AGRICULTURE DEPARTMENT

POLICY NOTE

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INTRODUCTION

The ploughers are the linch-pin of the world; they bear them up who other works perform, too weak its toils to share..

(Thirukural : 1032)

Agriculture is recognised as the most important sector for alleviating poverty and promoting rural development. Agriculture is one of the most powerful sectors of the economy for economic growth and Nation building.

The Government has formulated many policies to usherin Second Green Revolution such as management of soil health, judicious use of water, Supply of quality inputs, mechanization of farm, development of infrastructure, invigorating extension system, extensive use of ICT tools and capacity building.

Ingenious approach of the Government has helped in obtaining highest ever food grain production of 127.95 L.MT during the year 2014-15 surpassing the earlier record of 101.52 L.MT obtained during the year 2011-2012. The State has bagged Krishi Karman

award twice in a period of three years from Government of India, once for the highest pulses production and once for the food grain production. The State received the State Agriculture Leadership Award 2013 from the leading magazine, “Agriculture Today” for new initiatives. The State was also conferred with the Best Big Agriculture State Award by the popular magazine India Today. The State also received the National Gold Award for e-Governance from Government of India for the year 2013-14.

Agriculture Scenario of Tamil Nadu

Tamil Nadu is the eleventh largest and the seventh most populous state (6%) in the Country. Tamil Nadu has a total geographical area of 130.33 L.Ha which is 4% of the total land area of the Country. As per the latest statistical report (2013-2014), the Gross Cropped Area of the State is 58.97 L.Ha and the net area sown is 47.14 L.Ha (36%) when compared to the total geographical area of the State. The State has 3% of water resources of the country with which a gross area of 33.11 L.ha is irrigated.

The State receives an average annual rainfall of around 921 mm; North-East monsoon, South-West monsoon, summer and winter rainfall account for 48%, 35%, 14% and 3% respectively of the total rainfall. The per capita availability of water resources is 750 cubic meters per year as compared to the all India average of 2,200 cubic meters.

The number of operational land holdings in the State is 81.18 lakh, operating 64.88 L.Ha. Small and Marginal holdings account for 92% of the total holdings operating 61% of the total sown area. At National level, Small and Marginal farmers account for 85% of the total holdings operating 44.58% of the total sown area. The average size of land holding in the State is 0.80 hectare compared to 1.15 hectare at the National level.

1. AGRICULTURE

1. Introduction

Tamil Nadu has seven distinct agro-climatic zones based on rainfall, soil characteristics, irrigation potential and cropping pattern.

In the State, paddy is cultivated in about 17.75 L.Ha (31%), millets in 6.99 L.Ha (12%), pulses in 6.34 L.Ha (11%), oilseeds in 4.38 L.Ha (8%), sugarcane in 3.24 L.Ha (6%), cotton in 1.29 L.Ha (2%), coconut in 4.29 L.Ha (8%) and Horticultural crops in 12.22 L.Ha (22%).

As per Statistics released by Government of India, during the year 2013-14, the State secured first position in productivity of Maize, Groundnut & total Oilseeds, second in Sugarcane and third in Rice and Sunflower in the Country.

The goal of the department is to achieve production of 170 lakh metric tonnes of food grains, 5 lakh bales of cotton, 545 lakh metric tonnes of cane and 17 lakh metric tonnes of oilseeds in the terminal year of the Twelfth Five Year plan period (2012-2017). The Department is continuously working for increasing the productivity by adopting crop specific strategies.

2. Season

2.1. Rainfall

The State received excess rainfall in summer season, normal rainfall during South West & North East monsoon and deficit rainfall in winter season during the year 2014. Compared to the year 2013, the State received less rainfall during winter and South West monsoon which had impact on coverage of crops during Kharif-2014.

2.2. Crop Status

2.2.1. Kuruvai paddy crop 2014-15

The Mettur dam was opened for irrigation only on August 10th, 2014. The Hon'ble Chief Minister, to succour Delta farmers, announced a special scheme for Kuruvai cultivation at an outlay of Rs.32.95 Crore benefitting 4,08,822 farmers. The announcement included supply of 12 hours 3 phase power supply, distribution of inputs for increasing productivity, raising of community nursery and distribution of seedlings at 100% subsidy. Further, 6993 units of HDPE pipes were supplied to 6993 farmers of delta districts at a cost of Rs.1399 Lakh. In addition, 200 Nos. of paddy transplanters and 200 Nos. of paddy power weeders worth of Rs.440.60 Lakh were given free of cost to the Farmers Groups in delta districts. This resulted in increased area of

2.56 Lakh Acre under paddy cultivation against the normal area of one Lakh Acre in the filter point areas.

3. Area, Production and Productivity

During the year 2014-15, due to implementation of various schemes and new initiatives, the State is expected to achieve an all time high food grain production. When compared to 2013-14, the anticipated area under cultivation, production and productivity of various crops in the year 2014-15 are as follows:-

Crop	Area (L.Ha.)		Production (L.MT)		Productivity (kg/Ha)	
	2013-14	2014-15*	2013-14	2014-15*	2013-14	2014-15*
Rice	17.26	18.30	71.15	79.14	4122	4325
Millets	9.33	9.71	32.73	41.58	3508	4289
Pulses	8.16	9.40	6.14	7.24	752	769
Total food grains	34.75	37.41	110.02	127.96		
Oilseeds	4.08	4.19	9.61	9.73	2355	2322
Cotton (**)	1.51	1.87	4.17	6.28	469	570
Sugarcane(***)	3.13	2.63	324.54	244.63	104	93
Total	43.47	46.10				

* Fourth Advance Estimate

(**) Production (L.Bales) ; (***)Productivity (MT/Ha)

Area and Production Programme for 2015-16

Crop	Area (L.Ha)	Production (L.MT)	Productivity (Kg/ha)
Rice	21.00	93.00	4429
Millets	12.00	45.00	3750
Pulses	11.00	9.00	815
Total food grains	44.00	147.00	
Oilseeds	5.62	13.85	2464
Cotton (*)	1.80	7.50	700
Sugarcane (**)	3.60	400.00	111
Total	55.02		

(*) Production (L.Bales) ; (**)Productivity (MT/Ha)

3.1. Sugarcane

Sugarcane is the second important Agro Based Industrial Crop in Tamil Nadu. It is cultivated in an area of 3.50 Lakh Ha. which accounts for 5% of the total cultivated area. Sugar production in the State is about 7-9 % of the production in the Country. A new technology, ie., Sustainable Sugarcane Initiative (SSI) is being promoted wherein interventions viz., use of Micro Irrigation, raising shade net nursery using single bud chips, transplanting seedlings of 25-30 days, wider spacing and fertigation are encouraged. As per the fourth advance estimate for this year, 2.63 Lakh Ha. is the area under sugarcane crop and the

estimated sugarcane production is 244.63 Lakh Metric Tonnes.

Cane produced is crushed in 43 Sugar Mills functioning in the State. Out of these 16 Sugar Mills are in Co-operative Sector, 2 Sugar Mills are in Public Sector and 25 Sugar Mills are in Private Sector.

In order to encourage sugarcane growers, the Government of India announces Fair and Remunerative Price (FRP) every year. The State Government announces State Advised Price (SAP) based on FRP and local cost of cultivation. For the year 2014-15, GOI announced FRP for sugar of Rs.2200 per MT for 9.5% recovery with an incentive of Rs.23.20 per MT for every 0.1% increase in recovery. However, the State Government has announced higher SAP of Rs.2650/MT which is inclusive of transport cost of Rs.100/- for the crushing season of the year 2014-15.

4. Inputs

4.1.Seeds

Seed is the most critical input in agriculture. The Agriculture department has prepared a comprehensive seed growing plan to meet the requirement for all the crops. The aim of the programme is to achieve Seed Replacement Rate (SRR) of 33% for self

pollinated crops such as paddy, ragi, pulses and groundnut, SRR of 50% for cross pollinated crops such as cholam, cumbu & cotton and SRR of 100% for hybrids.

Government owns 16 major, 2 medium and 63 mini Seed Processing Units with an annual processing capacity of 29,600 MT. Further, the Department has also proposed to strengthen and convert the State Seed Farms into technology information and demonstration centres through land development, adoption of scientific practices, use of innovative cultivation technologies, storage, creation of reliable irrigation facilities and promotion of farm mechanization over a period of five years.

During the year 2015-16, it is planned to distribute 34,650 MT of paddy, 5,085 MT of pulses, 6,000 MT of oilseeds, 425 MT of millets and 40 MT of cotton certified seeds to the farmers.

4.2. Macro Nutrients

Nutrient management is the key to sustainable soil fertility. It is the endeavour of the department to promote ecologically sustainable and balanced use of chemical fertilizers. Government has distributed to almost

all the farmers a Hand Book containing information on Land holdings, soil fertility status, optimized cropping pattern and fertilizer dosage (crop specific) for maximizing the productivity in the farmers' field.

Agriculture Department draws a fertilizer plan based on cropping pattern every year and liaise with Department of Fertilizers, Government of India for supply of fertilisers as per the plan. Fertilizer distribution during 2014-15 and requirement for 2015-16 are as detailed in the table below:-

(L.MT)

Fertilizer	Allocation 2014-15	Distribution 2014-15	Requirement 2015-16
Urea	10.50	9.77	9.80
DAP	3.75	2.33	3.10
MOP	4.00	2.88	4.30
Complex	6.50	4.87	6.40

Tamil Nadu Government is taking all efforts to ensure timely availability of fertilizers especially Urea to the farmers. The State Government, in an effort to reduce the fertilizer price, has waived 4% VAT on the sale of chemical fertilizers in the State. Further, the Government has exempted 5% VAT on Naphtha procured by MFL and SPIC to allow continuing of Naphtha based Urea production in the State. The State Government also provides interest

free loan of Rs.150 Crore per annum to TANFED from 2012-13 for procurement and storage of adequate quantity of fertilizers to avoid shortage during the peak agriculture season.

5. Schemes

5.1. National Agriculture Development Programme

National Agricultural Development Programme has an objective to achieve 4% growth rate in agriculture and allied sectors. This programme hitherto was implemented as 100% Central assistance Scheme. The scheme is being implemented with fund sharing pattern of 50:50 between the Centre and the State from the year 2015-16.

During the year 2014-15, Schemes for promotion of Paddy, Millets, Pulses, Oilseeds and redgram cultivation, sustainable sugarcane initiatives, enrichment of soil fertility through trash mulching, distribution of coconut seedlings, construction of buildings for fertilizer control laboratory, establishing laboratories for organic fertilizer testing, establishing new biofertilizer production units, construction of agricultural extension centres and provision of tablet PCs to field functionaries were taken up at Rs.80.12 Crore.

This scheme is being implemented during 2015-16 with an allocation of Rs.155.09 Crore.

5.2. National Food Security Mission (NFSM)

National Food Security Mission is implemented with an objective to increase the production of rice, pulses, coarse cereals & commercial crops, area expansion and productivity enhancement. The scheme was implemented with full Central assistance till 2014-15. The funds for the scheme are shared in the ratio of 50:50 between the Centre and the State from the year 2015-16.

5.2.1. NFSM- Rice

National Food Security Mission for Rice is implemented in 8 districts viz., Pudukkottai, Tiruvarur, Nagapattinam, Ramanathapuram, Sivagangai, Thanjavur, Tiruvannamalai and Cuddalore. During the year 2014-15, activities such as cropping system based demonstrations, distribution of certified quality seeds, farm machineries and agricultural inputs were taken up at Rs.25.04 Crore.

During the year 2015-16, activities such as Demonstration on direct sowing method, line transplanting and distribution subsidy for high yielding paddy seeds are being taken up at an outlay of Rs.30.11 Crore.

5.2.2. NFSM- Pulses

National Food Security Mission for Pulses is implemented in all the districts except Chennai and the Nilgiris. During the year 2014-15, the scheme was taken up at Rs.24.28 Crore.

During the year 2015-16, interventions such as cluster demonstrations on improved package of practices in Red gram, Black gram and Green gram, demonstrations on intercropping with cotton and groundnut, cropping system based demonstrations, distribution of certified seeds of high yielding varieties etc. are being taken up with an allocation of Rs.30.20 Crore.

5.2.3. NFSM- Coarse Cereals:

National Food Security Mission for coarse cereals is implemented in 10 districts viz., Salem, Coimbatore, Dharmapuri, Krishnagiri, Tiruchirapalli, Perambalur, Tirupur, Dindigul, Theni and Thoothukudi. Activities such as demonstrations on improved package of practices, distribution of certified seeds of high yielding varieties and establishment of water harvesting structures with portable mobile sprinklers were taken up at Rs.7.94 Crore during the year 2014–15.

Demonstrations on Improved package and distribution of certified seeds of High Yielding varieties & hybrids are being taken up during 2015-16.

5.2.4. NFSM- Commercial Crops

NFSM for cotton based cropping system is implemented from 2014-15 in the districts viz., Salem, Dharmapuri, Madurai, Virudhunagar, Tirunelveli, Theni, Dindigul, Villupuram, Perambalur, Thoothukudi and Coimbatore. Under this scheme, components involving front line demonstration on cotton, intercropping with pulses and high density planting were taken up at Rs.0.28 Crore. During 2015-16, the scheme is being implemented in Perambalur and Virudhunagar districts at an outlay of Rs.0.56 Crore.

NFSM for sugarcane based cropping system was implemented during 2014-15 in Cuddalore, Villupuram, Salem, Namakkal, Erode, Ariyalur and Thanjavur districts at a cost of Rs.0.31 Crore.

During 2015-16, the scheme is being implemented in Tiruvannamalai district alone with an allocation of Rs.0.54 Crore.

5.3. National Mission for Sustainable Agriculture (NMSA)

National Mission for Sustainable Agriculture (NMSA) is under implementation only from 2014-15 with the objective to make agriculture operations remunerative and climate resilient. The programme promotes conservation of natural resources by adopting comprehensive soil health management practices with optimum utilization of water resources in rainfed areas. During the year 2014-15, components of NMSA were implemented with 100% Central assistance at Rs.16.23 Crore.

During 2015-16, the scheme is being implemented with equal sharing between State and Centre with an allocation of Rs.49.53 Crore.

5.4. National Mission on Oilseeds & Oilpalm (NMOOP)

National Mission on Oilseeds and Oil Palm (NMOOP) comprises of three Mini Missions one each for oilseeds, oilpalm and Tree Borne Oilseeds (TBOs). The funds for the scheme is provided on 50:50 basis by the Centre and the State. The objective of this Mission is to increase the area under oilseeds through crop diversification from low yielding cereal crops to oilseed crops and expansion of cultivation area of Oilpalm & TBOs in wastelands. The Scheme is

being implemented with equal sharing between State and Centre.

5.4.1. Mini Mission-I on Oil Seeds

Mini Mission - I deals with groundnut, sunflower, gingelly and castor crops. During the year 2014-15, this programme was implemented in all the districts except Kanyakumari, Chennai & the Nilgiris at Rs.9.80 Crore. Components such as distribution of seeds, improved farm implements, water saving equipments, conduct of front line demonstrations, training of officers and farmers on latest technologies were implemented.

The scheme will be continued during 2015-16.

5.4.2. Mini Mission-II on Oil Palm

Mini Mission - II focuses on expansion of Oilpalm coverage in watersheds and wastelands. The scheme is implemented in districts viz., Cuddalore, Villupuram, Vellore, Tiruchirapalli, Karur, Perambalur, Ariyalur, Thanjavur, Tiruvarur, Nagapattinam, Theni and Tirunelveli. During the year 2014-15, oil palm cultivation was taken up in an area of 398 hectares besides providing maintenance support for older plantations. Planting material for intercropping in oil palm fields was provided at subsidised

cost. All these activities were carried out at a cost of Rs.1.62 Crore.

During the year 2015-16 the scheme is proposed to be implemented with the outlay of Rs.4.40 Crore.

5.4.3. Mini Mission-III on Tree Borne Oilseeds (TBOs)

This Mini Mission deals with promotion of tree borne oilseeds like neem, pungam, iluppai, etc., This scheme is implemented in Sivagangai, Virudhunagar, Ramanathapuram, Thoothukudi, Madurai and Tirunelveli. During the year 2014-15, the scheme was implemented at a cost of Rs.23 lakh.

During the year 2015-16 the scheme is proposed to be implemented with the outlay of Rs.90 Lakh.

5.5. National Mission on Agricultural Extension & Technology (NMAET)

NMAET, introduced during the year 2014-15, consists of 4 Sub Missions viz., Sub-Mission on Agricultural Extension (SMAE), Sub-Mission on Seeds and Planting Material (SMSP), Sub-Mission on Agricultural Mechanization (SMAM) & Sub-Mission on Plant Protection and plant Quarantine (SMPP). The

objective of the scheme is to make the extension system farmer-driven by adopting institutional arrangements for technology dissemination. SMAE & SMSP are implemented by the Agriculture Department, whereas SMAM is implemented by the Agricultural Engineering Department. SMPP is directly implemented by the Ministry of Agriculture, Government of India.

5.5.1. Sub-Mission on Agricultural Extension (SMAE) - Support to State Extension Programmes for Extension Reforms Scheme (SSEPERS)

SSEPERS under SMAE is implemented with 50:50 pattern of assistance between the Centre and the State. The programme is implemented throughout the State with coordinated efforts of Agriculture, Horticulture, Animal Husbandry, Sericulture, Fisheries, Forestry, Agricultural Engineering, Agricultural Marketing and Agri Business, Seed Certification and Organic certification departments, Tamil Nadu Agricultural University, Tamil Nadu Veterinary and Animal Sciences University and Tamil Nadu Fisheries University.

Training of farmers on innovative methods, demonstration, exposure visit, organising kisan gosthies and farm school are main activities taken up under this mission.

During the year 2014-15, a sum of Rs.40.96 Crore was spent.

During 2015-16, this scheme is being implemented at an outlay of Rs.59.40 Crore.

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

Sub-Mission on Seeds and Planting Material (SMSP) aims at making good quality seeds available to the farmers. Under this sub-mission, foundation & certified seeds of paddy, millets, oilseeds & pulses for an acre are distributed at subsidised rate. The farmers are also trained on scientific methods of quality seed production for meeting their own requirement.The expenditure for the year 2014-15 was Rs.17.25 Crore.

This scheme is continued during the year 2015-16.

5.5.3. National e-governance Plan-Agriculture (NeGP - A)

Under e-Governance initiatives of the department, online portals, AGRISNET, Farm Crop Management System (FCMS), Mobile Enabled Computer Server Gateway and Web Based Scheme Benefits tracking System through Comprehensive Input

Supply Management Information System (CISMIS) have been developed.

As a part of this initiative, 2,319 Tablet PCs with 3G connectivity have been distributed to all the extension functionaries at a cost of Rs.4.64 Crore. Further, 174 hand held mini projectors for dissemination of technologies through video clippings in the villages and 125 nos of “All in one” touch screen kiosks have been provided at a total cost of Rs.1.26 Crore.

During the year 2015-16, under NeGP-A an amount of Rs.3.5 Crore has been provided for providing IT infrastructure facilities.

5.6. Agriculture Insurance Schemes

Major agricultural and horticultural crops are covered under different crop insurance schemes to protect the farmers against natural perils. Various crop insurance schemes were implemented from time to time wherein the premium is shared by State, Centre and farmers. One among the crop insurance schemes is National Agricultural Insurance Scheme (NAIS) which was implemented from Kharif 2000 till Kharif 2013 and withdrawn in Rabi 2013-14 due to implementation of Modified NAIS (MNAIS). Again, it was reintroduced from Rabi 2014-15, with the concurrence of the

Central Government. Weather Based Crop Insurance Scheme (WBCIS), another crop insurance scheme, was implemented in 8 districts in the year 2008-09, in 11 districts during the year 2012-13 and in 15 districts during kharif 2013. It was subsequently withdrawn from Rabi 2013-14 onwards. MNAIS was implemented in 3 districts of Cuddalore, Namakkal and Sivagangai on pilot basis from Rabi 2010-11 till Kharif 2013 and in all the districts from Rabi 2013-14 till Kharif 2014. This was also withdrawn from Rabi 2014-15. Coconut Palm Insurance Scheme (CPIS) is implemented in 11 districts from 2010-11 and in all the districts from 2013-14.

Totally a sum of Rs.64.53 Crore was extended as premium subsidy and 6.18 Lakh famers were enrolled under crop insurance schemes in the year 2014-15 in both the crop seasons. During 2015-16, it is programmed to enroll 8.50 lakh farmers for which Rs.30.00 Crore has been sanctioned as the State share towards the premium subsidy.

Agricultural Insurance Company settles claims of compensation upto 100% of the premium collected for food and oilseed crops and 150% of the premium collected for annual and commercial crops. If the compensation claim is more than the premium collected,

excess claim amount collected is shared equally between the Centre and the State Government.

During the year 2014-15, State Government has disbursed a compensation amount of Rs.71.17 Crore to 69,900 farmers. During 2015-16, a sum of Rs.444.48 Crore (GOI share: Rs.196.84 Crore; State government share: Rs.196.84 Crore; AIC share: Rs.50.80 Crore) was disbursed as compensation to 1,70,586 farmers towards crop loss during 2014-2015.

During the year 2015-16 NAIS would be implemented in all the districts.

5.7. Coconut Development Board (CDB) Assisted Schemes

Schemes for increasing the area under coconut plantation and production & distribution of quality planting material are mainly funded by CDB. Quality 'Tall x Dwarf' and 'Dwarf x Tall' coconut seedlings are produced in Navlock Coconut Nursery, Vellore district and are distributed to farmers at subsidised cost. CDB also supports strengthening of Regional Coconut Nurseries. All components are shared between CDB and State on 50:50 basis except laying of technology demonstration plots which is 100% funded by CDB. Around 3.40 lakh coconut seedlings are distributed annually under the scheme.

During the year 2015-16 the scheme is proposed to be implemented with the outlay of Rs.1.88 Crore.

5.8. Integrated Soil Fertility Management (ISFM)

Soil degradation is a serious problem which is further exacerbated by the use of chemical fertilisers. To stop soil degradation, Integrated Soil Fertility Management (ISFM) initiatives such as conducting detailed soil survey, soil sampling and analysis, soil specific nutrient management through Farmers Integrated Hand Book (FIHB) and reclamation of Acid and Alkali soils etc., are taken up.

5.8.1. Soil Survey and Land Use Organization

There are four soil survey units at Coimbatore, Thanjavur, Vellore and Tirunelveli to take up soil survey as per the internationally recognised system and prepare comprehensive & reliable database on soil resources of Tamil Nadu.

5.8.2. Initiatives towards Integrated Soil Fertility Management

The following initiatives towards ISFM have been taken up in the State:-

- Farmers Integrated Hand book, an information on soil fertility status of the farmers field has been distributed to 67.45 lakh farmers. It has been programmed to distribute 81.18 Lakh Soil Health Cards in a period of three years from 2015-16 onwards under "Mission Soil Health Card". During 2015-16, 27.70 Lakh Soil Health Cards will be distributed.
- Annually, 250 MT of Green Manure Seeds are procured and distributed to the farmers at a subsidy of 50% for in-situ ploughing in order to increase organic content in soil.
- Annually 525 MT of Blue Green Algae and 500 MT of Azolla are produced and distributed to farmers for increasing nitrogen content in soil and reducing the infestation of weed.
- 3500 Kits each containing 1 Kg of Pleurotus and 5 Kg of Urea are distributed every year to the farmers to produce compost from the farm waste using Pleurotus.

- Sugarcane crop residue management through trash mulching was taken up in 4817 Ha at Rs. 1.15 Crore under NADP during the year 2014-15. The scheme is being implemented with an allocation of Rs.5.00 Crore in an area of 20,000 Ha during 2015-16.

5.9. Seed Multiplication Schemes

Good quality certified seeds of paddy, millets, pulses, oilseeds and cotton are multiplied every year through trained farmers. The farmers are given incentives for growing seeds. During the year 2014-15, 16,181 MT of paddy seeds, 308 MT of millet seeds, 3,638 MT of pulses seeds, 3,119 MT of oilseeds and 32 MT of cotton were procured and distributed through Agricultural Extension centres.

From 2015-16 onwards, quality certified seeds are being distributed to the farmers through Tamil Nadu State Seed Development Agency (TANSEDA) for which a sum of Rs.25 crore has been provided as revolving fund.

5.10. Plant Protection

Incidence of pest and diseases is closely monitored by roving survey. Location & crop specific advisories about pests & diseases

prevalence and control measures are communicated through SMS & publicity through Voice messages, radio, television, pamphlets, campaigns and Newspapers is also organised.

5.10.1. Integrated Pest Management

Integrated Pest Management as a holistic approach to crop protection is being popularised in the State.

The Department, with a view to promote environment friendly agricultural practices, has already established model "Eco-Friendly Integrated Pest Management Villages". The Department is now focussing on Ecological Engineering for Pest Management, a new paradigm, which is gaining acceptance as a strategy for promoting Bio-intensive integrated Pest Management. The Department to safeguard the environment is promoting this approach among the farming community under various schemes such as NADP, NMOOP, NFSM and SSEPERS. The initiatives of Government have helped reducing the consumption of pesticides from 10,926 MT in the year 1984-85 to 2,096 MT in the year 2014-15.

5.11.Tamil Nadu Cotton Cultivation Mission

Tamil Nadu Cotton Cultivation Mission was launched during the year 2014-15 to increase area under cotton cultivation from 1.34 L.Ha to 2.50 L.Ha and improve productivity from 493 kg/ha to 870 kg/hectare over a period of five years. In the year 2014-15, an area of 1.87 L.Ha has already been brought under cotton cultivation against the target of 1.70 L.Ha.

The scheme is being implemented in all the districts except Chennai, the Nilgiris, Kancheepuram, Tiruvallur, Tiruvannamalai, Karur, Pudukottai, Sivagangai and Kanyakumari during 2015-16 at an outlay of Rs.40.68 crore.

5.12. TN-IAMWARM PROJECT – Irrigated Agriculture Modernization and Water Bodies Restoration and Management (IAMWARM) Project

This is a World Bank assisted project implemented by the Water Resources Organization of Public Works department. The aim of the project is to increase area under irrigation, crop productivity and farmers' income in 61 selected sub basins, by integration of activities of the departments of Agriculture, Horticulture, Agricultural Engineering, Agriculture Marketing & Agri Business, Animal Husbandry and Fisheries.

During the year 2014-15, scheme for support of area expansion under millets and minor millets through Crop Demonstrations in 10,000 ha, provision of value adding machineries to traditional millet farming groups, support for seed multiplication and Information, Education and Communication (IEC) activities were taken up in 24 districts excluding Thanjavur, Tiruvarur, Nagapattinam, Kanyakumari, Tiruchirapalli, Erode, the Nilgiris and Chennai districts at Rs.6.32 Crore.

5.13. Crop Yield Competition

Crop Yield Competitions are conducted every year to encourage farmers to adopt progressive farming practices. Such farmer-centred competitions are conducted for irrigated paddy, maize, cholam, cumbu, groundnut, redgram, blackgram, greengram, cotton & sugarcane and rainfed groundnut at District and State level.

Totally, 88 District Level Competitions and 9 State Level Competitions are conducted every year. An enrolment fee of Rs.100/- for Paddy, Groundnut, sugarcane and cotton and Rs.50/- for other crops for State Level entry and Rs.50/- for Paddy, Groundnut, sugarcane and cotton and Rs.25/- for other crops for district level entry is collected from the farmers. The

following cash prizes are awarded to the farmers attaining highest productivity at State and District level.

Crop	State Level		District Level	
	1st Place (Rs.)	2nd Place (Rs.)	1st Place (Rs.)	2nd Place (Rs.)
Paddy, Groundnut, Cotton & sugarcane	25,000	15,000	15,000	10,000
Other Crops	15,000	10,000	10,000	5,000

A medal worth of Rs.3,500/- and a cash prize of Rs.5 lakh are given by the Hon'ble Chief Minister on the Republic Day function to the farmer obtaining highest yield in paddy using System of Rice Intensification (SRI) technique.

During the year 2015-16 the scheme is proposed to be implemented with an outlay of Rs.14.07 Lakh.

6. Facilitation Centres

The Department, to cater to the needs of the farmers, maintains facilities such as Soil and fertilizer testing laboratories, seed processing units, seed godowns, state seed farms, bio-fertilizer production units, Bio-

pesticide production units, Bio-control laboratories, Parasite breeding centres, Organic fertilizer testing laboratories, IPM centres, Micronutrient mixture manufacturing unit, Farmers' Hub, Farmers Training Centres, Water Management Training Centre, State Agricultural Extension Management Institute (STAMIN) and agricultural extension centres.

6.1. Quality Control

The Fertilizer Control Order (FCO), 1985 enacted under The Essential Commodities Act, 1955, is implemented by the Agriculture Department. The Department is keen in providing quality inputs especially fertiliser to the farming community by strictly enforcing the provisions of the FCO. Fourteen Fertilizer Control Laboratories are functioning in the State to test samples collected by Quality Control Inspectors.

During the year 2014-15, 17,500 samples were tested of which 514 samples were found non-standard. Action has been taken against all the defaulters.

Government is establishing two new Organic Fertilizer Testing Laboratories at Tiruchirapalli and Coimbatore at a total cost of

Rs.2.84 Crore under NADP for analysis of organic fertilizers such as Vermicompost, City Compost and De-oiled cakes which have been recently included under FCO, 1985.

Central Control Laboratory located at Kudumianmalai, Pudukottai district conducts training for laboratory personnel and helps in calibrating and maintaining accuracy of analysis of the laboratories.

Thirty Soil Testing Laboratories and 16 Mobile Soil Testing Laboratories with a capacity to analyse 11.26 lakh soil samples annually are functioning in the State. For analysing the Micro Nutrient status of the soil, Atomic Absorption Spectrophotometers have been provided to all the Soil Testing Laboratories.

In order to ensure safe use of quality pesticides, the department runs 15 notified Pesticide Testing Laboratories. These laboratories check the quality of pesticides by testing samples drawn by inspecting authorities from 147 Pesticide Manufacturing Units and 13,321 private sale outlets, in accordance with the Insecticide Act, 1968 and Insecticide Rules, 1971. During the year 2014-15, 21,850 samples were analysed in these laboratories.

6.2. Production Units for Agricultural Inputs

Forty one Government owned State Seed Farms play a pivotal role in growing foundation seeds required to produce good quality certified seeds in the farmers' field. These seed farms also act as centres for demonstrating latest technologies to the farmers. It is programmed to modernize all the State Seed Farms in a period of three years from 2015-16.

Micro nutrients are essential for plant growth and play an important role in balanced crop nutrition. The Department has a Micro Nutrient Mixture Production Centre at Kudumianmalai, Pudukottai district with a capacity to produce 1,600 MT of 14 types of notified Micro Nutrient (MN) mixtures annually. The MN mixtures are distributed to farmers through Agricultural Extension Centres. During 2014-15, 2,107 MT of micro nutrient mixtures were produced and distributed to farmers.

Three strains of Bio-fertilizers viz., Azospirillum, Rhizobium and Phosphobacteria are produced in the department owned 15 Bio-Fertilizer Production Units(BFPUs). These units have an annual production capacity of 3000 MT. Biofertilizers are distributed at a cost of Rs.6/-per packet of 200 grams. Facilities to produce 2.5 L.litre of liquid biofertilizers per annum have been created in 5 BFPUs during

the year 2014-15. Further, 7 new Liquid Bio fertilizer laboratories are being established at a cost of Rs.8.93 Crore.

The Department also runs 10 Bio-control labs & 2 Integrated Pest Management (IPM) Centres for producing Bio-control agents. They are distributed to farmers at subsidized cost through Agriculture Extension Centres.

Following bio control agents are produced and distributed to the farmers as follows:-

Bio-control agents	Production centres (Nos.)	Pests / Diseases controlled
Trichogramma chilonis (egg parasitoid)	19	Sugarcane Internode borer
Bethylid,Braconid [larval parasites] and Eulophid [prepupal Parasites]	12	Coconut Black headed caterpillar
Green Muscardine fungus [Metarhizium sp]	2	Coconut Rhinoceros beetle
Nuclear Polyhedrosis Virus	12	Groundnut Red hairy caterpillar, Prodenia and cotton boll worm
Bio fungicides - Pseudomonas sp, Trichoderma viride	12	Diseases in cotton, pulses and paddy

6.3. Agriculture Information Dissemination Centres

Government runs 22 Farmers Training Centres and imparts training to 28,820 farmers, convenors, farm women and rural youth annually on farm management practices and technologies.

Water Management Training Centre at Vinayagapuram, Madurai district is functioning from 1985 with a capacity to train 180 field functionaries and 900 farmers annually on irrigation technologies and irrigation efficiency.

The State Agricultural Extension Management Institute (STAMIN) commissioned in the year 1975 at Kudumianmalai, Pudukottai district is the main centre for training of Extension Officers of the department. Annually, 1,100 field functionaries are trained. A State Agricultural Management and Extension Training Institute (SAMETI) has been established in the year 2012-13 in the premises of STAMIN, to provide consultancy services in areas of project planning, project appraisal, etc.

7. Special Programmes - 2014-15

The following special programmes were implemented during the year 2014-15 for increasing the productivity and income of farmers.

- A pilot project to bring back an area of 12,500 acres of fallow lands to cultivation in Villupuram and Tiruvannamalai districts benefitting 8,032 farmers.
- Food Grain Mission resulting in all time high production of food grains during the year 2013-14. During 2014-15, the mission was implemented at an outlay of Rs.182.34 Crore.
- A programme of adoption of SRI in 13.65 L.Ha of paddy besides implementing SRI in 3000 villages on whole village basis covering an area of 2.61 L.Ha.
- A programme for promotion of Redgram cultivation on mission mode by integrating all relevant activities like redgram transplantation, precision farming, bund cropping & bush cropping and formation of FPOs at a total financial outlay of Rs.55.152 Crore.
- Sustainable Sugarcane Initiative (SSI). A project for adopting precision farming and SSI each in an area of 5000 Ha at a cost of Rs.42.76 Crore and Rs.17.95 Crore respectively.
- Establishment of Tamil Nadu State Seed Development Agency (TANSEDA) at an initial financial support of Rs.25 Crore to ensure timely availability of high quality seeds of various crops.

- A programme for Popularisation of environment friendly sustainable agricultural practices by establishing model organic villages, model eco-friendly IPM Villages, 7 new Bio-fertilizer production units and 2 organic fertilizer testing laboratories at a total cost of Rs.22.47 Crore.
- Interface with the individual farmers, farmer clusters and the commodity groups through improved fixed schedule of visit by involving Agriculture extension functionaries. Fixed Schedule of Village Visit on Cluster basis under Farmer Oriented Integrated Agricultural Extension System was launched on 5.1.2015 in 379 blocks through Agriculture Department and 6 blocks through Horticulture and Plantation Crops Department.
- As a mark of International year of Family Farming, 770 Amma farm women groups have been formed to empower and engage women in Group oriented agricultural activities.

2. HORTICULTURE AND PLANTATION CROPS

1. Introduction

The Department of Horticulture and Plantation Crops was carved out from the Agriculture department on 26.09.1979.

State's agro climatic condition is conducive for cultivation of varied horticultural crops viz., Fruits, Vegetables, Flowers, Spices and Condiments, Plantation crops and Medicinal & Aromatic plants. Horticultural crops are cultivated in an area of about 10 lakh Ha occupying around 19% of the Gross cropped area. The details related to cultivation of various Horticultural crops in the State are as follows:

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

Name of the crops	2014 - 2015 (Provisional)			2015- 2016 (Estimated)		
	Area	Prodn.	Pty.	Area	Prodn.	Pty.
Fruits	2.86	59.63	20.85	2.94	62.61	21.30
Vegetables	2.85	75.16	26.37	2.93	78.92	26.94
Spices and condiments	1.13	7.82	6.92	1.16	8.21	7.08
Plantation crops	6.85	12.83	1.87	7.06	13.48	1.91
Medicinal and aromatic plants	0.13	2.2	16.92	0.14	2.31	16.50
Flowers	0.25	3.36	13.44	0.26	3.52	13.54
TOTAL	14.07	161.00	11.44	14.49	169.05	11.67

The State stands first in Vegetable productivity (29.95 MT/ha); ranks second in area of cultivation in Banana (1.18 lakh ha); first in Banana production (56.50 lakh MT) and first in production (49.76 lakh MT) and productivity (41.25 MT/ha) of Tapioca in the Country.

Policies of the Horticulture department are promotion of scientific cultivation & hi-tech cultivation technologies, improvement of post harvest management and modernization of the State Horticulture Farms.

Distribution of quality planting material, use of popular hybrid seeds, expansion of horticulture crop in hi-tech cultivation, promotion of high density planting, subsidy for creation of green houses, use of micro irrigation, promotion of integrated nutrient, pest and disease management, promotion of home / roof top garden are few of the many schemes implemented by the department.

2. Schemes of Horticulture Department

i. National Horticulture Mission (NHM)

Holistic development of Horticulture is the focus of this programme. Under this scheme, farmers are assisted for expansion of area

under horticultural crops and for adoption of technology driven horticulture practices like protected cultivation and adoption of modern Post Harvest Management practices.

NHM is implemented in 22 districts viz., Ariyalur, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Kanyakumari, Krishnagiri, Madurai, Perambalur, Pudukotai,Tiruppur, Ramanathapuram, Salem, Sivagangai, Tanjavur, Nilgiris, Theni, Tirunelveli, Trichy, Vellore and Villupuram.

In the year 2014-15, additional area of 12,922 ha was brought under the Horticulture crops. Poly green houses measuring 5 lakh Sq.m were erected under National Horticulture Mission. Organic cultivation was promoted in 1,000 Ha. Other activities like establishing Pack Houses, Cold storage units, Ripening chambers, Low cost Onion storage structures were also taken up under the mission. Works relating to establishing Centre of Excellence for Hilly vegetables and Tropical fruits at Nilgiris and Trichy respectively are under progress. The mission activities were implemented in the year 2014-15 with a financial outlay of Rs.65.13 crore. The scheme was implemented with funds sharing between Centre and State in the ratio 85:15.

During this year the scheme is implemented at an outlay of Rs.123 crore with a equal sharing pattern of 50:50 between Centre and State.

ii. Micro Irrigation under On Farm Water Management (OFWM) of National Mission for Sustainable Agriculture (NMSA).

Water is a precious input for crop cultivation. Adequacy of water for irrigation is the critical deciding factor for increasing the production and the productivity. Use of micro irrigation system improves water use efficiency by 40-60%.

As per NMSA guidelines in the year 2014, Government of India allows only 25% to 50% subsidy for micro irrigation to farmers. But the State extends 100% subsidy to small and marginal farmers and 75% subsidy to other farmers for installing micro irrigation system. The subsidy share over the share provided by the Central Government is met by the State's funds. During the year 2014-15, micro irrigation systems had been laid in 12,518 Ha. at a financial outlay of Rs.119.76 crore.

During the year 2015-16 the scheme is proposed to be implemented with an outlay of Rs.296.96 crore under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).

iii. National Agriculture Development Programme (NADP)

The objective of the programme is to ensure 4% annual growth rate in Agriculture through holistic development. Perimetro Vegetable Cluster Development Programme is one of the special schemes under NADP.

Under NADP, Productivity Enhancement measures in horticulture crops like use of precision farming technique, use of tissue culture banana seedlings, promoting use of banana bunch sleeve, promotion of cultivation of Pandal/Trellis vegetables, expansion of area under the horticultural crops and supply of machineries at subsidized cost were undertaken with a budget outlay of Rs.14.22 crore.

During the year 2015-16, the scheme is proposed to be implemented with an outlay of Rs.21.69 crore.

iv. Perimetro Vegetable Cluster Development Programme

Cultivation of vegetable is encouraged in areas adjacent to cities to meet the demand for vegetables. Public and Private Entrepreneurs as Market Aggregators are entrusted to collect, sort, grade and pack vegetables from farmers and supply them to retail outlets in cities. Formation of Farmer clusters / Farmer Federation, construction of Vegetable Collection

Centre, establishment of Mobile / Permanent Vegetable outlets and construction of cold storage centres etc., are supported under this programme. During the year 2014-15, Rs.5.00 crore was allocated for implementing this scheme in areas adjacent to Madurai and Salem cities.

During the year 2015-16, the scheme will be continued to be implemented.

v. Rainfed Area Development (RAD)

This is one of the projects under NMSA. The objective of this scheme is to make Horticulture sustainable through location specific farming with efficient water use.

Under this scheme, farmers are encouraged to adopt horticulture based farming system in rainfed areas. They are also encouraged to construct vermi-compost production units on cluster basis at 50% subsidy. During the year 2014-15, Rainfed Area Development in horticulture crops was implemented with a financial outlay of Rs. 6.60 crore.

During the year 2015-16, the scheme is proposed to be implemented with an outlay of Rs.10 crore.

vi. National Mission on Medicinal Plants (NMMP)

Sustainability of AYUSH (Ayurvedha Naturopathy, Unani, Siddha and Homeopathy) systems depends on uninterrupted supply of plant based raw material of good quality. The medicinal plants are generally found in forests. Objective of the programme is to shift the supply from forests to farmer's field for long term sustainability.

Under this scheme, assistance upto 50% of the cost of cultivation is extended for growing medicinal plant species such as Marunthukoorkan (Coleus), Kanvalikilangu (Gloriosa), Avuri (Senna) Vasambu (Acorus), Nithyakalyani (Catharanthus roseus), Nelli (Amla), Katralai (Aloe vera), Manathakkali (Solanum nigrum,) Vembu (Azadirachta indica), Milaku (Piper longum) and Tulasi (Ocimum sanctum). During the year 2014-15, the scheme was implemented with a fund allotment of Rs.9.27 crore covering an area of 3682 ha.

During the year 2015-16, this scheme is proposed to be implemented with an outlay of Rs.1.44 crore under National AYUSH Mission (NAM-Medicinal plants).

vii. National Bamboo Mission (NBM)

Importance of Bamboo as a source of raw material for domestic and industrial use has necessitated cultivation of bamboo in the farm lands. Bamboo is cultivated in an area of 1,679 Ha in the State and the annual production is 30,222 MT. The scheme under NBM is implemented to increase the area under bamboo cultivation in non–forest areas. Under the scheme, 35% of the cost of cultivation is given as subsidy. During the year 2014-15, the scheme was implemented with a financial outlay of Rs.66.77 lakh to cover an additional area of 310 Ha. under Bamboo cultivation.

During the year 2015-16 the scheme is proposed to be implemented with an outlay of Rs.67 lakh

viii. Integrated Horticulture Development Scheme (IHDS)

The objective of the scheme is to increase the area under cultivation of horticulture crops. Under this scheme, planting materials of good quality seeds of high yielding varieties of vegetables and flowers etc. are distributed to farmers at 50% subsidy. Assistance for cultivation with high yielding varieties upto a maximum of 1 Ha for fruits and spices and cultivation upto 0.5 Ha under vegetables and flowers was provided. In the year 2014-15, the scheme was implemented in 4707 Ha in

Kanchipuram, Thiruvallur, Karur, Namakkal, Thiruvarur, Tuticorin, Nagapattinam, Thiruvannamalai and Virudhunagar with a financial outlay of Rs.1.23 crore.

During the year 2015-16 the scheme is proposed to be implemented with an outlay of Rs.3.34 crore

ix. Hill Area Development Programme (HADP)

This Scheme is under implementation in The Nilgiris District. Under this scheme, inputs such as Vegetable Seeds, Tea clones, Oil Engines, Hand sprayers, Power Tillers and Agricultural implements are distributed at 50% subsidy to small and marginal farmers with the objective of increasing the area under horticultural crops.

During the year 2015-16 the scheme is proposed to be implemented with an outlay of Rs.4.11 crore

x. Urban Horticulture Development Scheme (Do it yourself kit)

Urban Horticulture Development Scheme (Do it yourself kit) was launched with a financial outlay of Rs.5.00 crore during the year 2013-14. The objective of the scheme is to

encourage growing of vegetables on roof tops of houses in Chennai and Coimbatore Cities. Under this scheme, a Kit containing vegetable seeds, bio pesticide, bio fertilizer, and soilless media for growing plants are distributed at 50% subsidy.

During the year 2015-16 the scheme is proposed to be implemented with an outlay of Rs.5.37 crore

xi. Cocoa Area Expansion Programme

During 2014-15, Cocoa Area Expansion programme was implemented was implemented in 1500 ha with a total outlay of Rs.1.89 crore. This programme was implemented in 18 districts of Tamil Nadu viz Cuddalore, Dharmapuri, Dindigul, Erode, Kodaikanal, Krishnagiri, Madurai, Pudukottai, Salem, Sivagangai, Thanjavur, The Nilgiris, Theni, Tiruppur, Trichy, Vellore, Villupuram, and Namakkal. The scheme cost was shared between Directorate of Cashew nut & Cocoa Development (DCCD) and State in 85:15 ratio.

3. Creation of Infrastructure facilities

In the year 2014-15, construction of building for District Horticulture Extension and Training Centre at Trichy and Erode was taken up at a cost of Rs.10.00 lakh each. Creation of infrastructure facilities for Central Horticulture

Training Centre at Kudumianmalai, Pudukottai District was also taken up at a cost of Rs.10.00 lakh.

3.1. State Horticulture Farms

Horticulture Farms of the department produce planting materials for distribution to farmers at reasonable cost. The farms also serve as centres for demonstration of new technologies to the farmers.

There are 56 State Horticulture Farms in 22 districts. Annually 1.5 to 2.0 crore saplings of fruit crops (such as Mango, Guava, Amla, Sapota, Pomegranate, Lime, Peach, Plum, etc.,), plantation crops (such as Arecanut, Coffee, Cashew, etc.,), spices and condiments (such as Pepper, Clove, Nutmeg, Curry leaf, etc.,), flower crops (such as Rose, Jasmine, Chrysanthemum, Ixora, etc.,) and vegetable seedlings in protrays are produced in these farms. During the year 2014-15, 203.59 lakh seedlings were produced at a cost of Rs.16.57 crore.

The scheme will be continued during 2015-16.

3.2. Parks and Gardens

The Horticulture department maintains 10 parks in 5 districts of the State. These act as recreation centres for the local people and

tourists. These are also used as field centres for students of Botany.

During the year 2014-15, a Genetic Heritage Garden at Achadipirambu village of Ramanathapuram District has been established at a cost of Rs. 7.29 crore.

The following Parks are under development:

a) An Ornamental and Demo Garden at State Horticulture Farm, Madhavaram in an area of 20.21 acres at a cost of Rs.5.73 crore.
b) A Rose Garden and Cut Flower Demonstration Unit at State Horticulture Farm, Kodaikanal in Dindigul District in an area of 11.00 acres at a cost of Rs.3.80 crore.
c) An Eco Park at State Horticulture Farm, Kanyakumari in Kanyakumari District in an area of 15.00 acres at a cost of Rs.4.00 crore.

4. Annual Flower and Fruit shows

Many fruit and flower shows are held in parks and gardens every year during spring and summer seasons. Flower shows are organized in parks and gardens at Ooty, Yercaud and Kodaikanal. Floral decoration, Indian and

Japanese flower arrangements, vegetable carvings, flower rangoli, bonsai gallery are the major attractions of these shows.

Fruit show at Sim's park, Coonoor (Ooty), Mango show at Krishnagiri, Vegetable show at Kothagiri (Ooty) and Spice show at Gudalur (Ooty) are very popular among the tourists.

Another important event conducted by the Department is the Rose Show at Rose Garden, Ooty. This show exhibits popular and interesting (attractive) structures made with roses of different colours. Similarly, 'Saral Vizha' is held at Eco Park in Tirunelveli district at Courtallam.

4.1. International Horti Intex 2014

International Horti Intex 2014 was jointly organized by Tamil Nadu Agricultural University, Department of Horticulture and CODISSIA from 7th to 9th November, 2014 at CODISSIA Trade Fair Complex, Coimbatore on the theme "Horticulture for inclusive growth". It was an exhibition for showcasing horticultural wealth of India. It also displayed the latest highend technologies for horticultural crops.

As a part of Horti Intex 2014, flower show, fruit show, vegetable show, spices and plantation crops show and herbal show were

arranged by the Horticulture Department depicting the horticulture wealth of the State. Models demonstrating high density planting system in fruit crops, nutrition garden and shade net cultivation of vegetables, multi-tier cropping system in spices and plantation crops, precision farming techniques of flower crops were displayed for benefit of the farmers.

5. Horticulture Training Centres

The department runs horticulture training centres at Madhavaram, Kudumianmalai, Thally and at Ooty. These centres impart training to farmers for upgrading knowledge to farmers about the latest technologies in horticulture. Ultra High density planting, protected cultivation, Canopy management in HDP, Integrated Pest and Disease Management, Integrated Nutrient Management and Micro irrigation are some of the aspects covered in training programmes. In the year 2014-15, 2,500 farmers were trained in these institutes.

During 2015-16, it is proposed to impart training to 3000 farmers with a financial outlay of Rs.7.50 lakh.

6. Micro Irrigation Model Village

Model village concept was introduced to popularize adoption of Micro Irrigation by farmers. One village each has been selected in

all the 31 districts (except Chennai) to cover all the irrigated area under Micro Irrigation. Model Village serves as a demonstration village for farmers of surrounding areas. The scheme was implemented in 4331.96 Ha in 31 villages benefitting 2659 farmers.

The implementation of Micro Irrigation system is further strengthened by the use of IT tools.

On line Monitoring: Web based online monitoring system is already in vogue in TANHODA starting from Registration of Application for installation of Micro Irrigation. Approval by District Technical Committee, Checking of completion, Check measurement at block level and Release of subsidy are being done online. National Informatics Centre, Chennai is being involved in development of “Customized software” for mobile and Third Party Inspection for upgradation of existing online monitoring system. Moreover a mobile phone based Geo-fencing concept is proposed for monitoring of installation of Micro Irrigation systems in Horticultural crops. Every surveyed field will be identified and Geo-referenced of using GPS co-ordinates (Latitude and Longitude).

7. Creation of Centre of Excellence

Under National Horticulture Mission, two Centres of Excellence are being established with technical support from Israel.

Centre of Excellence for vegetables at Reddiyarchathiram of Dindigul District (Rs.10.18 crore) and another Centre of Excellence for cut flowers at Thally of Krishnagiri District (Rs.8.80 crore) are being established with technical support of Government of Israel. Two more centres one for Hilly vegetables at Ooty and another for Tropical fruits at Trichy are also being established with a financial outlay of Rs.20.00 crore.

Tamil Nadu Horticulture Development Agency (TANHODA)

Tamil Nadu Horticulture Development Agency is a registered society under Tamil Nadu Societies Registration Act, 1975 for implementing various Horticulture Schemes funded by Government of India and Government of Tamil Nadu and functions as a "Special Purpose Vehicle" since 2004. The major schemes operated through TANHODA are Mission for Integrated Development of Horticulture (National Horticulture Mission and National Bamboo Mission), National Mission for Sustainable Agriculture (On Farm Water

Management through Micro Irrigation and Rainfed Area Development), National Mission on Medicinal Plants, State Horticulture Farms and Tamil Nadu IAMWARM Project.

TANHODA also serves as a Special Purpose Vehicle for procurement and supply of quality Agricultural and Horticultural inputs and Water Soluble Fertilizers. The Governing Council of TANHODA acts as an Empowered Committee for the Special Purpose Vehicle. An interest free amount of Rs. 50 Crore as revolving fund is utilized for purchase of water soluble fertilizers and seeds for timely supply to the farmers.

Tamil Nadu Horticultural Producers Co-Operative Enterprises Limited (TANHOPE)

Tamil Nadu Horticultural Producers Co-operative Enterprises Limited (TANHOPE) was registered in the year 1994 as a primary Horticultural Co-operative Society under Tamil Nadu Co-operative Societies Act 1983 for the benefit of small and marginal horticultural farmers.

The main objective is to encourage and support horticultural activities with market linkages in the State. Area of operation of the society is whole of Tamil Nadu. The President elected by the Board of Directors function as the head of TANHOPE.

3. AGRICULTURAL ENGINEERING

1. Introduction

The Agricultural Engineering Department implements schemes relating to

- prevention of land degradation by controlling soil erosion through watershed management;
- promotion of efficient use of water and;
- Intensification of farm mechanisation.

2.1 Agricultural Mechanization

Mechanization is a very important intervention in agriculture for increasing productivity of crops. For efficient utilization of scarce and fast depleting resources, farm mechanization assumes even greater significance.

2.1.1 Land Development Machinery for hiring.

Land levelling and land shaping machinery is made available to farmers at reasonable rates on hiring by the department. 91 Bulldozers, 63 Laser Land Levellers, 171 Tractors, 2 Hydraulic Excavators, 7 Paddy Transplanters and 50 Paddy Combine Harvesters are available with the department for hiring out to the farmers at

nominal hire charges. These machinery are also utilized for relief works during flood and natural calamities. The department is developing a mobile based online booking system for hiring of machinery.

2.1.2 Minor Irrigation Machinery.

The Department is having 30 Rotary Drills, 9 Percussion Drills, 19 Mini Drills, 62 Hand Boring Sets, 7 Long Hole Equipments and 32 Rock Blasting Units for hiring out to the farmers at nominal charges. These machinery are used for digging of new bore wells and deepening of open wells. Also, 8 Resistivity Meters and 2 Electrical Loggers are also given on hiring to farmers for identification of underground water resources for locating the acquifers.

2.1.3 Agricultural Mechanisation Programme under National Agriculture Development Programme (NADP)

Steps are being initiated for promotion of end to end mechanization in Sugarcane cultivation in custom hiring mode through Entrepreneur Development by providing 40% subsidy with a financial outlay of Rs.2.77 Crore under NADP. During 2014-15, 7694 agricultural machinery and implements were distributed to

farmers with a subsidy allocation of Rs.30.00 Crore.

The scheme will be continued during 2015-16.

2.1.4 Agricultural Mechanisation Programme under the Centrally Sponsored Scheme of Sub Mission on Agricultural Mechanisation

Under this, farmers can buy agriculture machinery, availing 40% subsidy of the cost of machinery / implements (50% subsidy for SC/ST, Small & Women farmers). Tractor, power tiller, rice transplanter, specialised self propelled machinery, self propelled horticultural machinery, tractor (below & above 35 HP) & power tiller driven equipments, manual / animal drawn equipments, plant protection equipments etc. are provided to farmers on subsidy.

During the year 2014-15, an amount of Rs.2.53 crore has been provided as subsidy to the farmers towards distribution of 222 numbers of Tractors. An amount of Rs.1.35 Crore has been allotted for the establishment of Farm Machinery Testing Centre at Agricultural Engineering College and Research Institute, Tamil Nadu Agricultural University, Kumulur, Trichy District.

The State Government has announced establishment of Custom Hiring Centres in all the 385 blocks with the objective of making

machinery available for taking up agricultural operation like sowing, transplanting, weeding, plant protection and harvesting through registered Farmer groups. During 1st Phase, 65 Custom Hiring Centres are proposed to be established under NADP-SMAM scheme at an estimate of Rs.25.00 Lakh / centre and works are under progress. Out of this Rs.25.00 lakh, 40% (Rs.10.00 Lakh) will be subsidy and balance 60% (Rs.15.00 lakh) will be the beneficiary contribution. An amount of Rs.6.50 Crore has been provided under this scheme. Also, during 2nd phase, it is proposed to establish 99 Custom Hiring Centres at a cost of Rs.9.90 Crore.

Under the scheme of “Post Harvest Technology and Management” 22 Nos. of Multi Crop Threshers, 27 Nos. of Maize Husker Shellers and 32 Nos. of Mini Dhal Mills were purchased at a cost of Rs.134.39 lakh and 327 demonstrations of the above machinery are being conducted at a cost of Rs.9.80 lakh. After completion of demonstration for at least 12 months, the above machinery will be handed over to the user groups at 50% of the price of the machinery.

During the year 2015-16 the schmeis is proposed to be implemented with an outlay of Rs.13.22 Crore.

2.2.1. Soil conservation in River Valley Project

Department is also carrying out soil and water conservation works to prevent soil erosion and land degradation. Soil Conservation Scheme in interstate catchments of River Valley Project was initiated and sponsored by Government of India to reduce the rate of sedimentation of the multipurpose reservoirs.

In the state, the River Valley Project is being implemented from 2013-14 in South Pennaiyar and Mettur catchments under National Agriculture Development Programme. During the year 2014-15, works were carried out in an area of 12394 Ha. and 952 no. of structures were constructed at an outlay of Rs.11.64 crore.

During the year 2015-16, it is proposed to continue the programme in Dharmapuri, Krishnagiri and Erode districts by covering an area of 3710 Ha. and constructing 255 Nos. of structures.

2.2.2. Soil & Water Conservation under Hill Area Development Programme

Hill Area Development Programme is implemented with the objectives of eco-restoration, eco-preservation and eco development, in the Nilgiris district.

Works relating to soil and water conservation and landslide mitigation are taken up under this scheme. However, for taking up works in private patta lands the beneficiary has to contribute 5% (SC/ST farmers) and 10% (other farmers). The community works and the landslide treatment measures are executed with 100% contribution from the scheme.

During 2014-15, 895 Nos. of soil water conservation structures were constructed. Channel widening and straightening was undertaken for 35 kms. at a total financial outlay of Rs.5.67 crore.

2.2.3. Treatment in Krishnagiri and Kundah reservoir projects under Dam Rehabilitation and Improvement Project

The World Bank aided Dam Rehabilitation and Improvement project (DRIP) is being implemented in Kundah and Krishnagiri dams by Agricultural Engineering Department, with the objective of reducing siltation of multipurpose reservoirs by adopting appropriate soil conservation measures in the catchment areas.

It is proposed to implement Soil Conservation activities in catchment area of Kundah and Krishnagiri Reservoir Projects under the above scheme over a period of 3 years

(From 2014-15 to 2016-17) with a total outlay of Rs.15.41 crore.

2.2.4. Deepening of Farm Ponds created under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in Ramanathapuram District

Farm ponds are cost effective Rain Water Harvesting structures which have become popular among farmers. Water stored in farm pond can be used for providing supplemental irrigation for rainfed crops like pulses and millets during critical stages of growth. As announced by the Hon'ble Chief Minister during Collectors' Conference 2012, Farm ponds are taken up for deepening upto a depth of 0.5 metre under MGNREGS and further deepening up to two metres is done by the department using machinery. Work related to deepening of 311 farm ponds were completed at a cost of Rs.1.51 Crore during the year 2013-14. Deepening of 973 farm ponds at a cost of Rs.4.72 crore was done during the year 2014-15.

During 2015-16, it is proposed to take up 1755 farm ponds for deepening at a cost of Rs.8.77 crore. During 2015-16, it is also proposed to construct 32 Nos. of farm ponds at a cost of Rs.16.82 lakh as 1st instalment released by Government of India under National

Mission for Sustainable Agriculture (NMSA) with 50% subsidy assistance in five districts viz. Perambalur, Pudukkottai, Sivagangai, Virudhunagar and Thoothukudi.

2.2.5. Construction of Recharge Shafts under National Mission for Sustainable Agriculture

Construction of 497 Recharge Shafts was taken up at a cost of Rs.2.98 crore during the year 2014-15 under National Mission for Sustainable Agriculture. These structures will facilitate recharge of ground water aquifer in 7 districts namely Madurai, Dindigul, Ramnad, Sivaganga, Virudhunagar, Tirunelveli and Thoothukudi.

2.3. Water Management

Irrigation is critical for the success of Agriculture. The water resources of the State have been exploited up to 90% of their potential. The water use efficiency of the conventional irrigation methods is only about 35–40%, warranting judicious management of irrigation water.

2.3.1. Command Area Development and Water Management Programme under Accelerated Irrigation Benefit Programme

The Centrally Sponsored Command Area Development and Water Management

Programme (CADWMP) under Accelerated Irrigation Benefit Programme (AIBP) is being implemented in Tamil Nadu with the financial assistance of Central and State Governments in the ratio of 50:50.

During 2014–15, CADWMP was implemented in an area of 2,113 Ha. with a budget of Rs.19.25 crore in six ongoing command areas viz., Vaigai Project (Ramanathapuram, Sivagangai and Madurai Districts), Kalingarayan Anaicut Project (Erode District), Manimukthanadhi System (Villupuram and Cuddalore Districts), Pelandurai anaicut Project (Cuddalore District), Ellis Anaicut Project (Villupuram District) and Cheyyar anaicut System (Thiruvannamalai District).

During the year 2015–16, it is proposed to continue Command Area Development and Water Management Programme to cover an area of 11,200 Ha. at an expected financial outlay of Rs.44.30 Crore in the on-going above project areas except Vaigai Project. Also, it is proposed to cover an area of 5000 Ha. at an outlay of Rs.21.07 Crore in three new project areas of Kalingalar Nichabanadhi Irrigation Project (Tirunelveli and Virudhunagar Districts), Kelavarapalli Reservoir Project (Krishnagiri District) and Kudhiraiyar Reservoir Project (Dindigul and Tiruppur District).

Participatory Irrigation Management (PIM):

With a view to strengthen the Water Users Associations, financial assistance is extended as a one time functional grant of Rs.1,200/- per Ha. for the associations from the year 2014-15. Maintenance of the assets of WUAs (Water Users Associations) are carried out from the interest accrued from this fund. 1989 Nos of Water Users Association/ Farmer's Councils have been formed covering an area of 9,35,664 Ha. in the 33 command areas. So far, Rs.37.86 Crore has been released as maintenance grant.

2.3.2. World Bank Aided Tamil Nadu IAMWARM Project

The Irrigated Agriculture Modernisation and Water bodies Restoration and Management (IAMWARM) Project has been implemented with the assistance from World Bank since 2007-08.

Under this scheme 48,302 Ha. have been covered with Micro Irrigation System (MIS), 2,691 Nos. of farm ponds have been constructed and 800 numbers of farm machinery/implements have been distributed to WUAs for use of sub basin farmers. Apart from this, works relating to 882 Rain Water

Harvesting structures and 12 improved water conveyance systems have been completed.

During the year 2014-15 and 2015-16, the scheme was implemented with a financial outlay of Rs.22.70 crore. This programme has been completed on 30.06.2015.

2.3.3. Community bore well scheme in Sivagangai District.

A sum of Rs.20.29 lakh was spent under National Agriculture Development Programme for laying 12 bore-wells to farmers groups in Sivagangai District at 50% subsidy. User group each consisting of 10-15 Nos. of farmers covering a minimum of 10 Hectares per bore well is formed and registered. 50% of bore well cost is paid by the Department as subsidy and balance 50% is contributed by the user group.

3. Solar Energy – New Innovative schemes

3.1. Provision of Solar Driers to farmers /farmers' groups for drying agricultural produce

The State Government is also promoting use of solar energy in agriculture. Solar driers for faster drying of agriculture produces like coconut, chillies, moringa leaves, maize and fruits like banana and tomato are installed at 50 % subsidy. 100 Nos. of Poly carbonate sheet

covered parabolic green house type solar driers (with a minimum floor area of 400 sq.ft.) at a total cost of Rs.4.00 Crore with 50% subsidy assistance (Rs.2.00 Crore) sanctioned under NADP for the year 2014-15 are being installed in various districts of Tamil Nadu.

During the year 2015-16, 50 more numbers of Poly carbonate sheet solar driers are proposed to be installed at a cost of Rs.3.00 Crore with 50% subsidy assistance under NADP.

3.2. Provision of Solar Powered Pumping System with automatic tracking facility

The scheme of providing 2000 nos. of Solar powered pumping system linked with Micro irrigation system is under implementation. Under the scheme 80% subsidy is provided to beneficiary farmers of which 50% is provided under NADP and 30% under the scheme MNRE.

Work orders have been issued to the approved companies for installation of 1750 Nos. under three categories viz., bore wells, open wells and surface storage tanks. 1299 nos. of pumps have been installed at a cost of Rs.34.50 crore. The scheme is to be continued during the year 2015-16.

4. AGRICULTURAL EDUCATION, RESEARCH AND EXTENSION EDUCATION

Tamil Nadu Agricultural University is a pioneer institute in Agricultural Education, Research and Extension Education. It's genesis is in establishment of an Agricultural School at Saidapet, Chennai, as early as 1868. The Saidapet Agricultural School was shifted to Coimbatore as Madras Agricultural College in the year 1906 and B.Sc. Agriculture course was started in the year 1920. In 1971, the college was elevated to university status as Tamil Nadu Agricultural University. In this century old campus, which started with 8 students, at present there are more than 4000 students. Many foreign students from USA, Iran, Egypt, Sudan, Nepal and Ethiopia prefer to undergo studies at TNAU.

During the year 2014-15, Tamil Nadu Agricultural University was conferred with two prestigious awards namely; 1) 'Overall Excellence Award' from Federation of Indian Chamber of Commerce and Industry (FICCI) on November 13, 2014 at New Delhi and 2) 'Agri-Business Idol Camp Award' for Agri Business Directorate of TNAU on 18-19, May 2014 by the Indian Council of Agricultural Research (ICAR), Government of India.

1.0 Agricultural Education

There are 15 constituent colleges, and eight constituent diploma institutes under TNAU.

Tamil Nadu Agricultural University currently offers 13 Under Graduate, 35 Master degree, 26 Regular Doctoral degree, four Integrated Doctoral and 27 Part time Ph.D programmes.

During 2014-15, 1352 students in Under graduate, 457 in Postgraduate and 138 in Doctoral programmes are admitted. In the year 2013-2014, 1141 Under graduate students, 355 Postgraduate students and 137 students in Doctoral programmes passed out. Under the Dual degree programme students undergo studies at Dalhousie University, Canada. So far, 22 students have passed out with dual degree.

Tamil Nadu Agricultural University also runs correspondence courses through its Directorate of Open and Distance Learning. At present, five postgraduate diploma, three postgraduate degree, one bachelor degree programmes and 16 Certificate courses are being offered by the directorate.

The University (TNAU) provides career counselling to its students through Directorate of Students Welfare (DSW). It also has an "Overseas Employment Unit" to facilitate graduates to get placement in organisations abroad. A state-of-the-art 'Communication Laboratory' is also available to improve the soft skills of the students.

In the year 2014-15, Three Agricultural College and Research Institutes with a budget estimate of Rs.150.00 crore were started at Vazhavachanur in Tiruvannamalai district, Eachankottai in Thanjavur district and Kudumiyanmalai in Pudukkottai district. A Skill Development Centre at the Agricultural Engineering College and Research Institute, Kumulur, Tiruchirappalli district, has also been established.

Hon'ble Chief Minister of Tamil Nadu on 27.06.2014, inaugurated 12 New Buildings (Rs.5.74 crore) for the University. These are; New Ladies hostel, Post Graduate Lecture hall in First Floor at Crop Physiology department, building for Department of Vegetables, Class room and Laboratory at the Department of Agro Climate Research Centre at Tamil Nadu Agricultural University, Coimbatore, Administrative building for Krishi Vigyan Kendra,

Kanyakumari and Ramanathapuram, New Office building at Sugarcane Research station, Cuddalore, New Office building at Vegetable Research station, Palur, Cuddalore District, Lecture halls at Agricultural Engineering College and Research Institute, Kumulur, Farmers hostel at National Pulses Research Center Vamban in Pudukkottai District and Lecture Hall and examination hall at Regional Research Station, Ambasamudram, Tirunelveli District. In the same function foundation stones were laid for nine new buildings (Rs.12.03 crore) at various research stations of Tamil Nadu Agricultural University. Also, the New Administrative building and Girls' Hostel at the Horticultural College and Research Institute for Women, Tiruchirappalli with an estimated cost of Rs.14.55 crore was inaugurated.

2.0. Agricultural Research

There are 38 Agricultural research stations located across the State for undertaking location specific and crop specific research.

The University so far has released 788 new crop varieties, 158 new agricultural implements and 1523 management technologies. Also, 637 research articles were published in the past one year in reputed

international and national journals for the benefit of different stakeholders including the farming community.

The following six crop varieties and one coconut hybrid were released during the year 2014-15.

1. Rice - TKM 13

Rice variety TKM 13, has medium slender fine grain. It matures in 130 days which is 7-10 days earlier than the popular BPT 5204 variety. The average grain yield of this variety is 5938 kg/ha which is 10.1% yield increase over BPT 5204. This variety is moderately resistant to leaf folder, stem borer, green leaf hopper, blast, rice tungro disease, brown spot and sheath rot. It has high milling (75.5%) and head rice yield (71.7%), on par with the check variety BPT 5204.

2. Rice - CR 1009 with Sub 1

This is an improved version of CR 1009 with tolerance to submergence in water for up to 15 days immediately after transplantation. This variety has given a mean grain yield of 5759 kg/ha in 155 days with moderate resistance to brown spot, blast, brown plant hopper (BPH) and white backed plant hopper (WBPH). This long duration variety is suitable

for cultivation in Samba season in long duration rice cultivating tracts of the State which are prone to flooding. This variety is recommended as an alternate to CR 1009.

3. Rice - MDU 6

This variety matures in 110-115 days and yields 6118 kg/ha in irrigated condition. It has long slender rice with high linear elongation ratio on cooking. This variety is suitable for cultivation as transplanted rice throughout the State except the Nilgiris district.

4. Sorghum K 12

This variety is a drought tolerant dual purpose sorghum variety. It matures in 95 days. Yield 3123 kg/ha of pearly white grains and 11.9 t/ha of dry fodder. It is a photo insensitive variety and moderately resistant to shoot fly, stem borer and resistant to downy mildew. This variety is suitable for cultivation in southern districts of Tamil Nadu and also suitable for cultivation in summer irrigated areas of Tenkasi region.

5. Wheat CO W 3

This is a high yielding wheat variety suitable for southern hill zones. This variety recorded 12 per cent higher yield (4076 kg/ha) over the check variety CO(W)-1 (3641 kg/ha).

It possesses high degree of resistance to stem, leaf and stripe rust disease. It is the third wheat variety released by the Tamil Nadu Agricultural University.

6. Cluster bean MDU 1

This variety of cluster beans matures in 90-100 days and has more number of fruits / plant (150 - 175 fruits) compared to prevailing variety. Fruits are rich in fibre content (4.5 g/100 g of the fruit) and the plants are more tolerant to powdery mildew disease.

7. Coconut hybrid VPM 5

This is the first hybrid of Tall x Tall type to be released in the country. This comes to bearing in 48-50 months with an economic life up to 60 years. On an average, it yields 161 nuts/tree/year and 24.12 kg of copra / palm / year.

Following two agricultural implements were also released for the benefit of farming community.

1. Tractor drawn turmeric rhizome planter

This is a new planter unit and can be operated by 35-45 hp tractor and can plant three rows at a time. Row spacing is adjustable and can cover 1.2 ha per day. Tentative Cost of the unit is Rs.50,000/-.

2. Hydraulic brake for two wheel tractor trailer system

The two wheel tipping trailers are not provided with any separate brake arrangement. When brakes are applied to tractor with a loaded two wheel tipping trailer, the tractor first stops and then the trailer rams into the tractor due to inertia. Trailer braking and tipping control systems is designed for smoother braking of the two wheel trailer attachment. The equipment cost is Rs.41,000/-

During the year, 2015-16, the following six new centres of excellence in Tamil Nadu Agricultural University will be established at a total cost of Rs.22.96 crore:

i. Centre of Excellence in Molecular Breeding at Coimbatore.

ii. Centre of Excellence in Dry farming at Dry land Agricultural Research Station, Chettinad.

iii. Centre of Excellence for Soil health at Agricultural College and Research Institute, Tiruchirappalli.

iv. Centre of Innovation at Agricultural College and Research Institute, Madurai.

v. Farm Women Knowledge Centre at Horticultural College and Research Institute for Women at Tiruchirappalli.

vi. Centre of Excellence for Oil Palm Research to augment edible oil Production at Agricultural Research Station, Pattukottai.

Land is being acquired for establishing a new Citrus Research Station at Sankaran Koil taluk of Thirunelveli district with a estimated cost of Rs.4 crore.

During the year 2014-15, Food Processing Research and Training Institute was also established at Chettinad in Sivagangai District.

3.0. Agricultural Extension Education

The Directorate of Extension Education functions with the vision to make extension system 'Farmer driven' and 'Market led' for augmenting production, productivity and income of the farming community. It also lays importance to networking of extension and development systems through ICT-mode.

The following units are functioning under this Directorate:

3.1. Krishi Vigyan Kendras (KVK)

Farm Knowledge Centres were established in 1974, with the primary objective of transferring agricultural technology from Lab to Land. Later they were named as Krishi Vigyan Kendras. The activities of the KVK include assessment, refinement and transfer of technology to farmers. It also bridges the gap between research institutions and the farmers at the field level.

Besides contribution to agricultural research, KVKs also act as vocational training centres. There are 28 KVKs in the State, 14 KVKs are run by TNAU and 14 are run by NGOs.

Transfer of Technology programmes are also taken up through the 14 KVKs. Totally, 774 On Farm Testing (OFT), 348 Front Line Demonstrations (FLD) of newly released varieties and technologies were conducted by KVKs, besides, conduct of 396 training programmes for extension officers, rural youth and Self Help Groups (SHGs), in the year 2014-15.

KVKs train progressive farmers for further dissemination of agro techniques to other

farmers. It creates farmers database under the following categories.

1. KVK recognised Agri-preneurs - The farmers who have the entrepreneurship qualities are identified and facilitated for agri-business development, establishment and marketing.

2. KVK recognized Farmer teacher - Farmers with experience and communication skills are identified and used as Para - Agri Team to transfer skill and knowledge to other farmers in the district.

3. KVK recognized Seed Producers - farmers are trained by KVK to produce seeds under the supervision of the KVK scientists and ultimately become seed producers on their own.

4. KVK recognised Satellite IFS Model farmers – IFS model farmers documentation has been done to enable the farmers willing to adopt "Integrated Farming System" to contact them for getting advice.

3.2. Information and Communication Technology (ICT) based e- extension

This is an era of e-transformation. Tamil Nadu Agricultural University also uses this platform for Transfer of Technology (TOT) through its following units.

Agritech portal (http://agritech.tnau.ac.in) holds around seven lakh pages of content on agriculture and horticulture in Tamil and English. During the year 2014-15, the portal recorded 14.36 lakh hits. Portal receives about 4000 visitors daily.

Educational Media Centre (EMC) coordinates video documentation of important programmes and events of the University. During the year 2014-15, 557 video programmes were produced and 252 programmes were telecast through Doordarshan Kendra, Chennai.

Community Radio Station at TNAU, Coimbatore benefits the farming community living within 18 km radius by broadcasting farm related information. It is functioning as 'Velaan Palkalaikazhaga Vivasaayee FM' at 107.4 MHz frequency. Daily broadcast of three hours is made between 10.00 and 13.00 hours and repeated between 14.00 and 17.00 hours.

The FM also broadcasts information on weather, market prices, technical information by scientists. During the year 2014-15, 323 recorded programmes were broadcast and 367 programmes were uploaded in http://agritech.tnau.ac.in/comm-e-radio.html website for the benefit of the farmers. It reaches 10,000 farm families residing in 22

villages around Tamil Nadu Agricultural University campus at Coimbatore.

Kisan Call Centre (KCC) provides services to 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 and receives on an average 790 calls per day.

'Uzhavarin Valarum Velanmai' a monthly Tamil magazine of Tamil Nadu Agricultural University.

Agro Climate Research Centre (ACRC) does Medium range Weather forecasting based on weather parameters received from the Automatic Weather Stations. During the year 2014-15, weather related messages were sent to 19,44,562 registered farmers.

Southern Regional Agricultural Fair 2015 was conducted at the University campus at Coimbatore from 06.01.2015 to 09.01.2015. Farmers from the five Southern States viz., Tamil Nadu, Kerala, Andhra Pradesh, Telangana and Karnataka and two Union territories namely; Puducherry and Andaman and Nicobar islands, participated.

Regional Exhibition with a theme of 'Food processing and value addition of cereals,

millets, pulses, fruits and vegetables' was conducted during 23 - 25 January 2015 at Agricultural College and Research Institute, Madurai in collaboration with the Department of Agricultural Marketing and Confederation of Indian Industries. Farmers from the districts across the State participated in this exhibition.

3.3. TNAU - Information and Training Centre, Chennai

It is a training Centre of TNAU located in Chennai. During the year 2014-15, 91 training programmes were conducted benefitting 3406 participants on varied topics such as; kitchen gardening, fruits and vegetables preservation, value addition in millets and spices, roof gardening, maintenance of indoor plants and mushroom cultivation. During the year 2015-16 various training programmes are being conducted at TNAU.

4.0. Production and distribution of quality seeds

Tamil Nadu Agricultural University also grows and distributes various classes of seeds such as; breeder seeds, foundation seeds and truthful labelled seeds (TFL) of 115 varieties of principal crops.

During the year 2014-15, 1358 quintals of breeder seeds, 4034 quintals of foundation

seeds, 11307 quintals of certified / truthful labelled (TFL) seeds and 27,69,350 numbers of planting material were produced and distributed.

The seed production and distribution programme will be continued during 2015-16.

Automatic Seed Vending Machine was installed at Tamil Nadu Agricultural University, Coimbatore to cater to the flower and vegetable seed requirements of small growers and kitchen gardeners. So far, 25000 seed packets valued at Rs.2.50 lakh have been distributed through the machine. Automatic Seed Vending Machines have also been installed in nine more locations namely; Trichy, Pudukkottai, Madurai, Theni, Thirunelveli, Salem, Thiruvannamalai and in two locations in Chennai, during the year 2014-15.

5.0. Agri-Business Development

The Directorate of Agri Business Development looks after incubation of agriculture based start-up companies and commercialization of technologies developed by the University. About 100 incubatees were enrolled with this Directorate and 20 technologies have been commercialized. These includes technologies relating to Coconut tonic, Panchagavya, Egg removing device, SRI power weeder, Production of Pseudomonas and

Trichoderma etc. During the year 2014-15, three technologies namely; (1) Insect repellent for stored rice, (2) Phosphorus solubilising bacterial solution and (3) Insect egg remover in pulses were commercialized.

The University has produced and distributed 10591 litres of coconut tonic, 2009 litres of pulse wonder, 1233 litres groundnut rich, 475 litres Maize max, 607 litres cotton plus, 446 litres sugarcane booster, 8442 kg Pseudomonas fluorescence, 5211 kg Trichoderma viride and 7528 mushroom mother spawn bottles to the farmers.

Food Processing and Value addition

The Post Harvest Technology Centre in TNAU offers trainings to progressive entrepreneurs, rural youth and women on value addition and post harvest management of farm produce particularly vegetables and fruits. During the year 2014-15, 27 training programmes were offered to 594 farmers.

The training programme will be continued during the year 2015-16.

6.0. Price forecast and Market intelligence

Tamil Nadu Agricultural University renders Price forecasting and Market intelligence services through its Domestic and Export Market Intelligence Cell (DEMIC). It forecasts local

market prices of agricultural produces before sowing and also before the harvest. The information is published in news papers, broadcast through radio and television. Price forecasting is done by the centre for 24 agricultural crops like; Maize, Sorghum, Ragi, Cumbu, Blackgram, Bengalgram, Greengram, Groundnut, Gingelly, Sunflower, Coconut, Copra, Cotton, Potato, Carrot, Beetroot, Tomato, Bhendi, Brinjal, Small onion, Turmeric, Coriander, Red chillies, Banana (Nendran & Poovan). The price forecast has been proven to have 95% reliability.

Technology and Market Advisories are also sent through mobile phones by the e-Extension Centre, through 'm-kissan portal'. During the year 2014-15, 6,45,02,766 SMS relating to 9000 pieces of market information were sent to the farmers. Advisories are continuously given to farmers.

Trade and Intellectual Property Protection department of the university has filed for patenting of (i) Cleaner for onion seed, (ii) Pre-thresher, Thresher and Pre-cleaner for onion umbels and (iii) Herbal soup dispensing machine during the year 2014-15.

5. SEED CERTIFICATION & ORGANIC CERTIFICATION

Use of certified seeds of good quality is essential for higher agricultural productivity. This department is pioneer at national level, in implementation of quality control programmes in seed production and distribution.

Following activities are carried out by this Department.

- Certification of seeds of notified crop varieties, in accordance with the Indian Minimum Seed Certification Standards (IMSCS).
- Enforcement of seed legislations for ensuring quality seed distribution.
- Seed testing in notified seed testing laboratories.
- Imparting training to persons involved in the seed industry on seed legislations and certified seed production.
- Implementation of Organic Certification programme as per the standards of National Programme for Organic Production (NPOP).

This department has also the unique distinction of having the maximum number of (33) notified Seed Testing Laboratories out of

128 notified Seed Testing Laboratories in the Country. Seed Testing Laboratory, Coimbatore has been upgraded to International levels i.e., by obtaining accreditation from International Seed Testing Association, Switzerland (ISTA) in the year 2014.

1. Seed Certification

Seed certification agency functions in accordance with the provisions of The Seeds Act 1966 and The Seeds Rules 1968. The Seed Certification wing of this department carries out certification of seed farms to ensure adherence to critical parameters prescribed under Indian Minimum Seed Certification Standards (IMSCS). During the year 2014-15, Seed Certification wing has been strengthened with provision of new certification kits, tag storage racks and digital cameras.

During the year 2014-15, 53,154 hectares of seed farms were registered and 88,832 MT of various crop seeds were certified. It is proposed to register an area of 57,000 hectares and certify 1,10,000 M.T of seeds during the year 2015-16.

Ten new jeeps have been provided for the Deputy Directors and Assistant Directors of the Department at a cost of Rs 57.50 Lakh during the year 2014-15.

2. Seed Quality Control

The role of seed quality control wing is to ensure that the seeds sold in the state adhere to the provisions in various seed legislations. Seed sellers in the State are issued with licences by this Department.

At present, there are 9456 licensed seed selling points in the State. These seed selling points are inspected at least seven times in a year by the seed inspectors.

During the year 2014-15, 58,022 seed samples were drawn for checking adherence to the prescribed quality. Substandard seeds from 1,334 lots weighing 1,501 MT, valued at Rs.8.45 crore were stopped from sale. 270 cases were also registered against the defaulters. It is proposed to conduct 68,500 seed selling point inspections and to take 66,000 seed samples for quality check during the year 2015-16.

3. Seed Testing

Seed testing laboratories evaluate seed parameters such as germination, physical purity, moisture, seed health and other distinguishable varieties. Genetic purity of seed lots is determined at grow out test farms, glass houses, and DNA finger print laboratories.

Thirty three notified seed testing laboratories are functioning under the control of

this department. Of these, 29 seed testing laboratories are functioning in the districts and 4 are functioning at the Directorate. A notified Grow out Test farm is functioning at Kannampalayam, Coimbatore.

One Referral Laboratory with Bt toxin (Protein toxin present in Bt cotton) analysis facility, a Glass house and DNA Finger print laboratory is functioning at the Directorate. The notified Seed Testing Laboratory, Coimbatore has been accreditated by the International Seed Testing association (ISTA) in the year 2014.

Certification of ISTA accreditated lab is mandatory for export and import of seeds from the Country. Globally 135 labs are accredited by ISTA. Only 6 labs are accredited in the Country of which, the Coimbatore Seed Testing lab of this department is the only Government lab with this accreditation. A total number of 95,917 seed samples were analyzed, in the year 2014-15 by these laboratories.

Testing of seed samples is being continued in the year 2015-16.

4. Training

Training wing takes up capacity up gradation on latest trends in seed production, seed certification and seed legislations to the seed producers, seed dealers and farmers. The officials of the department are given orientation

and refresher trainings. 46,614 persons have been trained in the financial year 2014-15.

It is proposed to train 47,000 persons during the year 2015-16.

5. Organic Certification

The Tamil Nadu Organic Certification Department (TNOCD) certifies farms with organic cultivation. Farms registered under the Department for Organic Certification are inspected and evaluated as per guidelines of National Programme for Organic Production (NPOP). Farmers involved in organic farming can register as an individual, group or corporate categories for Organic Certification.

Every year, training on National Programme for Organic Production (NPOP) and standards is given by this department to farmers registering for organic certification. In addition, during the year 2014-15, organic cultivators were taken to Cochin, for participating in the International Organic Trade Fair. During the year 2014-15, 29,677 acres of farms were registered for organic certification.

It is proposed to register an area of 31,000 acres under Organic Certification programme during the year 2015-16.

6. AGRICULTURAL MARKETING AND AGRI BUSINESS

1. Introduction

The Department of Agricultural Marketing was created in the year 1977 with twin objectives of establishing markets for ensuring remunerative price to the farmers and development of infrastructure for reducing post harvest losses.

This Department manages Regulated Markets, Farmers Markets and Specialized Market Complexes for the sale of agricultural produce of the farmers. It also extends facilities of Storage godowns, cold storages, ripening chambers and drying yards to the farmers for minimising post harvest losses. Capacity building of farmers on post harvest management, processing, value addition, grading of agricultural produce is also carried out by the Department. The Department is also involved in formation of Farmer Producer Organization (FPO) and dissemination of information on market price.

2. Activities under Agricultural Marketing and Agri Business

2.1. Regulated Markets

Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987, entrust upon State Government with regulating sale and purchase

of agriculture produces in the notified areas. Under this Act, 21 Market Committees have been constituted and notified. These Market Committees facilitate the functioning of Regulated Markets. One percent of the sale value of the produce is collected as market fee from Traders. License fee is also collected from traders and weighmen. No fee is collected from farmers for the services rendered at the Regulated Markets. During the year 2014-15 in the Regulated Markets, 23.13 lakh MT of agricultural produce were sold by farmers and Rs.104.87 crore has been collected as market fee from the traders.

The Regulated markets extend warehousing facilities to farmers at nominal charges. Pledge loan is also given to the farmers to avoid distress sale during glut season. Loans are offered at 75% of value of produce to small and marginal farmers and 50% of value of produce to other farmers subject to a maximum of Rs.2 lakh. No interest is charged for the first 15 days of loan period. Beyond 15 days, interest rate of 5% is charged. During 2014-15, pledge loan was issued to the tune of Rs.43.36 crore benefitting 3114 farmers.

Likewise, pledge loan upto 50% of value of produce limited to the maximum of Rs.1.00 lakh at 9% interest is also extended to

the registered traders. During the year 2014-15, pledge loan was issued to the tune of Rs.4.57 crore to 467 traders.

Out of 277 Regulated Markets, 189 Regulated Markets are linked to web based nation-wide information network at web portal www.agmarknet.nic.in. The information on price of agricultural produce traded in the markets is made online through this portal.

Similarly, 179 Farmers' markets are also uploading information on daily prices of fruits and vegetables at web portal www.tnsamb.gov.in.

Agro Marketing Intelligence and Business Promotion Centre, Trichy disseminates crop advisories and Market information through SMS to the registered users. During the year 2014-15, text and voice SMS based market Intelligence advisories were delivered to 22.50 lakh farmers.

Rural Business Hubs (RBH) have been created to facilitate farmers to sell the produce directly to bulk consumers without intermediaries. At present, 10 Rural Business Hubs are functioning in Regulated Markets of Sathyamangalam, Kalavai, Krishnagiri, Gangavalli, R.Ponnapuram, Ulundurpet, Panruti, Pavoorchatiram, Batlagundu and Rajapalayam.

During the year 2014-15, 9797.46 MT of agricultural produce were sold by 6,770 farmers, in these RBH.

2.2. Market Complexes

Setting up of specialized market complex, market complex with cold storage / ripening chamber and agri export zone is also facilitated by the department.

The following specialised market complexes are functioning in the State.

Commodity	Location	Infra structure
Mango	Krishnagiri, Krishnagiri Dt.	Market complex with cold storage
Tomato	Palacode,Dharmapuri Dt.	
Grapes	Odaipatti, Theni Dt.	
	Cumbum, Theni Dt.	
Onion	Pongalur, Tiruppur Dt.	
Hilly vegetables	Karamadai,Coimbatore Dt.	
Onion and Vegetables	Chettikulam, Perambalur Dt.	
Banana and Vegetables	Tiruchendurai, Trichy Dt.	
Coconut	Ponnavarayankottai, Thanjavur Dt.	Market complex
	Pethappampatti, Tiruppur Dt.	

Paddy	Mattuthavani – Madurai, Madurai Dt.	
Fruits and Vegetables	Ottanchathram, Dindigul Dt.	Mega Market

2.3 Cold storage units and Ripening chambers

Cold storage unit with a capacity of 100 MT for Chillies has been established at Paramakudi Regulated Market in Ramanathapuram district. A cold storage unit with 100 MT capacity for Tomato is functioning at Mecheri in Salem district. Cold storage units for fruits and vegetables have been established at Oddanchatram (25 MT) in Dindigul District, Tindivanam (15 MT) in Villupuram District and Singanallur (15 MT) in Coimbatore District. Three Collection centres with cold storage facilities have also been constructed at Oddanchatram, Batalagundu and Palani Regulated Markets.

Similarly Ripening chambers each with 20 MT capacity at Trichy, Srivaikundam, Chinnamanur and Mohanur were established to facilitate banana growers to get uniform ripening of banana bunches.

2.4. Farmers' Markets

One hundred and seventy nine farmers' markets are functioning in the State for

facilitating the sale of farm produce by farmers directly to the consumers. Twenty seven Uzhavar Sandhais have cold storage facilities of 2 MT each for storing unsold vegetables and fruits. Cold storage facilities are extended free of cost to the farmers. During the year 2014-15, on an average, 2659.10 MT of fruits and vegetables were sold every day through the Uzhavar Sandhais (Farmers' Market).

2.5. Agri Export Zones

Agri Export Zones for promotion of export of agriculture produces have been established in four locations. Common facilities like cold storage, grading and sorting yard, pack house, processing units and reefer vans have been provided in these zones.

Agri Export Zones for cut-flowers at Hosur in Krishnagiri district, for flowers at Ooty in Nilgiris district, for mango at Nilakkotai in Dindigul district and for cashew at Panruti in Cuddalore district have been established.

2.6. Agmark grading

Agmark is a quality marking given to packed agriculture and horticulture products confirming the prescribed quality standards under Agricultural Produce (Grading and Marking) Act 1937 (as amended in 1986). In the State, 30 State Agmark Grading laboratories

and one Principal laboratory are functioning. During the year 2014-15, 17.93 Lakh quintals of food products were graded through these Agmark Grading Laboratories.

3. Schemes implemented by the Department

3.1. Rural Infrastructure Development Fund (RIDF)

Storage godowns and cold storages are established in Regulated Markets with NABARD loan assistance (95%) under Rural Infrastructure Development Fund (RIDF). Balance 5% is contributed by the Market Committee. From the year 2011-12 onwards, 88 modern storage godowns with 2.40 Lakh MTs of storage capacity and 70 cold storage units with 1750 MT total storage capacity have been constructed, at a total cost of Rs.150.56 crore.

Two Market Hubs, one at Coimbatore linked with 5 collection centres viz., Karamadai, Annur, Thondamuthur, Kinathukadavu, Pollachi and another Market Hub at Dindigul district with 5 collection centres viz., Natham, Oddanchatram, Palani, Dindigul and Bathalagundu at a total cost of Rs.3.60 crore.

E-auctioning facility for Turmeric at Avalpoonthurai Regulated Market in Erode District and for Maize at Palani Regulated

Market in Dindigul District at a total cost of Rs.1.18 crore has been created.

The following infrastructure works are under progress with loan assistance from NABARD.

- Specialized Market Complex for Banana at Ambasamudram at a cost of Rs.1.30 crore.
- A Central Vegetable market for fruits, vegetables and flowers at Kallikudi, Trichy District at a total cost of Rs.77.06 crore. Land has been acquired for the above market and other works will commence shortly.

3.2. National Agriculture Development Programme (NADP)

Under NADP, infrastructure facilities for improving market infrastructure and post harvest management like Ripening chambers, Market Complexes with cold storage, Traders shops and Transaction sheds are being established.

During the year 2014-15, construction of Integrated Market Complex with cold storage for chillies at Ramanathapuram district, Cold storage with 25 MT capacity at Vazhapadi Regulated Market in Salem District, Godowns for paddy with capacity of 500 MT and 1000 MT at Theroor and Monday Market respectively, Spices complex at Thovalai in Kanyakumari District,

Ripening Chamber for banana at Thiruvaiyaru in Thanjavur District and Transaction sheds in seven Regulated Markets have been taken up.

In 2015-16, Formation of Farmer Producer Organization for maize, mango, coconut, organic cereals and millet crops are proposed to be taken up.

4. Tamil Nadu Small Farmers Agribusiness Consortium (TNSFAC)

The Tamil Nadu Small Farmers' Agribusiness Consortium was constituted as a society in line with Central SFAC. It helps farmers in strengthening market linkages. TNSFAC is also the nodal agency for implementation of Farmer Producer Organisation programme in Tamil Nadu.

It is expected that this intensive capacity building training by these organizations will operate the commercial crop cycle on their own. Members would run stores and sell the required agricultural inputs and market the produce. Aggregation of produces of many small farmers would ensure to efficiently sell at necessary critical size for remunerative price. In the State following FPOs are being formed:-

Year	Commodity for FPO formation	District
2014-15	Millets	Dharmapuri, Virudhunagar, Tiruvannamalai, Cuddalore
	Vegetables	Coimbatore
	Mango	Krishnagiri
	Guava	Dindigul
	Banana	Trichy
	Chillies	Ramanathapuram
	Pulses	Dharmapuri, Krishnagiri, Vellore, Tiruvannamalai, Thanjavur, Nagapattinam, Salem, Madurai, Pudukottai, Villupuram
	Pulses and Millets	Villupuram

Venture Capital Assistance Scheme (VCA) is also implemented through SFAC, wherein agri-entrepreneurs are encouraged to setup agri business projects with backward linkages with Small farmers. Interest free Venture Capital Assistance (VCA) at 26% of the promoter's equity or Rs.50.00 lakh whichever is less is given by SFAC, Government of India under this Scheme. For registered Farmer Producers

Organisation, VCA at 40% of the Promoter's equity or Rs.50.00 lakh whichever is less is given under this scheme.

So far, 69 projects have been sanctioned with Venture Capital Assistance of Rs.23.13 crore for Agri Business projects on Mango pulp, Floriculture (Poly House), Menthol (Mint), Coconut, Cold Storage, Mushroom cultivation, Medicinal plants, Gherkins processing, Ripening Chamber, Aloe Vera gel and supplements, Miscellaneous fruits and vegetables, Anti Cancer drug, Tea, Coconut shell charcoal and Food processing units.

5. Tamil Nadu State Agricultural Marketing Board

The Tamil Nadu State Agricultural Marketing Board (TNSAMB) was constituted in the year 1970. Market Committees contribute 15% of their revenue to the Board. Out of this contribution, fifty percent is set apart as Market Development Fund for taking up developmental activities of markets.

5.1. Activities under Tamil Nadu State Agricultural Marketing Board

5.1.1.Capacity Building Training

Post harvest technology and scientific storage training programmes are conducted for farmers in the premises of the Regulated markets every year. During the year 2014-15,

about 2640 farmers were benefitted by these training programmes.

The training centre of the Tamil Nadu State Agricultural Marketing Board at Salem caters to the training needs of the staff of Agricultural Marketing and Agri Business Department and also of the farmers. During the year 2014-15, training was imparted to about 431 technical staff and 194 farmers at this centre. The training programme will be continued during 2015-16.

5.1.2. Tamil Nadu Farmers Development and Welfare Scheme

Government has implemented this scheme from 02.11.1995 to shield farmers from various calamities. Farmers and tenants in the age group of 18 to 60 years who have sold more than 1 MT of agricultural produce in a year through Regulated Markets in the State are enrolled in the scheme. They do not have to pay contribution at any level. The Market Committee and the Marketing Board equally bear the total cost.

In case of death or permanent disability due to accident or snake bite, the members are eligible for a grant of Rs.1,00,000/-. For loss of both hands or legs or eyes a grant of Rs.75,000/- is given. In case of loss of one

hand or one leg or one eye or permanent hip disability due to accident, the member is eligible for a grant of Rs.50,000/-.

5.1.3. Construction wing

The Engineering wing of Marketing Board takes up construction of Agricultural Marketing infrastructure such as godowns, transaction sheds, Market complex, cold storage facilities, drying yards etc.

7. Tamil Nadu Watershed Development Agency (TAWDEVA)

1. Introduction

Tamil Nadu Watershed Development Agency was established in 2002 with objectives to conserve water resources and promote efficient use of water for increasing productivity of the crops.

Following watershed development programmes are implemented by Tamil Nadu Watershed Development Agency.

- Integrated Watershed Management Programme (IWMP)
- Watershed Development Fund (WDF)
- Western Ghats Development Programme (WGDP)

In addition, TAWDEVA acts as the Nodal Agency for channelizing funds for the following schemes funded by the Government of India.

- National Agriculture Development Programme (NADP)
- National Mission for Sustainable Agriculture (NMSA)

- National Food Security Mission (NFSM)
- Support to State Extension Programmes for Extension Reforms Schemes (SSEPERS - ATMA)
- Agriculture Resource Information Systems and Networking (AGRISNET)

1. Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)

Integrated Watershed Management Programme (IWMP) has been subscribed as one of the scheme under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) (Watershed Development) and is proposed to be implemented under PMKSY in amalgamation with the existing irrigation development programmes.

The components of the programme is to be implemented on watershed basis with the objectives of optimum utilization of land and water resources for maximizing benefits to the farmers.

The earlier IWMP is being implemented in 26 districts covering 2763 watersheds for the past 6 years. The scheme expenditure is shared by the Central and State Governments in the ratio of 90:10.

Under the earlier scheme of IWMP, the following development activities are carried out.

Activity	Components
Land Development	Land leveling, Contour Bunding, Stone Bunding, Retaining Wall, Summer Ploughing, Vegetative Bunding and Continuous Trenching
Water Resources Development	Formation of New Tank / Oorani, Farm Pond, Percolation Pond, Desilting of Existing Tanks and Supply Channels
Plantation	Plantation relating to Horticulture, Socio-Agro Forestry, Fodder Development, Crop Demonstration and Homestead Garden
Common Property Development	Construction of Check dams, Cattle ponds, Supply channels, Desilting of Ooranis, Desilting of tanks and ponds.
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.
SHG and Livelihood Interventions for Landless Farmers	Interest free revolving funds is provided to farmers, Self Help Group and grant to Landless Farmers and User Groups Watershed.

During the year 2014-15, Government of India have sanctioned Rs.191.62 crore for watershed projects to cover an area of 1.596 lakh hectares spread over 19 districts over a period of 5 years. So far, an amount of Rs.166.17 crore has been received from Government of India and an amount of Rs.31.39 crore from the State Government was released under this scheme.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) will implemented from 2015-16.

2. Watershed Development Fund (WDF) assisted by NABARD :

These watershed development projects are implemented under loan assistance from NABARD. It has given full grant for 12 watersheds and extended loan for another 142 watersheds. Out of 142 watersheds, works are in progress in 56 watersheds.

Construction of Farm Pond, Field Bund, Drainage line treatment, Sunken Pond, Agro Forestry, Horticulture etc. along with Renovation of Traditional Water Harvesting Sructures are taken up under Area treatment component. Under livelihood support for women and landless farmers, construction of grocery shops, setting up of mini flour mills, Flower sales,

running provision shops etc. are given importance.

3. Western Ghats Development Programme (WGDP)

Western Ghats Development Programme is also implemented on watershed approach from the year 2009-10 onwards in Dindigul, Madurai and Theni districts. From the year 2012-13 onwards it is also implemented in Virudhunagar and Tirunelveli districts. The scheme has also been extended to Coimbatore, Tiruppur & Kanyakumari districts from the year 2013-2014.

At the State level, funds are received from the State Planning, Development and Special Initiative Department. At the district level, the scheme is implemented through District Watershed Development Agency (DWDA), with the District Collector as the Chairman. Rs.22.84 Crore was sanctioned during the year 2014-15.

The Program is implemented on participatory mode involving all the Line Departments like Environment & Forest, Agricultural Engineering, Agriculture, Horticulture, Tribal and Adi Dravidar Welfare Department, Animal Husbandry, DRDA, Fisheries, Tourism, Town Panchayat and Khadi & Village Industries.

State Level Data Centre

A State Level Data Centre (SLDC) with GIS facilities has been established for scientific planning and efficient management of watersheds. All the works are monitored using GIS by which overlapping of watershed area is avoided.

In the SLDC, so far an area of 13.69 Lakh Ha covering 2763 watersheds is fully digitized and Cadastral Maps are incorporated in the watershed boundary using GIS. All developmental works carried out in watersheds are Geo tagged and verified with available satellite imagery. All the Geo tagged details are uploaded at www.bhuvan.nrsc.gov.in.

Best Practices Innovative Award in IWMP

Tamil Nadu received the Best Practices Innovative Award under the scheme IWMP for formulating parallel online MIS. The award was presented by Minister of Rural Development, GOI in a function held at New Delhi on 19.02.2015.

DEMAND NO.5 AGRICULTURE DEPARTMENT

Estimate of the Amounts Required for Expenditure in 2015-2016

BUDGET ESTIMATE 2015-2016

(Rupees in Thousands)

	Revenue	Capital	Loan	Total
DEMAND FOR GRANT –Voted	**6,141,99,55**	**321,18,40**	**150,50,00**	**6,613,67,95**
Appropriation Charged	**3**	**...**	**...**	**3**

Net Expenditure Rupees in Thousands

Head of Account		2013-14	2014-15	2014-15	2015-16
		Accounts	Budget Estimate	Revised Estimate	Budget Estimate
2059	PUBLIC WORKS	2,38,01	2,62,00	2,58,00	2,58.00
2401	CROP HUSBANDRY	4,335,17,71	4,448,33,00	4,788,55,76	5,476,30,61
2402	SOIL AND WATER CONSERVATION	89,11,50	84,24,00	127,98,59	88,30,41
2408	FOOD STORAGE AND WAREHOUSING	10,40,50	16,44,01	10,69,33	16,44,00
2415	AGRICULTURAL RESEARCH AND EDUCATION	285,40,51	287,02,89	300,75,55	303,96,79
2435	OTHER AGRICULTURAL PROGRAMMES	114,30,82	112,48,99	126,61,50	124,66,42
2501	SPECIAL PROGRAMMES FOR RURAL DEVELOPMENT	21,48,79	48,00,01	191,32,18	73,74,50

2551	HILL AREAS	3,06,72	3,15,67	3,76,87	79,22
2702	MINOR IRRIGATION	8,22,53	9,26,71	9,50,45	9,67,77
2705	COMMAND AREA DEVELOPMENT	18,54,43	22,59,99	18,74,84	14,02,54
2810	NEW AND RENEWABLE ENERGY	63	27,48,60	27,22,25	10,53,60
2852	INDUSTRIES	25	...	...	...
3451	SECRETARIAT – ECONOMIC SERVICES	8,62,14	9,74,88	9,11,24	8,90,57
4401	CAPITAL OUTLAY ON CROP HUSBANDRY	28,57,68	1,82,09	8,14,09	154,55,61
4402	CAPITAL OUTLAY ON SOIL AND WATER CONSERVATION	51,13,38	3,14,28	40,62,49	33,41,07
4435	CAPITAL OUTLAY ON OTHER AGRICULTURAL PROGRAMMES	36,26,47	100,00,07	117,50,88	100,00,04
4551	CAPITAL OUTLAY ON HILL AREAS	5,91,66	6,50,01	6,44,00	6,50,01
4705	CAPITAL OUTLAY ON COMMAND AREA DEVELOPMENT	31,99,76	26,22,02	27,55,74	26,40,17
6401	LOANS FOR CROP HUSBANDRY	149,44,00	150,00,00	150,00,00	150,00,00
7610	LOANS TO GOVERNMENT SERVERNTS ETC.	...	50,00	50,00	50,00

DEMAND NO.5 AGRICULTURE DEPARTMENT
BUDGET ESTIMATE 2015-2016

[Rupees in Thousands (Gross)]

Sl. No.	Head of Department			Revenue	Capital	Loan	Total
1	05 01	Secretariat	Voted	8,90,5 7	…	50,00	9,40,57
2	05 02	Directorate of Agriculture	Charged	1	…	…	1
			Voted	4,964,11,3 5	176,61,52	150,00,00	5,290,72,87
3	05 03	Directorate of Agricultural Marketing and Agri. Business	Voted	96,41,1 3	100,00,04	…	196,41,17
4	05 04	Directorate of Seed Certification	Voted	39,35,0 7	…	…	39,35,07
5	05 05	Directorate of Horticulture and Plantation Crops	Charged	1	…	…	1
			Voted	434,66,6 6	55,14	…	435,21,80
6	05 06	Agricultural Engineering Department	Charged	1	…	…	1
			Voted	289,02,0 0	44,01,70	…	333,03,70
7	05 07	Agro Engineering Services	Voted	44,9 3	…	…	44,93
8	05 08	Tamil Nadu Agricultural University, Coimbatore	Voted	308,45,0 3	…	…	308,45,03
9	05 09	Directorate of Organic Certification	Voted	62,8 1	…	…	62,81
Total			Charged	3	…	…	3
			Voted	6,141,99,5 5	321,18,40	150,50,00	6,613,67,95

R.Vaithilingam
Minister for Housing, Urban Development and Agriculture