

2. HORTICULTURE

1. Preface

Horticulture is considered as a high growth sector that provides better income generation and employment opportunities in rural areas, besides providing nutritional security. Tamil Nadu is a leading Horticulture State with diversified agro-climatic conditions, suitable for a wide range of horticulture 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. This sector aims at 9 to 10% growth rate by the end of 12th Five Year Plan.

Importance of nutritional value of fruits and vegetables and its contribution to achieve nutritional security can not be overstated. With growth in economy and income of the country, the consumption of fruits and vegetable is continuously increasing, thereby raising their demand. Technological break-through in the field of horticulture has improved the product quality and yield considerably, which has helped the farmers to get higher income even with smaller land holdings apart from achieving the crop diversification. Keeping pace with increase in demand, area and production under horticultural crops in the state have increased over the years. The Vision Tamil Nadu 2023 document lays great stress on micro irrigation to horticulture farmers and exclusive parks for vegetables, fruits and spices and post harvest management. During 2013-14, focused attention will be given to manage the supply chain of horticulture produce in addition to area expansion and high-tech cultivation methods.

2. Policy Focus

- Doubling the production and tripling the farmers income through Second green revolution
- Making Horticulture as a profitable venture through modern technologies
- Assuring improved quality of life to Horticulture farmers by increasing their income level.
- Forward and backward linkages to strengthen the horticulture sector.
- Focus on organic farming to revive soil health and to lead a healthy life
- Extensive use of ICT tools for speedy transfer of technologies, input management and empowering farmers on market information to realize better price.
- Massive farm mechanization to reduce drudgery in Horticulture
- Modernization of horticulture farms, parks and gardens.
- Promoting horticulture in urban areas.
- Motivating farmers to become Horti-Entrepreneurs through Producer Organizations.

3. Strategies

- Hi-tech horticulture for increasing production and productivity in horticulture crops
- Multiplication and distribution of quality Planting materials.
- Ensuring timely supply of inputs for horticulture crops
- High density planting in perennial crops.
- Increasing Water and Fertilizer Use Efficiency in horticulture crops through precision farming.

- Integrated Nutrient Management, Integrated Pest and Disease Management for horticulture crops.
- Canopy management, Rejuvenation of old orchards.
- Improved post-harvest technologies for reducing the post-harvest losses.
- Developing cold chain for horticulture produce to reach the local, national and international market.
- Creating awareness on Organic farming.
- Information Technology in Horticulture
- Focus on rainfed horticulture
- Capacity building for Department Personnel / Farmers / Entrepreneurs by strengthening infrastructure facilities in the Horticulture training institutes.
- Formation of crop specific Farmer Producer Organizations.
- Promotion of Horticulture as an integrated activity involving Agriculture, Animal Husbandry, Silviculture, Apiculture, Sericulture, Fisheries, etc. in rural areas.

4. Area and Production of Horticultural crops in Tamil Nadu for the year 2011-12, 2012-13 & 2013-14

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

Sl. No	Name of Crops	2011-12 (Provisional)		2012-13 (Estimated)		2013-14 (Programmed)	
		Area	Prodn.	Area	Prodn.	Area	Prodn.
1	Fruits	2.44	55.05	2.97	59.70	3.30	75.90
2	Vegetables	1.92	49.29	1.93	44.39	2.30	64.40
3	Spices & Condiments	1.55	9.64	1.45	8.41	1.75	11.38
4	Plantation Crops	2.34	10.37	2.98	12.61	3.17	15.22
5	Flowers	0.25	2.55	0.23	2.42	0.30	3.30
6	Medicinal & Aromatic Crops	0.06	0.66	0.11	1.23	0.12	1.44
	Total	8.56	127.56	9.67	128.76	10.94	171.64

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, up to 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 2012-13, the scheme was implemented at an outlay of ₹1043.00 lakhs. In 2013-14, the scheme is proposed to be implemented at a financial outlay of ₹1925.00 lakhs to increase the productivity of all horticultural crops. New components proposed under the scheme include distribution of Oil Engine, Tool Kit, Plant protection equipment and cladding materials at 50% subsidy to the farmers. To increase the post harvest handling of horticultural produce, plastic crates are proposed to be distributed at 50% subsidy. Pro-trays are also to be distributed at 50% subsidy to enhance nursery technique.

5.2 Horticulture Training Centres.

Farmers need to be adequately trained on latest technologies mainly on the improved cultivation practices of high value horticulture crops. Keeping this in view, training is being imparted to farmers through four Horticulture Training Centres functioning at Kudumianmalai in Pudukottai district, Madhavaram in Tiruvallur district, Thally in Krishnagiri district and Ooty in The Nilgiris district. Funds are allocated under Integrated Horticulture Development Scheme for implementing the training programmes.

During 2012-13 6400 farmers were trained and an expenditure of ₹19.20 lakhs was incurred. This programme will continue during 2013-14 with an outlay of ₹21 lakhs and training will be imparted to 7000 farmers.

5.3 Hill Area Development Programme (HADP)

The main objective of the scheme is to increase the area under Horticulture crops in Nilgiris District to improve the Socio Economic status of the Nilgiris farmers. Inputs such as vegetable seeds and tea clones are distributed at 50% subsidy whereas Oil Engines, Hand sprayers, Power

Tillers and Agricultural implements are distributed at 25% subsidy to small and marginal farmers. During 2012-13, the scheme was implemented at an expenditure of ₹275.75 lakhs to cover an area of 4000 Ha. In 2013-14, it is proposed to be implemented in 7000 Ha. at an outlay of ₹487 lakhs in the same subsidy pattern.

5.4 Urban Horticulture Development Scheme

Up to 2012-13, City Vegetable Development Scheme was in vogue with an annual budget of around ₹3.50 lakhs. As there is huge demand and a need to reduce the carbon footprint due to increasing pollution in urban areas, a new scheme titled, Urban Horticulture Development Scheme is proposed to be launched at a financial outlay of ₹500 lakhs in 2013-14.

The objective of the scheme is to promote homestead gardens in urban areas. Under this scheme, planting materials, organic inputs, pots, soilless pot mixtures, organic pesticides and garden tool kits are proposed to be distributed at full cost along with technical knowhow. 16 Urban Horticulture Extension Centres will function in each Zone of Chennai Corporation to give technical guidance on gardening.

5.5 National Agriculture Development Programme (RKVY)

National Agriculture Development Programme is implemented in Tamil Nadu since 2007-08. Major thrust is being given for production, Infrastructure and asset creation in the farmer's field. The schemes implemented under National Agriculture Development Programme during 2012-13 are as follows.

5.5.1. Precision Farming

Precision Farming is being successfully implemented from 2008 onwards. It is seen that there is a spectacular increase of 30% to 50% in productivity 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 2012-13, it was implemented at an expenditure of ₹924.90 lakhs covering 4961 Ha. with 50% subsidy limited to ₹20,000 per Ha. During 2013-14, this programme will be continued.

5.5.2. 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 hybrid. During 2012-13, this component was implemented at an expenditure of ₹697.62 lakhs covering 6530 Ha. at 50% subsidy. During 2013-14, this programme will be continued.

5.5.3. Rainfed Area Development Programme (RADP)

Promotion of horticulture in rainfed areas with advancement in technology is having very good scope. Horticulture based farming system and protected cultivation are the components proposed under this sub scheme. During 2012-13, the sub-scheme was implemented at an expenditure of ₹879.05 lakhs covering 2655 Ha. at 50% subsidy. During 2013-14, this programme will be continued.

5.5.4. 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. Under the scheme, Clusters of vegetable growing farmers are being formed at the Village Panchayat level, with each cluster having 20 or less number of farmers. They will go on to form a Panchayat Level Federation (PLF). Each PLF will send two representatives to the block to form the Block Level Federation (BLF). Each BLF will send two representatives to the District Level Federation (DLF). Each DLF will send one representative to form the Farmer Producer Organization (FPO). The Chennai Horticulture Produce Producers Company Limited (CHPPCL) has already been established as the FPO.

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.

The Scheme has been sanctioned for implementation in Chennai city and an amount of ₹1700 lakhs was earmarked. 254 clusters with 4970 farmers have been formed. The members have been enrolled and bank account has been opened. ₹25 lakhs has been released as cultivation subsidy to 500 farmers.

In 2012-13, it has been sanctioned to implement this scheme in Coimbatore city in 2162 Ha. at an outlay of ₹1700 lakhs.

5.5.5. Encouraging Pandal cultivation of Vegetables

In order to improve the production of the gourds and Avarai which are growing in Pandal structure, the scheme is implemented in all districts of Tamil Nadu during the year 2012-13 at an expenditure of ₹375 lakhs covering 329.65 Ha. at 50% subsidy. During 2013-14, the scheme will be continued.

5.5.6. Establishment of District Horticulture Extension cum Training Centre

In order to provide sufficient technologies to all field functionaries and to the farmers, there is a need to strengthen the Training Centre at the districts. It has been planned to establish District Information and Training Centres in 10 districts at an out lay of ₹600 lakhs. Location for construction of buildings has been identified. Soil bearing capacity test is being carried out. Three type designs have been prepared and structural design preparation is in progress.

5.5.7 Mechanization of harvesting & processing of Turmeric and Sett cutting, harvesting of Tapioca

20-30% of the Turmeric and Tapioca goes as waste due to improper handling which reduces the income of the farmers. To improve the quality of Turmeric and Tapioca by adopting scientific method of harvesting, on farm processing like curing in boiling water and harvesting tubers without any breakage which fetches better market price, the scheme

was implemented at an expenditure of ₹175.175 lakhs during 2012-13. Under this scheme, 9 turmeric harvesters, 27 turmeric boilers, 4945 tapioca sett cutters have been distributed to 530 farmers.

5.5.8. End to End Computerization

The objectives of Horticulture department are to focus market led production, adoption of high technologies like use of high yield / hybrid seeds, shade net nurseries, micro irrigation, fertigation, protected cultivation, high density planting for increasing production and productivity. This Department has to deal with extension work at field level and inspections for the release of subsidy etc. This requires a modern hi-tech application which will cover the entire functions of extension activities and also m-Governance based applications.

The Enterprise Resource Planning (ERP) software which enables all file works from end to end at the Commissionerate has been made online.

M-Governance for monitoring installation of micro irrigation systems has been designed and it is under process for implementation.

5.5.9. Mass Multiplication of Carnation Mother Plants in Nilgiris district

Cut Flower cultivation, especially Carnation of The Nilgiris district is known for its quality throughout the country. Carnation growers of Nilgiris are facing many problems in getting quality planting materials from private sources. A sum of ₹140 lakhs was sanctioned during the year 2012-13 under NADP towards Mass multiplication of Carnation Mother plants, at State Horticulture Farm, Kattery in Nilgiris district. TANHODA has initiated the project and sourcing of quality mother plants from abroad is in progress.

5.5.10. Development of infrastructure facilities at Horticulture Training Centre, Thally village, Hosur Taluk, Krishnagiri district

For the development of infrastructure facilities at Horticulture Training Centre, Thally, a sum of ₹150.00 lakhs has been sanctioned for Administrative building complex including class room, seminar hall, processing unit, storage shed and hostel for trainees and farmers, dining hall, parking area, lawn and land scaping works. The foundation stone was laid by the **Hon'ble Chief Minister of Tamil Nadu** on 15.10.2012. Estimates have been prepared and structural design preparation is in progress.

5.5.11. Improving Agricultural Productivity and Profitability through Horticultural Crop Diversification in the Feeder Zones of Metro City

To evolve a suitable cropping pattern in the peri urban areas and to increase the farm income, an amount of ₹367.85Lakhs has been sanctioned to Anna University for the year 2012-13 under NADP. Annual Action Plan has been drawn for implementation. This programme is under implementation in Kancheepuram and Thiruvallur districts by Anna University, Chennai.

5.5.12. Empowerment of extension functionaries (from State Dept. of Horticulture) on diagnosis and integrated management of Mite Pests through Hands on Training and Farm School Programmes

To train 125 extension functionaries on the diagnosis and integrated management of Mite Pests, an amount of ₹30.97Lakhs has been sanctioned to TNAU, under NADP during 2012-13. The training programme for extension personnel has commenced and is going on.

5.5.13. Capacity Building of Extension officials to transfer hybrid seed production technologies in vegetable crops (Tomato & Okra)

To train 160 extension functionaries on hybrid seed production technologies in Tomato & Okra, an amount of ₹15.53 lakhs has been sanctioned to TNAU, under NADP 2012-13. The extension personnel are being trained and the training is in progress.

5.5.14 Special package for 'Cyclone Thane'

'Cyclone Thane' hit Tamil Nadu on 30.12.2011 and caused extensive damage to vegetables, spices, flowers and perennial horticulture crops like cashew in an extent of 48040.90 Ha in the districts of Cuddalore, Villupuram, Thanjavur, Nagapattinam, Kancheepuram, Vellore, Tiruvannamalai, Erode, Ariyalur, Dharmapuri and Salem affecting the livelihood of 70366 farmers. The Government had immediately released relief assistance of ₹14.48 crores to the farmers for the crop damages.

To rehabilitate the livelihood of the affected farmers, Hon'ble Chief Minister had announced a Special Package for horticulture crops to be implemented for a period of 5 years for a sum of ₹724.96 crores. The implementation of Special package was commenced during 2011-12 and a sum of ₹155 lakhs was spent towards supply of 19480 Nos. of pulses minikits which were distributed to the affected farmers for raising intercrop in the areas affected under perennial crops to derive income in a short duration.

During the post Thane period, natural rejuvenation of cashew orchards took place and the partially affected trees

have survived. As the perennial crops like cashew, jack are fragile when compared to other tree crops, the damage was heavy at the initial stage. Therefore, revised assessment was undertaken and effective area of damage of perennial crops was estimated to be 8678.59 ha. Based on the revised assessment, Special Package is being implemented at an outlay of ₹5407.97 lakhs.

1. With regard to cutting and removal of fallen trees and ploughing under back ended assistance mode, against the target of 8678.59 ha, so far 8315.22 Ha. have been cleared which includes an extent of 1314.41 Ha. cleared in 100% damaged fields and 6999.81 Ha. cleared in the partially damaged fields. A sum of ₹1938.87 lakhs has been provided to the farmers as back ended assistance.
2. Totally 22666 Vegetable minikits were completely distributed.
3. Flower crops which were damaged in 180.90 ha and medicinal plants damaged in 41 ha have been completely re-planted.
4. With regard to cashew, re-planting with VRI-3 grafts have been completed in an extent of 5406.76 Ha. which includes 234.56 Ha. replanted in 100% cleared fields and 5172.20 Ha. in the partially cleared fields.
5. A model high density cashew orchard has been established in 8 Ha in Melirruppu village, Cuddalore with bore well and drip irrigation and awareness has been created among farmers on cashew high density planting.
6. 19480 minikits have been distributed to farmers for taking up intercropping in the perennial crop fields.
7. Bore wells have been drilled in two places in Cuddalore district from TANHODA funds. 48 Joint Liability Groups have been formed.

8. 34 Junior Research Fellows and 1 Senior Research Fellow had been appointed to the Project Monitoring Unit, Cuddalore to implement the Special Package.

As per the revised assessment, the Special package of Cyclone Thane has been implemented at an expenditure of ₹3509.17 lakhs.

6. Organic Farming Policy

Organic farming subsumes integrated farming practices that not only gives healthy food, but also enables the farmer to use all resources that are available in his land. In this background, the Government of Tamil Nadu has initiated to evolve an Organic Farming Policy that will usher in an era of food safety.

Organic farming policy for Tamil Nadu is being drafted by a drafting committee consisting of eminent people, academicians, entrepreneurs and farmers who are working actively in the area of organic farming.

7. Projecting the importance and Values of Tender Coconut, Shikakai, Cotton and Other Traditional Agro Products

In order to create awareness among the people about the importance and values of Tender Coconut, Shikakai, Cotton and other traditional agricultural commodities, the **Hon'ble Chief Minister made an announcement** on the floor of Tamilnadu Legislative Assembly under Rule 110 on 02.11.2012. For this, the State Government has sanctioned ₹10 crores. This awareness programme will be implemented by departments of Agriculture, Horticulture, Forestry, Agricultural Marketing, Co-optex, Khadi & Village Industries Board and Tamil Nadu Agricultural University.

Arranging rallies and conducting seminars at block, district and state level have been programmed with proper documentation.

Press release, Broadcasting through FM radios, Production of short films and Erection of Iron sheet hoardings have been planned. Messages through Doordarshan Kendra, Chennai and Other private channels are also programmed to conduct the programme very successfully.

7.1 New State Horticulture Farm in Srirangam Taluk of Trichy District

During the Agriculture Demand 2012-13 in the State Assembly, the Hon'ble Minister for Agriculture made an announcement to establish a new State Horticulture Farm in Srirangam Constituency for the benefit of the farmers. Accordingly, a new State Horticulture Farm is being established in Thorakkudi village Srirangam taluk, Trichy district, in 10 acres at a cost of ₹50 lakhs. A model nursery is also being created in the farm at a cost of ₹25 lakhs enabled with Hi Tech structures for plant propagation and production. This farm is being developed to cater to the needs of farmers who require quality planting materials with an annual capacity to produce about 2 – 5 lakh numbers benefitting farmers in and around Trichy district.

8. 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 2012-13, this scheme was implemented at an expenditure of ₹190.04 lakhs covering 20879 farmers. During 2013-14, it is proposed to implement this scheme at an outlay of ₹718 lakhs to cover 30,320 farmers.

8.1 Modified National Agricultural Insurance Scheme

Modified National Agricultural Insurance Scheme (MNAIS) provides insurance coverage to notified horticultural crops viz., chillies, onion and tapioca in three districts of Sivagangai, Cuddalore and Namakkal. The objective of the scheme is to incorporate the necessary changes/ modifications in the NAIS and make it more farmers' friendly. During the year 2012-13, the farmers are provided with 50% premium subsidy at an expenditure of ₹0.573 lakhs covering 1769 farmers. During 2013-14, it is proposed to cover 14680 farmers at an outlay of ₹ 232 lakhs.

8.2 Weather Based Crop Insurance Scheme (WBCIS)

The objective 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, National Agriculture Insurance Scheme is not in operation in the districts where WBCIS is being implemented. The non loanee farmers can opt either National Agriculture Insurance Scheme or WBCIS. During 2012-13, this scheme was implemented at an expenditure of ₹25.43 lakhs benefitting 2313 farmers. During 2013-14, it is proposed to implement this scheme at an outlay of ₹52.50 lakhs to cover 8000 farmers.

9. Part II Schemes

During 2012-13, the following schemes have been sanctioned under Part II with a total outlay of ₹75 Lakhs and the construction works are under progress.

1. Establishment of District Horticulture Extension and Training Centre at Dharmapuri at a cost of ₹30 lakhs.
2. Input Storage Godown along with Horticulture Extension Centre in Coimbatore District at a cost of ₹25 lakhs.
3. Extension of District Horticulture Extension and Training Centres at Trichy and Erode at a cost of ₹10 lakhs each.