
		Accounts	Budget Estimate	Revised Estimate	Budget Estimate
2501	SPECIAL PROGRAMMES FOR RURAL DEVELOPMENT	155,16,60	183,87,60	50,98,35	3
2551	HILL AREAS	88,01	93,24	1,05,15	1,08,97
2702	MINOR IRRIGATION	7,88,57	8,39,86	9,48,16	9,54,05
2705	COMMAND AREA DEVELOPMENT	-1	34	8	9
2810	NEW AND RENEWABLE ENERGY	10,91,11	8,50,00	55,05,31	201,33,54
3451	SECRETARIAT – ECONOMIC SERVICES	13,07,86	13,58,88	14,39,04	17,50,98
4401	CAPITAL OUTLAY ON CROP HUSBANDRY	79,46,94	83,13,02	89,24,48	123,88,18
4402	CAPITAL OUTLAY ON SOIL AND WATER CONSERVATION	32,19,75	134,06,04	104,22,79	21,59,05
4435	CAPITAL OUTLAY ON OTHER AGRICULTURAL PROGRAMMES	236,91,69	201,48,89	152,10,78	230,94,46

Head of Account		2018-19	2019-20	2019-20	2020-21
		Accounts	Budget Estimate	Revised Estimate	Budget Estimate
4705	CAPITAL OUTLAY ON COMMAD AREA DEVELOPMENT	....	8	....	8
6401	LOANS FOR CROP HUSBANDRY	....	130,00,00	130,00,00	130,00,00
7610	LOANS TO GOVERNMENT SERVERNTS ETC.	58,50	75,00	75,00	75,00

DEMAND NO.5 AGRICULTURE BUDGET ESTIMATE 2020-21

[Rupees in Thousands (Gross)]

S. No	Head of Department		Revenue	Capital	Loan	Total	
1	05 01	Secretariat	Voted	17,50,98	...	75,00	18,25,98
2	05 02	Directorate of Agriculture	Charged	11	...	...	11
			Voted	7,100,87,98	104,51,12	130,00,00	7,335,39,10
3	05 03	Directorate of Agricultural Marketing and Agri. Business	Voted	504,58,58	230,94,46	...	735,53,04
	05	Directorate	Voted	57,79,26	3	...	57,79,29

S. No	Head of Department		Revenue	Capital	Loan	Total	
4	04	of Seed Certification					
5	05 05	Directorate of Horticulture and Plantation Crops	Charged	2	...	...	2
			Voted	2,084,01,09	19,37,02	...	2,103,38,11
6	05 06	Agricultural Engineering Department	Charged	2	...	...	2
			Voted	1,039,25,86	21,59,14	...	1,060,85,00
7	05 07	Agro Engineering Services	Voted	49,65	...	...	49,65
8	05 08	Tamil Nadu Agricultural University, Coimbatore	Voted	581,85,96	...	...	581,85,96
9	05 09	Directorate of Organic Certification	Voted	91,91	...	...	91,91
Total			Charged	15	...	...	15
			Voted	11,387,31,27	376,41,77	130,75,00	11,894,48,04

CONCLUSION

Agriculture department is arriving towards Sustainable Development Goals viz., to end hunger, achieve food security, improved nutrition and promote sustainable agriculture through supporting sustainable agriculture, empowering small farmers, promoting gender equality, ending rural poverty and ensuring healthy lifestyles.

To double the agricultural productivity and income of the farmers, efforts are being made by the Agriculture Department for implementing a range of schemes viz., Pradhan Mantri Krishi Sinchayee Yojana which focuses on improved water efficiency with motto of "Per drop more crop", through 100% subsidy to Small and Marginal farmers to install drip and sprinkler irrigation, Pradhan Mantri Kisan Samman Nidhi Scheme which gives further boost to their income, Pradhan Mantri Kisan Sampada Yojana for financing of mega food parks, infrastructure of Agro Processing Clusters and cold chain,

Value addition infrastructure, System of Rice Intensification, Sustainable Sugarcane Initiatives, Mission for Sustainable Dry land agriculture, Collective Farming, National Horticulture Mission, encouraging Crop Diversification, promotion of hi-tech practices and Schemes for augmentation of fruits and vegetables.

Further, sustainable livelihood of the farmers in hilly and forest fringe villages is addressed by Special Area Development Programme. To enable the farmers acquire machinery, subsidy assistance is provided under Sub Mission on Agricultural Mechanisation (SMAM). Livelihood Support for landless women is given under Watershed Development Fund (WDF) assisted by NABARD.

To achieve sustainable food production systems and implement resilient agricultural practices, the department is implementing the programmes such as Pradhan Mantri Fasal Bima Yojana for Crop Insurance to overcome the

production losses, provision of Agricultural credit, Soil Health management, judicious use of chemicals, Plant Protection and Integrated Pest Management, providing incentives to farmers to encourage organic farming under Paramparagat Krishi Vikas Yojana and Integrated Farming.

Due to the initiatives of the Government, Tamil Nadu stood first at all India level in the productivity of Maize, Bajra, Ragi, total coarse cereals and production of flowers and plantation crops.

By promoting Green energy in Agriculture, Solar powered pumping systems and solar drying units, reliable cost effective and environmentally sustainable energy is acquired for agriculture.

Efficient water management for sustainable agricultural production is addressed by Watershed Development and Irrigation Programmes under Pradhan Mantri Krishi

Sinchayee Yojana, Soil and Water Conservation and Farm Ponds for supplementary irrigation.

Another boon to Agriculture is the drip irrigation, which has resulted in higher water productivity by saving irrigation water by 25-60% and 10-60% increase in yield.

To enhance Agricultural Research and Extension services, technology development is taken up in the lines of the farm mechanization activities, green energy initiatives, post harvest technology, integrating and strengthening the supply chain of perishables. Market led Agriculture is the key intervention of the Department through which collective marketing, value addition, processing and export are envisaged. Creation and maintenance of infrastructure is largely taken up to minimize the post harvest losses, which help the farmers to avoid distress sale. A paradigm shift from the status of farmer to entrepreneur will be seen in the years to come.

To maintain the genetic diversity of seeds cultivated, utilization of genetic resources and associated traditional knowledge, Tamil Nadu Agricultural University has established a Gene Bank for protection of genetic diversity of crop plants from genetic erosion with the capacity to conserve more than 1,00,000 germplasm accessions under medium and large term storage conditions. Presently, a total of 27,724 accessions of 46 crop species are deposited in the Gene Bank. It provides an important reserve of plant resources for sustainable economic and social development

Dissemination of information to the farmers through Uzhavan Mobile application, My farm guide, National e-Governance Plan–Agriculture, Agriculture Reporting System, Kisan Call Centre etc., are put into practice.

Various other programmes and projects are being implemented by the department with the funding assistance of National Agricultural Development Programme (NADP), National

Mission on Sustainable Agriculture (NMSA), Tamil Nadu Innovative Initiatives (TANII) and State Balanced Growth Fund (SBGF) towards achieving the Sustainable Development Goals.

With clear understanding of farming systems and the farmer's resources, the State Government is keen to design and develop technologies that are acceptable and appropriate for the resource poor farmers. The State's focus is also on the empowerment of farm women through development of income generating technologies and gender friendly agricultural equipments with appropriate technologies.

By dedicated implementation of the above stated specific strategies, the Agriculture Department will ensure farmers' welfare, besides ensuring productivity of Crops and food security.

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