IN FULL BLOOM
NATIONAL HORTICULTURE MISSION
in
ANDHRA PRADESH
ANDHRA PRADESH

Formation of the State:

The state of Andhra Pradesh was formed in the year 1953 separating certain districts from the erstwhile composite Madras state, with State Capital at Kurnool. Later with the sacrifice made by "Amarjyothi" Sri. Potti Sreeramulu the state of Andhra Pradesh was created with effect from 1.11.1956 duly emerging the Telangana districts situated in the deccan plateau and delineating Bellary area to merge with Karnataka state. The final shape of the state comprised of 9 coastal districts, 4 Rayalaseema and 9 Telangana districts.

Location:

The state of Andhra Pradesh is situated on the globe in the tropical region between 12014' and 19054' North latitudes and 76046' and 84050' East longitudes. It is bounded on the North by Maharashtra, on the North-East by Orissa and Madhya Pradesh, on the East by Bay of Bengal, on the South by Tamilnadu and on the West by Karnataka States. The state has a long coastal line extending over 960 km from Ichapuram sands in Srikakulam district to Pulicat lake in Nellore district. Andhra Pradesh is the 5th largest state in the Indian Union both in terms of geographical area and population comprising of 23 districts 1,105 revenue mandals, 29,994 villages spreading over 2,76,814 sq.km.

Climate:

The state has a tropical climate with moderate diffusion to subtropical weather. Humid to semi-humid conditions prevail in the coastal area while arid to semiarid situations pronounce in the interior parts of the state, particularly Rayalaseema and some districts of Telangana. The areas covered by Deccan Plateau are characterized by hot summers with relatively pleasant winters.

Horticulture Status:

Area under Horticulture crops during 1982 was recorded as 3.7 Lakh Hac. in 2001 13.78 Lakh Hac was recorded with an annual production of 9.5 M.Ts, in 2002 1.5 Million Hac with an annual production of 10.00 M.Ts, in 2003-04 Area was recorded as 1.6 Million Hac with an annual production of 11.8 M.Ts, in 2004-05 the area is about 15.79 Lakh Hectares with production of 128 Lakh M.Ts and in 2006-07 the area is about 17.85 Lakh Hectares with production of 163.6 Lakh M.Ts.

Andhra Pradesh is the leader in Production of Citrus, Chillies, Turmeric and Oil Palm and also major producer of Cocoa, Cashew, Guava, Coriander, Banana, Ginger and Coconut.

Agro-Climatic Zones:

The cropped area in Andhra Pradesh is divided into seven zones based on the Agri-climatic conditions. The classification mainly concentrates on the range of rainfall received, type and topography of the
The districts covered by the different zones and their Agri-climatic characteristics are given below:

- Krishna and Godavari Basin
- North Coastal Zone
- North Telangana Zone
- Southern Telangana Zone
- Southern zone
- High Altitude & Tribal Areas
- Scarce rainfall zone

### Status of Horticulture in A.P.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sector / Crop</th>
<th>Production (in 000'MTs)</th>
<th>INDIA</th>
<th>A.P.</th>
<th>Rank</th>
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<tbody>
<tr>
<td></td>
<td><strong>SECTOR</strong></td>
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<tr>
<td>1</td>
<td>Spices</td>
<td>4102.7</td>
<td>1235.2</td>
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<tr>
<td>2</td>
<td>Fruits</td>
<td>63503</td>
<td>10722.3</td>
<td>2</td>
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<tr>
<td>3</td>
<td>Flowers (Loose)</td>
<td>654.08</td>
<td>88.81</td>
<td>3</td>
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<tr>
<td></td>
<td><strong>CROP</strong></td>
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<td></td>
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<tr>
<td>4</td>
<td>Mango</td>
<td>13792.1</td>
<td>3865.2</td>
<td>1</td>
<td>1</td>
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<tr>
<td>5</td>
<td>Citrus</td>
<td>7574.4</td>
<td>2997.9</td>
<td>1</td>
<td>1</td>
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<tr>
<td>6</td>
<td>Papaya</td>
<td>2685.9</td>
<td>1123.4</td>
<td>1</td>
<td>1</td>
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<tr>
<td>7</td>
<td>Tomato</td>
<td>10260.6</td>
<td>1579</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: NHB Database 2007-08
About NHM (National Horticulture Mission)

National Horticulture Mission has been launched as a Centrally Sponsored Scheme to promote holistic growth of the horticulture sector through an area based regionally differentiated strategies. The scheme will be fully funded by the Government and different components proposed for implementation financially supported on the scales laid down.

STRATEGIES

- To achieve the objectives of the National Horticulture Mission, the mission would adopt the following strategies.
- Ensure an end-to-end holistic approach covering production, post harvest management, processing and marketing to assure appropriate returns to growers/ producers.
- Promote R&D technologies for production, post-harvest management and processing.
- Enhance acreage, coverage, and productivity through: a) Diversification, from traditional crops to plantations, orchards, vineyards, flower and vegetable gardens; b) Extension of appropriate technology to the farmers for high-tech horticulture cultivation and precision farming.
- Assist setting up post harvest facilities such as pack house, ripening chamber, cold storages, Controlled Atmosphere (CA) storages etc, processing units for value addition and marketing infrastructure.
- Adopt a coordinated approach and promotion of partnership, convergence and synergy among R&D, processing and marketing agencies in public as well as private sectors, at the National, Regional, State and Sub-State levels.
- Where appropriate and feasible, promote National Dairy Development Board (NDDB) model of cooperatives to ensure support and adequate returns to farmers,
- Promote capacity-building and Human Resource Development at all levels.

STATE HORTICULTURE MISSION

- State Horticulture Mission has been launched in Andhra Pradesh in the year 2005 to promote holistic growth of the horticulture sector through an area based regionally differentiated strategies. This programme is under implementation in 18 districts, Srikakulam, West Godavari, Guntur, Prakasam, Nellore, Chittoor, Kadapa, Ananathapur, Kurnool, Mahabubnagar, Rangareddy, Medak, Nizamabad, Karimnagar, Warangal, Khammam, Adilabad, Nalgonda and 2 Tribal Areas (Rampachodavaram of East Godavari and Paderu of Visakhapatnam) of the state.

OBJECTIVES OF SHM

- To provide holistic growth in horticulture through research, technology promotion, extension, processing and marketing.
- To enhance the horticulture production to the level of 300 million tonnes by 2011-12.
- To establish convergence and synergy among various on-going and planned programs in the field of horticulture development.
- To promote the development and dissemination of technologies by blending traditional wisdom and frontier knowledge.
- To convert waste lands for producing fruits and vegetables.
- To plug wastages of horticulture produce.
To create facilities for marketing & processing.

**SHM STRATEGIES**

- End-to-end approach covering production, post harvest management, processing and marketing
- Promote Research and Development (R&D) of technologies for production, post-harvest management and processing.
- Enhance acreage of cultivation as well as productivity through diversification from traditional crops and adopting cluster approach for suitable crops / plantations.
- Adoption of measures to improve availability of quality seeds / saplings, fertilizers and pesticides.
- Extension of appropriate technology to the farmers including high – tech horticulture and precision farming.
- Improved irrigation, particularly micro – irrigation.
- Improving post harvest management, processing for value addition and marketing infrastructure.
- Coordinated approach and promote partnership, convergence and synergy among R&D, processing and marketing agencies in public as well as private sectors.
- Promoting NDDB model of cooperative approach to ensure support and adequate returns to farmers.
- Strengthening capacity building and Human Resource Development at all levels.

**COMPONENTS OF NATIONAL HORTICULTURE MISSION**

- Plantation Infrastructure & Development
- Production of planting material
- Establishment of new gardens
- Rejuvenation/ replacement of senile plantation
- Creation of water resources sources
- Protected Cultivation
- Promotion of INM/IPM
- Organic Farming
- HRD
- Technology dissemination through demonstration/Front line demonstration
- Post Harvest Management
- Processing & Value Addition
State Horticulture Mission of Andhra Pradesh has provided assistance to 34 Model Nurseries in Public Sector and 35 Model Nurseries in Private Sector with a financial assistance of Rs.317.74 lakhs and Rs.34.91 lakhs respectively. Small Nurseries were also assisted in both Public & Private Sectors with a financial assistance of Rs.49.50 lakhs & Rs.18.00 lakhs respectively from 2005-06 to 2008-09.
ESTABLISHMENT OF NEW GARDENS / AREA EXPANSION:

SWEET ORANGE

Sweet Orange and Acid Lime are the predominant citrus species grown in A.P. Area under Sweet Orange is more in arid scarce rainfall areas compared to Acid Lime grown in humid tracts. Ananthapur district with least rainfall in southern part of India grows 21000 ha of Citrus crops, predominantly Sweet Orange. Kadapa district was famous for Cheeni Orange (Sweet Orange) during the first half of 20th century. The district now has only about 3500 ha of Sweet Orange and about 500 ha of Acid Lime. Kurnool district has the least area of about 1900 ha under Sweet Orange and about 100 ha under Acid Lime. For the Groundnut district – Ananthapur, Sweet Orange provides the financial support. In A.P., Ananthapur is the second largest Citrus growing district after Nalgonda, another drought hit district in Telangana with fluoride contaminated ground water. Prakasam another partially drought prone district with the problem of fluoride in ground water is also emerging as an important Citrus belt with 19000 ha under Sweet Orange. Dry climate with low rainfall and deep under ground water favour this crop in these districts. Incidentally Sweet Orange is coming up well in the fluoride ridden districts.
AREA EXPANSION PROGRAMME - SWEET ORANGE GARDEN WITH DRIP – NALGONDA DIST.
With the launch of National Horticulture Mission in the State the following perennial crops & non-perennial crops were taken under Establishment of New Gardens for expansion:

**PERENNIAL CROPS:**

- Mango – 38,732 Ha. with a financial assistance of Rs.3,758.60 lakhs.
- Sweet Orange – 57,408 Ha. with a financial assistance of Rs.6,153.78 lakhs.
- Sapota gardens – 2,424 Ha. with a financial assistance of Rs.120.88 lakhs.
- Pomegranate – 1,862 Ha. with a financial assistance of Rs.151.67 lakhs.
- Guava – 349 Ha. with a financial assistance of Rs.35.92 lakhs
- Acid Lime – 2,281 Ha. with a financial assistance of Rs.192.62 lakhs.
SUCCESS STORY OF AREA EXPANSION OF POMEGRANATE

A. Farmers profile:

- Name : A. Siva Prasad & others.
- Village : Thippaipally
- Survey No : 62,68
- Extent : 25.00 Acs.
- Mandal : Orvakal
- District : Kurnool.

B. Baseline data:

- Which were the crops grown earlier : Field crops like Bengal gram, maize, ground nut etc were grown earlier

- What were the practices followed earlier in terms of :
  - Training and pruning : Since the crop is grown for the 1st time the farmers has got no knowledge of training & pruning usage of fertilizers,
  - Manuring
  - Irrigation
  - Plant Protection
  - Crop management
  - Marketing : Harvesting / Packing, irrigation, plant Protection aspects,crop Marketing etc.

- Annual expenditure : Rs.2,15,000/- Approx.
- Monetary returns in the past : Rs.4,90,000/- Approx.

C. Case study and statement of facts:
New changes / intervention through SHM:
1. Commercially profitable crop like pomegranate was recommended.
2. Pomegranate crop requires précised training and pruning for increase in yields and accordingly the farmer was trained in these aspects.
3. As the quality of the produce largely depends on efficient fertilizer use more so for good keeping quality and color development, organic manures including vermicompost and oil cakes were extensively used. In this regard a vermicompost unit has also been constructed.
4. As the major problem in pomegranate cultivation is fruit fly & fruit rot, these were effectively put under control by prophylactic measures of keeping plant as well as pruning instruments sanitized with the usage of bio pesticides & fungicides.
5. As this is a high income giving crop, the pruning and general crop management is thus followed so as to coincide the harvesting period with high prices.
6. Irrigation and fertigation are being done invariably though drip systems.
7. Harvesting of the produce and post harvest handling is done in plastic crates.

The crops responses:
1. Due to timely training & pruning, the plant has put forth vigorous and healthy flush and floral buds leading to qualitative & quantitative fruit development.
2. Judicious use of organic manure including vermicompost and organic concentrates like oil cakes along with inorganic fertilizers though fertigation has improved the size of fruit, color development and keeping quantity of fruit.
3. Irrigation though drip system has the tremendous effect on fruit development as the fruit cracking is relatively negligible, because the supply of water has been equated with the crop demand.

Present Annual expenditure and: 12,50,000/- approx.
Returns: 35,00,000/- approx.

Investments / subsidies:
The intervention of subsidy component has encouraged the farmer to meet the expenditures of different over heads and certain unforeseen expenses. The supply of inputs i.e., plant protection chemicals, fertilizers was very timely and its usage very effective.
A. **Farmers profile:**

- **Name:** D. Chinna Mabu, S/o. Pedda Hussain Saheb
- **Village:** Alinagaram(H), Bukkapuram(v).
- **Survey No:** 214, 212, 219
- **Mandal:** Mahanandi
- **District:** Kurnool

B. **Baseline data:**

1. Crop grown earlier is Banana (pedda patchha arati) Robusta.

   - **If the same crop as of now is grown:**
     1. The same crop is being grown but with a different variety G9 tissue cultured plants.
        The planting material is obtained from private firms and departmental laboratories (Bio technology laboratory).
     2. In majority of the cases the planting material used was suckers brought from Tamilnadu.
     3. The application of manures and fertilizers was done manually by digging a hole near the plant and channel irrigating the crop as and when required.
     4. In the case of plant protection no scheduled was followed, however application of Thimmet granules @ 15 gms/tree were applied 2 times one at 90 DAP another at 180 DAP to avoid soil insects.
5. The plantation was raised through suckers and the time required to reach maturity is nearly 12 months, it requires the external support to avoid tilting due to heavy bunch weight in the event of winds and gales.

6. Normally, the bunches after attaining maturity turn to pale green colour, are harvested and are sold in the local market or they are send to nearby adjoining districts.

- Annual expenditure : Rs.40,000–45000/- per ac
- Monetary returns in the past : Rs. 80000-85000/- per ac

C. Case study and statement of facts:

- New changes / intervention through SHM :
  1. The farmer has switched over from Robusta (sucker) to G.9 tissue culture plants because the entire plantation reaches maturity 2 months earlier without requiring any external support.
  2. The bunch weight of Robusta is only 20-25kg. whereas the tissue culture banana(G.9) is 30-35 kg.
  3. In tissue culture banana plants it is possible to grow 3-4 ratoon crop whereas with the suckers only 2 ratoon can be taken.
  4. Earlier only 1200 no. of plants per acre were grown at spacing of 6’x6’ but high density plantation is also tested and adopted at spacing of 6’x5’ with 1450 no. of plants per acre.
  5. Culling out of extra suckers was done by digging out the sucker from soil and the entire root system used to get damaged but now that the farmer is just cutting the sucker at ground level without causing any damage to the root system.
  6. Now that the farmer is following the correct fertilizer schedule and is being done by fertigation.
  7. The spraying schedule is being followed as the prophylactic measure.
  8. Mulching is also practiced as it reduces weed growth and soil borne diseases and the farmer has also observed less incidence of sigatoka disease.
  9. The vermicompost and neem cake are also widely used and believed to have reduced the leaf sport and sigatoka disease.
  10. The plantation is generally done in two seasons namely January and June keeping in view of the remunerative price in the months of October and March respectively.

- Present Annual expenditure : Rs. 60,000/- approx
- Present Annual returns : Rs. 1,70,000/- approx
REJUVENATION

MANGO

Even in the scarce rainfall zone Mango is mostly rain fed. However the area is limited to 6500 hectares (ha.) in Ananthapur and 4200 ha. in Kurnool. In the southern part of Kadapa the rainfall is slightly high and Mango is the major fruit crop extending to 18000 ha. In the Mango belt of these three districts Baneshan is the predominant Table variety followed by Thotapuri, Neelam and Neleshan, besides a few juicy varieties. Mangoes are grown mostly on red loamy soils with medium water holding capacity. Atmospheric humidity during the bearing period is low. Fruit quality and shelf life of mangoes grown in this tract are better than those grown the coastal districts of the state. The yields, however, are lower in view of drought situations prevailing in these districts.

State Horticulture Mission has induced the farmers to go in for Drip irrigation and Fertigation in the young orchards and rejuvenation of aged gardens of poor productivity to improve their yields. Orchard management practices were followed with the assistance received from SHM in many gardens. This strategy has worked well and productivity has increased from 30 to 50 percent in majority of the gardens. Adoption of new technology resulted in increasing the quality of the fruits and the income of the farmers.

Rejuvenated old orchards which produced higher yields and net returns

SUCCESS STORIES OF THREE FARMERS FROM KADAPA DISTRICT ARE SUMMARIZED BELOW

<table>
<thead>
<tr>
<th>Farmer</th>
<th>Village</th>
<th>Mandal</th>
<th>District</th>
<th>Extent</th>
<th>Age of garden</th>
<th>Previous Practices</th>
<th>New Technologies Followed</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.Y. Narasimha Reddy</td>
<td>Yendapally</td>
<td>Raychoti</td>
<td>Kadapa</td>
<td>1 ha.</td>
<td>20 years</td>
<td>Traditional</td>
<td>1. Pruning of dried twigs, opening of the top, cutting of disease effected branches and unwanted branches.</td>
</tr>
<tr>
<td>M.Rajamma</td>
<td>Mudumpadu</td>
<td>T.Sundupalli</td>
<td>Kadapa</td>
<td>1 ha.</td>
<td>20 yrs</td>
<td>Traditional</td>
<td>2. Ploughing of the garden</td>
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<tr>
<td>B.Govind Naik</td>
<td>Malluru</td>
<td>Chinamandem</td>
<td>Kadapa</td>
<td>1 ha.</td>
<td>30 yrs</td>
<td>Traditional</td>
<td>3. Preparation of basins and application of fertilizers 100 kg DAP, 50 Kg Urea and 250 kg. potash.</td>
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<td></td>
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<td>rain fed orchard</td>
<td>4. Spraying of 3 Kg. AP Formula-4.</td>
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<td>Previous yields (tons/acre)</td>
<td>7.2 tons</td>
<td>6 tons</td>
<td>6.8 tons</td>
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<td></td>
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<td></td>
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<tr>
<td>Gross returns Per acre(Rs)</td>
<td>28,890</td>
<td>24,000</td>
<td>26,780</td>
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<tr>
<td>Net returns Per acre(Rs)</td>
<td>18,000</td>
<td>16,000</td>
<td>19,200</td>
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<td>Present yields (tons/acre)</td>
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<td>8.8</td>
<td>9.6</td>
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<td>Gross returns per acre(Rs)</td>
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<td>44,000</td>
<td>48,000</td>
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<tr>
<td>Net returns per acre(Rs)</td>
<td>36,000</td>
<td>32,000</td>
<td>36,000</td>
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</table>
Mango Rejuvenation by Tribal Farmers

DE-HEADING & RE-GRAFTING OF 25 Yrs. OLD MANGO PLANTS
REJUVENATION CASHEW in Srikakulam District

Cashew one of the major horticulture crops grown in Srikakulam District with an extent of 19268 Ha with a productivity of 0.599 M.Tons per Ha. In Srikakulam District most of the cashew gardens are seedling origin and are grown as rain fed with poor maintenance.

In Srikakulam District 80% of the Cashew gardens are more than 15 years old and most of the gardens are severely affected with Cashew Root and Stem borer and tea mosquito resulted in less productivity. With a view to improve the productivity it is proposed to take up rejuvenation by removing and replacing the old, senile and severely pest affected cashew trees with high yielding varieties by following proper canopy management as well as nutrient, pest and disease management.
CASHEW REJUVENATION (2008-09)
G-SIGADAM MANDAL - SRIKAKULAM DIST
STATE HORTICULTURE MISSION

Basin Process

Pasting with Chemical
CASHEW REJUVENATION (2008-09)
SEETAMPETA MANDAL - SRIKAKULAM DIST
STATE HORTICULTURE MISSION

Flowering of Rejuvenated gardens

Fruiting of Rejuvenated gardens
During 2006-07, 1500 Ha. of Cashew gardens were rejuvenated with the assistance of State Horticulture Mission both in plain and tribal areas.
FARM PONDS

Farm ponds are manmade tanks constructed for holding the water which could be used during scarce season for the uninterrupted physiological activities of the crops.

It is constructed by excavating the soil, by depositing the soil on the bunds and by laying a Geo-Membrane HDPE sheet in the excavated tank for preventing the infiltration and seepage.

The water from bore wells, canals during the rainy seasons can be stored in these ponds and which can be used during scarce season.

Significant progress has been achieved in this component during 2009-10. Overwhelming response was received from 7 districts i.e., Kadapa, Ananthapur, Kurnool, Chittoor, Prakasam, Nalgonda and Mahabubnagar where the availability of water is not continuous throughout the year and the yield of water depletes during summer months.

500 No. of Farm Ponds of 5 types of standard sized i.e., 10 (14 x 14 x 4m), 20(21 x 21 x 4m),30(27 x 27 x 4m),40(31 x 31 x 4 m) & 50(35 x 35 x 4m) lakh liters ponds for irrigating 1,2,3,4 & 5 Ha. of crops respectively were constructed to provide water facility for crops like Mango, Sweet Orange during crucial period and also to facilitate raising of irrigated dry crops.

Sri. A. Indrasena Reddy, Uppunuthala Mandal, Mahabubnagar Dist.
Pond Size 21 x 21 x 4 Mtrs.
Sri. Ramchandraiah, Veldanda Mandal, Mahabubnagar Dist.
Pond Size 21 x 21 x 4 Mtrs.
SUCCESS STORIES

Name of the Beneficiaries: T. Saidulu goud/ Thandu Sridevi and others

Village: Cheruvupalli
Mandal: Thipparthi
District: Nalgonda
Farmpond capacity: 50 lakhs litres

Before construction of farm pond: Ground water depletion and inadequate water availability led to drying up of Citrus plants.

After construction of farmpond: The farmpond has been stored with 50 lakhs litres of water in the pond to provide life saving irrigation during April- May months.
PROTECTED CULTIVATION

Green Houses: A Greenhouse is a framed or inflated structure covered with a transparent or translucent material in which crops could be grown under the conditions of at least partially controlled environment for the best growth of plants to achieve maximum yield and superior quality.

- **Achievement:** Since inception of State Horticulture Mission, 30 Green Houses have been established in different districts of Andhra Pradesh.
- **Present Practices:** Vegetables are being cultivated especially during summer season. Cut flowers like Gerberas, Carnation are being taken up in 1000 sq mt / 560 sqmt Green Houses. SHM is providing 50% subsidy subject to a maximum of Rs.325/ sq.mt limited to 1000 sq.mt per beneficiary
- **Experience:** High profitability due to off season cultivation of vegetables. Cut flowers fetch high market value due to the increased quality as they are grown in controlled conditions.
Shade Nets: Shade net is a structure enclosed by agro nets or any other woven material to allow required sunlight, moisture and air to pass through the gaps. It creates an appropriate micro climate conducive to the plant growth.

- **Achievement:** An area of 627 ha is covered under shade net houses in Andhra Pradesh
- **Present Practices:** Raising of seedlings in the shade houses is a regular practice. Apart from that vegetables are also being cultivated in the shade SHM is providing 50% subsidy subject to a maximum of Rs.7/ sq.mt limited to 2ha per beneficiary.
- **Experience:** Disease free seedlings can be produced. Seedlings are grown before hand by the farmers and are being sown in the field to capture early market.
RAISING OF SEEDLINGS UNDER SHADE NET

RAISING OF VEGETABLE SEEDLINGS
**Mulching**: Mulches are materials placed over the soil surface to maintain moisture and improve soil conditions. Mulch can reduce water loss from the soil, minimize weed competition, and improve soil structure. Properly applied, mulch can give landscapes a handsome, well-groomed appearance.

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**LAYING OF MULCH**

- **Achievement**: An area of 80,000 sq.mt is brought under mulching for conserving soil moisture, controlling weeds, etc.
- **Present Practices**: The present practice followed in mulching is the use of plastic mulch. Assistance up to 50% of the total cost subject to a max of Rs 7000/ha limited to 2ha per beneficiary.
- **Experience**: 1. Found economical
   2. As weeding has become drudgery in cultivation, use of mulch had served farmers when there was shortage of labour.
In Nalgonda District Sweet Orange is the main crop under cultivation occupying an area of 81583 Ha. Nalgonda is predominantly having Red (44%) and Chalka Soils (47%) with calcium traces, most of the gardens in pre-bearing and bearing condition exhibit multi-micronutrient deficiencies like Zinc, Iron, Manganese. With this micro-nutrient deficiency the plants become pale yellow and unable to synthesis the food and become weak which result in creating favourable situation for attack of various pest and diseases like dry root rot, gummosis, canker, mangu-mite attack etc. Dry root and mangu-mite are very serious and predominant in Nalgonda District

**DRY ROOT ROT:**

It is caused by fungi species called “Fusarium, Macrophomina and Diplodia. In affected trees, the roots get rottened. Further these trees exhibits wilting even after sufficient irrigation. The affected trees also flower and fruit heavily. This is one of the important symptoms of dry root rot. In advanced situation, the tree dries off.

**MANGU-MITE:**

This is caused by “mites”. These mites attack small fruits and suck the juice, so that the rind becomes purple in color. The Mangu affected fruits are small in size with hard purple color rind. These fruits do not fetch good price in markets rendering farmers realize less returns.
**IMPLEMENTATION:** Considering this critical situation for sustainability of Sweet Orange cultivation in Nalgonda District, INM/IPM component was implemented in 9056 Ha. by providing required inputs on 50% assistance not exceeding Rs.1,000/- per Hac. under INM farmers were supplied with AP Formula – 4 & 7 for foliar as well as soil application for correcting multi micro nutrient deficiencies as these micro nutrients play vital role in photosynthesis, flowering and fruiting.

Under IPM, the following inputs are supplied to farmers on 50% assistance limited to Rs.1,000/- per ha..

**Dry root rot** : Carbendizam, Trichoderma Viridae and Pseudomonas

**Mangu-mite** : O-mite, Ethion and Diphenthiron

The farmers were motivated to use the above inputs for containing dry rot and mangu-mite, so that the orchards affected with dry root rot are given treatment with fungicides supplied under the scheme and saved their plants from drying off. The inputs supplied under dry root rot i.e. carbendizam helped in reducing the microbial load in soil that reduced the incidence of disease and attack of dry root rot. Similarly, Trichoderma Viridae and pseudomonas (bio-fungicides) are antagonistic to the fungus thereby creating a safe guard mechanism on plant root. Similarly, the new insecticides (O-mite) supplied to farmers for controlling mangu-mite helped the farmers to fetch better price in the market as these insecticide sprays in monthly intervals prevented / reduced the “Mangu” problem in Sweet Orange

The proof of this is that one of the farmers, Sri. Madhava Reddy, Pullemla village of Chandur Mandal, availed this scheme and got better price in market for his produce @ Rs.6000/- to 7000/- per ton against the price of Rs.2500/- to 3000/- per tone for Mangu affected produce in Hyderabad market.
ORGANIC FARMING – VERMICOMPOST UNITS

The main thrust of the programme is to build the capacities of the farmers so as to reduce their dependence on the chemical inputs and encourage the Bio/organic resources for growing fruits and vegetables.

Vermicompost units established with the support of National Horticulture Mission are networked and the production is being tied up with Area Expansion and Rejuvenation components of State Horticulture Mission in selected districts.

SUCCESS STORIES OF TWO FARMERS FROM PRAKASAM DISTRICT ARE SUMMARIZED BELOW

(1) Sri. Mekala Shankara Rao
     Village: Tokapally
     Mandal: Peddaraveedu
     District: Prakasam Dt.
     Extent: 5.45 Acres
     Age of garden: 13 years
     Yield* (Before): 5 tonnes
     Yield* (After): 12.5 tonnes

(2) Sri. Jillela Srinivasa Reddy
     Village: Tokapally
     Mandal: Peddaraveedu
     District: Prakasam Dt.
     Extent: 5 Acres
     Age of garden: 12 yrs
     Yield* (Before): 5 tonnes
     Yield* (After): 12 tonnes
*Yield before and after shifting to organic farming

3775 NO. OF VERMICOMPOST UNITS WERE CONSTRUCTED SINCE INCEPTION.

ORGANICALLY GROWN CITRUS ORCHARD
II. Success Stories in implementation of the schemes implemented in the jurisdiction of A.D. Horticulture–I, Eluru during the year, 2008–09

A. Construction of Vermi Compost Units:

Name of the Farmer: Sri Manike Satyanarayana, S/o. Krishnamma

Address: Nimmalagudem Village, Jangareddygudem Mandal, West Godavari District.

Category: General, Small Farmer

Total extent: 1.02 Hectares.

Crop: Acid Lime.

Sri Manike Satyanarayana is a small farmer cultivating Acid lime crop. The farmer has constructed Vermi Compost Unit in his garden. Under State Horticulture Mission, 2008–2009, the farmer has been sanctioned subsidy of Rs.15,000/- towards construction of Vermi Compost Unit.

Previously, the farmer was cultivating Acid lime with inorganic Straight fertilizers and Complex fertilizers. It has been observed that the yields are low and the qualities of the fruits are not satisfactory and Micro nutrient deficiencies have been frequently observed in the Acid lime garden. The Department of Horticulture has motivated the farmer to undertake construction of Vermi Compost Unit in his acid lime garden.

The farmer has constructed Vermi Compost Unit of 600 Cubic feet. The farmer is using farm yard manure and organic waste in the Vermi Compost Unit. On an average, the farmer is receiving Vermi Compost for every 45 days cycle. In each cycle, the farmer is obtaining 4 Metric tones of Vermi Compost. The farmer is applying the Vermi Compost to Acid Lime trees @ 20 Kg per tree per year. After utilizing the Vermi Compost for his own garden, the farmer is selling the Vermi Compost to other farmers @ Rs.2500/- per one Metric tone. It has been observed that, the Micro Nutrient deficiencies in the garden have been corrected, trees are showing healthy appearance, Flowering and Fruiting percentage increased, both the production and productivity of the garden has been increased.
The farmer has become a model for the neighbouring farmers to practice Vermi Compost as a part of organic farming. The farmer has become successful in correcting the nutrient deficiencies in his garden and also receiving additional income from the Vermi Compost Unit. By observing the success of the Unit, many farmers in the surrounding villages are interested to construct Vermi Compost Units in their gardens.
POST HARVEST MANAGEMENT

Presently the estimated losses are about 30-40%. Due to the increasing population and demand and limited resources it is essential to reduce the Post harvest Losses to ensure food security and regulation of price in the market.

Components under PHM

DIFFERENT COMPONENTS OF PHM

- Pack Houses
- Primary Pack house
- Intermediate Pack House
- ripening chamber,
- cold storage unit,
- controlled atmosphere storage,
- reefer vans
- Functional Infrastructure for Collection, Grading and Minimal Processing and
- Mobile processing units

COLD STORAGE UNIT

SUCCESS STORY ON PACHAMUKHA COLD STORAGE, GUNTUR

Product stored : Chillies (dried)
Source of produce : 100% from Guntur District
Total Capacity : 5000 MT
Rental Charges : Rs 100/Bag

(Including insurance and handling charges)

Percentage of occupation : 100%

Total Rental charges : Rs 1,00,000,000.00
Expenditure:

1. Power : Rs 15,00,000/year
2. Maintenance : Rs 8,40,000 / year
3. Interest on Loan : Rs 25,44,000 / year
4. Labor charges&insurance : Rs 15,00,000 / year

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Total expenditure : Rs 63,84,000.00/year

(Including interest on promoters share and depreciation)

PACHAMUKHA COLD STORAGE, GUNTUR
PATTERN OF ASSISTANCE

Unit Cost : 200.00 Lakhs
25% credit linked back ended subsidy : 50.00 Lakhs

RIPENING CHAMBER

CONCEPT OF RIPENING CHAMBER

Frequently fruits are stored in closed rooms with calcium carbide which emits ethylene gas and also heats up the room, triggering the ripening process – But this method can lead to health problems and fruits ripened in this way can cause stomach problems and lead to other allergic reactions as well – it is continuous inflow of fresh air and ethylene gas into ripening chamber in correct proportions to form a fruit ripening gas mixture that ripen fruit in very short period of time and improves quality.
More than 100 number of farmers have been benefitted by the establishment of the ripening chambers

**PATTERN OF ASSISTANCE**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Unit Cost</td>
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<tr>
<td>25% credit linked back ended subsidy</td>
<td>4.00 Lakhs</td>
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**HUMAN RESOURCE DEVELOPMENT**

In order to disseminate the technology training benefits, the State has set up Regional Training Institute at 6 different locations which are managed by experienced staff. With the help of these institutes, we have trained 2,05,836 farmers since inception