2. HORTICULTURE

1. Preface

Horticulture is the prime engine that provides relatively higher income, employment opportunity in rural areas besides providing nutritional security. The varied agro climatic zones of this State are well suited for cultivation of fruits, vegetables, flowers, spices, plantation crops, medicinal, aromatic crops and other horticultural crops. Tamil Nadu is the largest producer of flowers in the country. Though the area under horticultural crops is less than one fifth of total cropped area, its share to total agricultural growth is significantly high.

Importance on nutritional value of fruits and vegetables is gaining momentum and their consumption has increased, thereby raising the demand. Technology break-through in horticultural crops has improved the quality and yield considerably, besides, bringing higher income to the farmers leading to crop diversification. There has been considerable increase in area and production under horticultural crops over the years. During 2012-13, focused attention will be given for area expansion and adoption of high-tech methodologies in horticultural crops.

2. Policy Focus

- **Second Green Revolution** for doubling production.
- Promoting Horticulture as a profitable and viable sector by leveraging technology.
- Increasing the income levels of horticulture farmers and assuring them an improved quality of life.
- Strengthening the forward and backward linkages.

- Promoting Organic farming as a way of life.
- Exploiting Information Technology tools in all aspects of horticulture.
- Encouraging farm mechanization.

3. Strategies

1. Increasing productivity and production through adoption of Hi-tech horticulture practices.
2. Strengthening the production and supply of quality pedigree planting materials.
3. Timely supply of inputs - High yielding / Hybrid seeds, fertilizers, bio-fertilizers, bio-pesticides, etc.
4. Promoting High Density Planting in perennial crops.
5. Efficient and effective utilization of water and fertilizer through Precision Farming.
6. Thrust on Integrated Nutrient Management & Integrated Pest Management.
7. Canopy management and rejuvenation of old orchards.
8. Reduction of post-harvest losses through modern post-harvest technologies.
9. Providing refrigerated transportation facilities for horticulture produce to reach the local, national and international market.
10. Availability of horticultural produce in the markets for consumers through retail outlets.
11. Creating awareness on Organic farming through a multi pronged approach.

12. Ensuring higher income to farmers through efficiency improvement in the production, supply chain and market linkages of horticultural produce, using Information Technology.
13. Use of Information Technology tools in administration, information exchange, extension, marketing for speedy transfer of horticulture related information.
14. More thrust on horticulture based farming system in rainfed areas.
15. Capacity building for Department Personnel / Farmers/ Entrepreneurs.
16. Strengthening infrastructure facilities in the horticulture training institutes.
17. Promotion of horticulture as an integrated activity involving agriculture, animal husbandry, silviculture, apiculture, sericulture, fisheries in rural areas and encouraging terrace gardening in the cities.
18. Development of new gardens and eco-parks for promotion of tourism.
19. Effective utilization of assets in the State Horticulture Farms.

4. Area and Production of horticultural crops in Tamil Nadu for the year 2010-11, 2011-12 & 2012-13

(Area: Lakh Ha., Production: Lakh MT.,)

Sl. No	Name of Crops	2010-11 (Provisional)		2011-12 (Estimate)		2012-13 (Programmed)	
		Area	Prodn.	Area	Prodn.	Area	Prodn.
1	Fruits	3.20	79.65	3.32	85.35	3.72	101.94
2	Vegetables	2.73	83.87	2.84	90.52	3.18	107.59
3	Spices & Condiments	1.66	9.39	1.73	10.87	2.10	15.11
4	Plantation Crops	2.65	11.47	2.75	11.99	3.04	13.86
5	Flowers	0.31	3.00	0.32	3.23	0.39	4.21
6	Medicinal & Aromatic Crops	0.11	0.61	0.12	0.68	0.12	0.72
	Total	**10.66**	**187.99**	**11.08**	**202.64**	**12.55**	**243.43**

5. State Plan Schemes

5.1. Integrated Horticulture Development Scheme (IHDS)

Under this scheme, quality planting materials, high yielding / hybrid vegetable seeds and flower seeds are being distributed to farmers at 50% subsidy, upto a maximum of 1 Ha / beneficiary for fruits and 0.5 Ha / beneficiary for high yielding / hybrid vegetables, and flower seeds. This scheme is being implemented in all the districts excluding Chennai.

During 2011-12, this scheme was implemented at an expenditure of ₹371.18 lakhs covering 26,583 Ha.

In 2012-13, the scheme is proposed to be implemented at an outlay of ₹1925 lakhs to cover 75,000 Ha.

5.2. Horticulture Training Centres (HTC)

Horticulture Training Centres are functioning at Kudumianmalai in Pudukottai district, Madhavaram in Tiruvallur district, Thally in Krishnagiri district and Ooty in The Nilgiris. Training will be imparted to the farmers and field level functionaries of the Department of Horticulture & Plantation Crops on latest technologies. During 2011-2012, training was given to 6400 farmers at an expenditure of ₹6.97 lakhs. During 2012-2013, it is planned to train 6400 farmers / field level functionaries at an outlay of ₹19.20 lakhs.

A special training programme is proposed to be given to farmers, extension staff and officers of eight low per capita income districts of Cuddalore, Dharmapuri, Sivagangai, Krishnagiri, Villupuram, Perambalur, Dindigul and Tiruvannamalai under the National Horticultural Mission and Micro Irrigation at an outlay of ₹110 lakhs. The infrastructure facilities at training institute, Thally is proposed to be strengthened at an outlay of ₹150 lakhs under NADP during 2012-13.

5.3. Integrated Tribal Development Programme (ITDP)

Under this scheme, high quality planting materials of mango, coffee, pepper at 75% subsidy and high yielding / hybrid vegetable seeds, etc. are being distributed to tribal farmers at 90% subsidy. Oil engines and plant protection equipments will be provided at 75% subsidy. This

programme is being implemented in Salem, Namakkal, Dharmapuri, Tiruvannamalai, Vellore, Trichy and Villupuram districts. Training cum exposure visits are organized to educate the tribal farmers on improved technologies. During 2011-12, this scheme was implemented at an expenditure of ₹40 lakhs in 907 Ha. During 2012-13, it has been proposed to implement this scheme in 1000 Ha at an outlay of ₹40 lakhs.

In addition to this, installation of drip irrigation system under the 100% subsidy scheme will be dovetailed from National Mission on Micro Irrigation.

5.4. Western Ghats Development Programme & Hill Area Development Programme (WGDP / HADP)

The objective of these schemes is to promote farmers cluster, co-operative action of acquisition of inputs, hiring of machineries, sharing of experiences and information, licensing, certification, marketing, channelizing Government service, subsidies through farmers service and entrepreneurship thus transferring the technology on the need basis. These schemes also aim to promote sustainable horticulture development on watershed through farmers' council. Farmers cluster formation i.e. Common Livelihood Group (CLG) and Farmers Apex Council will be formed on pilot basis for distribution of inputs, implements, input production, livestock as per the guidelines.

Western Ghats Development Programme is implemented in the districts of Coimbatore, Erode, Dindigul, Madurai, Virudhunagar, Tirunelveli and Kanyakumari. Training on latest horticulture technology will be given to farmers. During 2012-13, it has been proposed to implement this scheme in 1000 Ha at an outlay of ₹ 186 lakhs.

Under HADP, high yielding / hybrid vegetable seeds, oil engines, and agricultural implements/machineries like sprayer, power tiller, mini tractor, packing materials for fruits, vegetables and flowers are distributed to small and marginal farmers of The Nilgiris district at 25% - 50% subsidy. During 2011-2012, this scheme was implemented at an outlay of ₹ 206.800 lakhs. During, 2012-13, it has been proposed to implement this scheme at 50% subsidy in 4000 Ha. at an outlay of ₹ 240 lakhs.

5.5. City Vegetable Development Scheme (CVDS)

The objective of the scheme is to provide horticultural inputs to city dwellers for promoting home gardening.

This is a non subsidy scheme. Under this, planting materials, seeds, fertilizers and plant protection chemicals are distributed to residents of Chennai at full cost, with technical know-how. During 2011-12, this scheme was implemented at an expenditure of ₹3.50 lakhs. During 2012-13, the Government intends to give a major thrust to this scheme by increasing the budget under the scheme to ₹25.00 lakhs and for improving the infrastructure and services of the four Horticulture Depots at Anna Nagar, K.K. Nagar, Perambur and Thiruvanmiyur at an outlay of ₹ 75 lakhs.

5.6. National Agriculture Development Programme (NADP)

The objective of the programme is to contribute towards achieving 4% growth rate in Agriculture.

During the year 2011-12, the following components were implemented at an outlay of ₹ 4434.83 lakhs.

1. Precision Farming
2. Hi-Tech Productivity Enhancement Programme
3. Peri Metro Vegetable Cluster Development Programme
4. Rainfed Area Development Programme

In addition to the above components, 'Mechanized harvesting and processing of turmeric and tapioca', 'Providing assistance for the II year maintenance of perennial crops in Cyclone 'Thane' affected areas', 'Encouraging pandal cultivation of vegetables', 'Establishment of District Horticulture Extension cum Training Centre', 'Modernization of State Horticulture Farms', including sub-schemes / shelf of projects have been proposed for implementation during the year 2012-13 at an outlay of ₹ 10838 lakhs to cover 21410 Ha.

5.7. Precision Farming

Precision Farming is being successfully implemented from 2008 onwards. It is seen that there is a spectacular increase in productivity (to the tune of 30% to 50% increase) due to adoption of high yielding / hybrid seeds, Micro Irrigation and fertigation in vegetables, turmeric and banana. This component has received great response from farmers, and during 2011-2012, it was implemented at an expenditure of ₹ 600.18 lakhs covering 2858 Ha with 50% subsidy limited to ₹ 20,000 per Ha. During 2012-13, it has been proposed to implement this component in 6000 Ha at an outlay of ₹ 1260 lakhs.

5.8. Hi-Tech Productivity Enhancement Programme

This component is implemented with the objective of enhancing the productivity of horticulture crops by adopting Hi-Tech interventions which include high density planting, adoption of improved package of practices, cultivation of vegetables with high yielding hybrids. During 2011-2012, this component was implemented at an expenditure of ₹ 1255.14 lakhs covering 3646 Ha at 50% subsidy. During 2012-13, it is proposed to implement this component in 7745 Ha at an outlay of ₹ 1030.93 lakhs.

5.9. Rainfed Area Development Programme (RADP)

There is a huge opportunity to increase the production of horticulture crops by following recent advanced technologies in rainfed areas. Horticulture based farming system, apiculture and protected cultivation are the components proposed under this sub scheme. During 2011-2012, this sub-scheme was implemented at an expenditure of ₹ 879.05 lakhs to cover 2655 Ha at 50% subsidy. During 2012-13, it is proposed to implement this component in 2300 Ha at an outlay of ₹ 772 lakhs.

5.10. Peri Metro Vegetable Cluster Development Programme

In order to ensure continuous supply of fresh vegetables to the burgeoning urban markets, it is absolutely necessary to create forward linkages from rural to urban areas. This will also ensure assured income to farmers in the rural areas adjoining the cities. Clusters of farmers will be formed to supply their produce to the society run by farmers at the District level. Private entrepreneurs will be engaged to collect, sort, grade and pack the produce at their location and supply the same to retail outlets in the city. This scheme will be implemented as a Public Private Partnership.

Cultivation of vegetables, formation of farmer clusters, formation of farmers society, collection centers, reefer vans, retail outlets, mobile stores are the components under this sub-scheme.

This scheme has been sanctioned during 2011-2012 for implementing in Chennai city and an amount of ₹ 1700 lakhs has been earmarked. In 2012-13, it has been proposed to implement this scheme in Coimbatore city in 2162 Ha. at an outlay of ₹ 1701 lakhs.

5.11. National Agriculture Insurance Scheme (NAIS)

National Agriculture Insurance Scheme provides insurance coverage to notified horticultural crops viz banana, onion, potato, tapioca, pineapple and ginger. The objective of the scheme is to provide insurance coverage and financial support to farmers in the event of natural calamities, pest and diseases adversely affecting the notified horticultural crops and to help farmers stabilize farm income especially during disaster.

The farmers are provided with 50% premium subsidy. During 2011-12, this scheme was implemented at an outlay of ₹ 950 lakhs to cover 24,000 acres. During 2012-13, it is proposed to implement this scheme at an outlay of ₹ 950 lakh to cover 24,000 acres.

5.12 Weather Based Crop Insurance Scheme (WBCIS)

The objective of the scheme is to mitigate the hardship caused to farmers on account of adverse weather conditions especially deficit and excess rainfall. This is implemented on a pilot basis in selected districts of Tamil Nadu. For loanee farmers, there will be no National Agriculture Insurance Scheme in the districts where WBCIS is implemented. The non loanee farmers can opt either for National Agriculture Insurance Scheme or Weather Based Crop Insurance Scheme. During 2011-12, this scheme was

implemented at an outlay of ₹ 52.50 lakhs to cover 4132 acres. During 2012-13, it is proposed to implement this scheme at an outlay of ₹52.50 lakhs to cover 4132 acres.

5.13. Part II Scheme

In part II scheme 2011-12, an amount of ₹110 lakhs was sanctioned. Under this scheme, infrastructure facilities are being created at a cost of ₹30.00 lakhs at Horticulture Training Center, Madhavaram. District Horticulture Extension and Training Centers are being established at Erode and Trichy at a cost of ₹20 lakhs each and also training infrastructures are being created at Horticulture Training Centre, Thally at a cost of ₹40 lakhs.

Under Part II scheme 2012-13, it is proposed to establish a District Horticulture Extension and Training Centre at Dharmapuri at a cost of ₹30 lakhs. Since there are no separate input storage godowns for Horticulture Department in any of the blocks, the first Input Storage Godown along with Horticulture Extension Centre is proposed to be established at Thondamuthur Block of Coimbatore District at a cost of ₹25 lakhs. It is also proposed to extend the District Horticulture Extension and Training Centres at Trichy and Erode at a cost of ₹10 lakhs each. The State Planning Commission has recommended a total sum of ₹75 lakhs for these schemes.

5.14. Scheme Performance during 2011-12 and proposals for the year 2012-13.

The financial allocation for the year 2011-12, expenditure incurred and the proposed outlay for the year 2012-13 for the State Plan Schemes are furnished below.

State Plan Schemes

(Financial : ₹.in lakhs)

Name of the Scheme	Unit	2011-12				2012-13 (proposed)	
		Physical		Financial		Phy.	Fin.
		Tar.	Achmt	Tar.	Achmt.	Tar.	Tar.
Integrated Horticulture Development Scheme	Ha.	26583	26583	371.18	371.18	75000	1925.00
Horticulture Training Centre	Nos.	6400	6400	6.97	6.97	6400	19.20
Integrated Tribal Development Programme	Ha.	907	907	40.00	40.00	1000	40.00
Western Ghat Development Programme	Ha.	-	-	-	-	1000	186.00
Hill Area Development Programme	Ha	4000	4000	206.80	206.80	4000	240.00
City Vegetable Development Programme	Ha	200	200	3.50	3.50	200	100.00
National Agriculture Development Programme	Ha.	16671	9502	4434.83	2511.86	21410	10838.00
National Agricultural Insurance Scheme	Acres	24000	24000	950.00	566.52	24000	950.00
Weather Based Crop Insurance Scheme	Acres	4132	4132	52.50	43.28	4132	52.50
Part – II Scheme				110.00	110.00		75.00
Total				**6175.78**	**3860.11**		**14425.70**

5.15. Special Package for 'Cyclone Thane' affected Horticulture Crops.

'**Cyclone Thane**' hit Tamil Nadu on 30.12.2011 and caused extensive damage to horticulture crops to an extent of 48040.90 Ha and affected the livelihood of 70366 farmers. The crop damage assessment was taken up on war footing manner and a compensation of ₹ 4,148 lakhs was disbursed to the affected horticulture farmers. Towards rehabilitating the livelihood of affected farmers, **Hon'ble Chief Minister** announced a special package for horticulture crops for ₹ 72,496 lakhs. Under the Special Package, re-cultivation of annual crops and replanting of perennial horticulture crops with maintenance for 4 years will be taken up in the affected areas by undertaking the following activities.

- Cutting and removal of fallen trees
- Procurement of machinery for cutting fallen trees
- Removal of stumps
- Ploughing
- Pitting and filling
- Re-cultivation – Annual Crops & Perennial crops
- Intercropping
- Irrigation facilities and Micro Irrigation

The Government have accorded sanction for establishment of Project Management Unit (PMU) to be stationed at Cuddalore at an outlay of ₹203.48 lakhs, including Block Level Management Cells in the blocks where perennial crops like cashew, jack have been severely affected. 64 posts have been created for a period of one year on deputation basis from departments like Agriculture, Horticulture, Agriculture Engineering, TNAU, Rural Development and Panchayat Raj. 62 temporary posts have

been created for one year which will be filled up on contract basis.

A sum of ₹ 2524.818 lakhs has been sanctioned from the existing National Agriculture Development Programme towards supplying minikits to Cyclone Thane affected farmers. Further, a sum of ₹ 365.17 lakhs has been sanctioned towards ploughing cost at the rate of ₹ 1000 per Ha. to raise intercropping in the perennial crops affected area . Government have also sanctioned a sum of ₹ 9129.27 lakhs for providing lump sum grant (Back ended) at the rate of ₹ 25,000 per Ha to the farmers affected by Cyclone Thane towards the expenditure for removal of stumps & roots and ploughing. Farmers will be allowed to exercise option either to undertake the activities viz. cutting and removal of fallen trees through Mahatma Gandhi Rural Employment Guarantee Scheme (MNREGES) funds and ploughing through Agricultural Engineering Department at a cost of ₹ 1,000 per Ha under Calamity Relief fund or to avail the cash assistance of ₹ 25,000/ per Ha for removal of stumps & roots and ploughing.

The PMU will function under the leadership of a Project Officer in the cadre of Additional Collector, to implement the Rehabilitation package for Agriculture and Horticulture crops, timely distribution of packages, co-ordinate among departments and report the progress of implementation to the respective Directorates and to the Government.

3. SUGAR DEPARTMENT

Sugarcane is one of the most important industrial crops in our state and also emerging as a multi product crop contributing to the production of sugar, jaggery, alcohol, electricity, paper and other allied products. The sustenance of the Sugar mills and well being of the sugarcane growers is mutually interlinked. Hence the major focus is towards enhancing sugarcane productivity and production thereby improving the living standard of the Sugarcane growers.

Around 3.50 Lakh farmers are cultivating sugarcane in Tamil Nadu which is 5% of the total cultivable area. During 2011-12 sugar seasons, the sugarcane crop was cultivated in 3.16 Lakh Hectares in the state and the total estimated sugarcane production was 342.52 L.Mt. During 2012-13, it is programmed to cultivate Sugarcane in 3.60 L.Ha. with a production target of 493.50 L.Mt. Out of the total sugarcane production, 60-70 % of the cane was drawn and crushed by the sugar mills of Tamil Nadu during 2011-12 and this crushing rate is expected to be increased during 2012-13 sugar season.

The sugar industry is one of the largest agro-based industries next to the Textiles. There are 47 Sugar Mills in Tamil Nadu comprising of 16 Sugar Mills under Co-operative Sector, 3 Sugar Mills under Public Sector and 28 Sugar Mills under Private Sector. Of these, presently 44 Sugar mills are functioning, while 3 sugar mills are not functioning viz., Madura Sugars (Public Sector) from 2002-2003 crushing season onwards and a private sugar mills viz. Arunachalam Sugar Mills, Malappampadi, Tiruvannamalai District from 2003-2004 crushing season onwards and a new sugar mills viz., Sri Ambiga Sugar limited, Unit – III , Manjini is under establishment.

The area cultivated, registered, cane crushed, Sugar produced and recovery percentage for the past five years and estimate for 2011-12 in Tamil Nadu are given below:

Crushing season (October – September	Cane area cultivated (L. Ha.)	Cane area registered (L. Ha.)	Cane crushed (L.Mt)	Sugar Production (L.Mt)	Recovery %
2006-07	3.35	3.00	274.49	25.39	9.25
2007-08	3.91	2.76	229.68	21.41	9.32
2008-09	3.54	2.29	165.72	15.95	9.62
2009-10	3.09	2.02	142.99	12.70	8.88
2010-11	2.93	2.19	203.12	18.46	9.09
2011-12 (Estimated)	3.16	2.75 `	220.96	20.75	9.39

The concept of “Fair and Remunerative Price” (FRP) for sugarcane was introduced by the Government of India on all India basis by deleting the existing provisions for payment of Statutory Minimum Price, 5A Price and also by amending the Essential Commodities Act, 1955 and Sugarcane (Control) Order, 1966. Accordingly, the Government of India has fixed the Fair and Remunerative Price of ₹1450 per Metric tonne for the sugar season 2011-12 linked to 9.5% recovery with an incentive of ₹15.30 per Metric tonne for increase of every 0.1% recovery. The Government of Tamil Nadu has fixed the State Advised Price of ₹2100 per Metric tonne inclusive of transport subsidy for 2011-12 crushing season and the cane payment is being made as per the orders of the Government.

The projected demand for sugarcane has to be met by improving the productivity per unit area which is possible by introduction of new varieties and new technologies such as Sustainable Sugarcane Initiatives, Drip Fertigation, Tissue culture etc. To double the sugarcane production and

to achieve full capacity utilization, the Sustainable Sugarcane Initiative method of cane cultivation along with Drip Fertigation is being implemented in 3000 Hectares during 2011-12 by installing 1000 shadenet units in all sugar mills of Tamil Nadu and it is programmed to cover around 6000 Hectares under Sustainable Sugarcane Initiative Scheme during 2012-13.

. In order to motivate the sugarcane farmers to adopt drip fertigation, the Government has increased the subsidy for drip irrigation from 65% to 100% to small and marginal farmers and 75% to other farmers. This will save around 40% of irrigation water and increase the cane yield by 35 % to 45%.

The Sugarcane Productivity is increased by improving the physical properties of the soil through bio-composting along with Integrated Nutrient Management and utilisation of organic resources as organic manure. The value added vermi compost is produced from the press mud obtained from the mills and distributed to the farmers for increasing the sugarcane productivity. The farmers were encouraged to take up production of vermi compost, bio inputs and organic manure at village level to enrich the soil as well as to increase the productivity of Sugarcane.

The existing ruling varieties cultivated are Co.86032, CoC.22, CoV.94102 etc. The Sugar Mills along with Tamil Nadu Agricultural University and other Sugarcane Research Stations have introduced promising high yielding, drought and pest resistant varieties like CoC 24, Co 99004, Co 99006 Co 94012, Co.Si.7, CoG.5 etc., to improve production and productivity of the sugarcane. The Sugarcane Cess Fund is also utilized for developing new sugarcane varieties in coordination with Tamil Nadu Agricultural University.

In order to minimize the cost of cutting Sugarcane and also to overcome the difficulty in engaging cane cutting workers , the Government of Tamil Nadu has decided to purchase Sugarcane Harvesters for Co-operative & Public Sector Sugar Mills with their own resources and the administrative approval has been obtained from the Government. A Committee has been formed and the technical specifications were prepared to purchase sugarcane harvesters which are suitable for Tamil Nadu conditions. The proposal seeking assistance from Sugar Development Fund has been sent to Government of India. After availing the assistance, the Sugarcane Harvesters will be purchased subject to the financial viability of the mills.