

# **NATIONAL HORTICULTURE MISSION**

## **OPERATIONAL GUIDELINES**

### **1. INTRODUCTION**

National Horticulture Mission (NHM) will be implemented in all the States and Union Territories of India except the North Eastern States, Himachal Pradesh, Jammu & Kashmir and Uttaranchal (for which a separate Technology Mission for integrated development of horticulture exists) to promote holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushroom, spices, flowers, aromatic plants, cashew and cocoa. Programmes for the development of coconut will be implemented by the Coconut Development Board (CDB), independent of the Mission. This will be a Centrally sponsored scheme in which Government of India shall provide 100% assistance to the State Missions during Tenth Plan. During the XI Plan, the Government of India assistance will be 85% with 15% contribution by the State Governments.

### **2. MISSION OBJECTIVES**

The main objectives of the Mission are:

- i) To provide holistic growth of the horticulture sector through an area based regionally differentiated strategies which include research, technology promotion, extension, post harvest management, processing and marketing, in consonance with comparative advantage of each State/region and its diverse agro-climatic feature;
- ii) To enhance horticulture production , improve nutritional security and income support to farm households;
- iii) To establish convergence and synergy among multiple on-going and planned programmes for horticulture development;

- iv) To promote, develop and disseminate technologies, through a seamless blend of traditional wisdom and modern scientific knowledge;
- v) To create opportunities for employment generation for skilled and unskilled persons, especially unemployed youth;

### 3. STRATEGY

To achieve the above objectives, the mission would adopt the following strategies:

- (i) Ensure an end-to-end holistic approach covering production, post harvest management, processing and marketing to assure appropriate returns to growers/producers;
- (ii) Promote R&D technologies for production, post-harvest management and processing;
- (iii) 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.
- (iv) 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;
- (v) 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;
- (vi) Where appropriate and feasible, promote National Dairy Development Board (NDDB) model of cooperatives to ensure support and adequate returns to farmers;
- (vii) Promote capacity-building and Human Resource Development at all levels.

#### 4. MISSION STRUCTURE

##### (I) National Level

##### (a) General Council

4.1 The Mission will have a General Council (GC) at the National level under the Chairmanship of the Union Agriculture Minister. The composition of the GC will be as follows:

Minister of Agriculture	:	Chairman
Ministers of Commerce, Health, Finance, Food Processing Industries, Panchayati Raj, Science & Technology, Rural Development	:	Members
Secretaries - Ministry/Department of Agriculture, Commerce, Health, Finance, Food Processing Industries, Panchayati Raj, Rural Development, Science & Technology Chairperson, NABARD Director General, ICAR	:	Members
Grower's representatives & Experts (14)	:	Members
Mission Director	:	Member Secretary

4.2 The Council will be the policy making body giving overall direction and guidance to the Mission, and will monitor and review its progress and performance. The GC will meet at least twice a year.

##### (b) Executive Committee:

4.3 There will be an Executive Committee (EC) headed by the Secretary, Deptt. of Agriculture & Cooperation to oversee the activities of the Mission and to approve the Action Plans. The EC will comprise of the following:

Secretary (A&C)	:	Chairperson
Secretaries - Ministry/Department of Commerce, Health, Food Processing Industries, Panchayati Raj, Rural Development, Science & Technology	:	Members
Institutions – Director General, ICAR; Director General, CSIR; Chairperson, NABARD; Additional Secretary (In charge of Horticulture, Department of Agri. & Cooperation); Additional Secretary & FA, Department of Agri. & Cooperation; Horticulture Commissioner; Chairman, APEDA; Managing Director, NHB; Managing Director, NCDC; Chief Executive Officer, National Medicinal Plant Board; Department of Ayurveda, Yoga, Naturopathy, Unani & Siddha (AYUSH), Chairperson, CDB; Agriculture Marketing Advisor, Department of Agri. & Cooperation; Joint Secretary, National Committee on Plasticulture Application in Horticulture.	:	Members
Three Experts (Production, Post Harvest Management and Marketing)	:	Members
Mission Director	:	Member Secretary

4.4 The EC will be empowered to reallocate resources across States and components and approve projects on the basis of the approved subsidy norms. EC will use its discretion in approving components of a project for which norms have not been prescribed. The subsidy for such components will not be more than 50% of the cost for small & marginal farmers and 30% of the cost for other farmers.

4.5 The Horticulture Division in the Department of Agriculture & Cooperation will provide the necessary support to the EC and the GC and will administer the NHM. The EC will ensure smooth functional linkages among different agencies. The EC shall meet every quarter but at least once in two months in the initial stages of the Mission.

## **(II) State Level**

### **(c) State Level Executive Committee**

4.6 A State level Executive Committee (SLEC) will be constituted by the State Government under the Chairmanship of the Agricultural Production Commissioner, or Secretary Horticulture/Agriculture having representatives from other concerned Departments, the SAUs, ICAR Institutes, Grower's Associations, etc for overseeing the implementation of the programmes. Central Government will nominate its representative who will be a Member in the SLEC. The State Mission Director to be appointed by the State Government will be the Member Secretary of SLEC. At the operational level, State Governments will have the freedom to nominate, or create a suitable autonomous agency to be registered under the Societies Registration Act for implementing the Mission programmes at the State and District levels. The Panchayati Raj Institutions existing in the State should be fully involved in the implementation structure.

4.7 State and sub-state level structures will be evolved keeping in view the need for getting adequate returns for the produce of the farmers and eliminating middlemen to the extent possible. The state will have the flexibility to adopt an appropriate model viz cooperative federations in the pattern of NDDDB, incorporated companies (with cooperatives for procurement, joint sector for processing and corporates for marketing) or orient existing institutions to carry out the tasks of the Mission. The services of identified State Designated Agencies which have been implementing various horticulture development programmes such as Integrated Development of Horticulture in Tribal/Hilly Areas, Development of Beekeeping may be availed for implementing the programmes in the Mission framework.

4.8 The State level agency will have the following functions:

- Prepare Perspective and annual State Level Action Plan in consonance with Mission's goals and objectives and in close coordination with Technical Support Group, State Agriculture Universities (SAU) and ICAR institutes and oversee its implementation;
- Receive funds from the national mission authority, the State Government and other sources for carrying on the mission's activities, maintain proper accounts thereof and submit utilization certificate to the concerned agencies.
- Release funds to the implementing organizations and oversee, monitor & review the implementation of the programmes.
- Organize base-line survey and feasibility studies in different parts (District, sub-District, or a group of Districts) to determine the status of horticultural production, its potential and demand, and tailor assistance accordingly. Similar studies would also be undertaken for other components of the programmes;
- Assist and oversee the implementation of the Mission's programmes in the State through Farmers, Societies, NGOs, growers, associations, self-help groups, State institutions and other similar entities;
- Organize Workshops, Seminars and training programmes for all interest groups/associations at the State level, with help of State Agriculture Universities and ICAR Institutes and other institutions having technical expertise.

### **(III) District Level**

4.9 At the District level, the District Mission Committee (DMC) will be constituted by the State Government. It will be responsible for project formulation and monitoring. The DMC may be headed by the Chief Executive Officer (CEO) of Zila Parishad/CEO of District Rural Development Agency (DRDA) having as its members, representatives from concerned

line Departments, growers' associations, Marketing Boards, Self Help Groups and other Non-Governmental organizations. The District Planning Committee and Panchayati Raj Institutions (PRI) will be integrated/involved in implementing the programme depending on their expertise and available infrastructure. The District Horticulture Officer/District Agriculture Officer will be the Member Secretary.

#### **(IV) Technical Support Group (TSG)**

4.10 The Mission will have a strong technical component and domain experts will be central to the management of the Mission. Technical support to the Mission at the National and State Levels will be provided by the National Horticulture Board, which will be suitably strengthened by experts and technical personnel to advise, formulate, appraise and monitor the implementation of the Mission's programmes. The Technical Support Group (TSG) will be housed in the NHB, which will have flexible norms for recruiting professionals, on contract. Service providers could also be engaged for providing the technical services in accordance with the terms of reference laid for the purpose and approved by EC. The TSG would comprise of personnel at different levels, who will provide the technical services and their honorarium will be fixed on the basis of qualification, experience, last pay drawn, if retired from Government. Fresh graduates having knowledge in horticulture, computer professionals, MBA graduates, young professionals could also be a part of the TSG. The National level TSG will provide support at the Central level.

4.11 TSG will have the following role and functions:

- (i) To visit the States regularly and frequently to provide guidance in organizational and technical matters.

- (ii) To compile materials for conduct of regional workshops in respect of different plantations and different aspects viz. production, post-harvest management, processing, marketing. There will a year long calendar of capacity building and promotional events, workshops/seminars on different subjects in different regions.
- (iii) To mount Supervision & Evaluation Mission.
- (iv) To conduct studies on different aspects of horticulture in different regions.
- (v) To document and disseminate case studies of success stories.
- (vi) Assist the States in capacity building programmes.
- (vii) Undertake publicity/information campaign to promote the Missions objectives.

4.12 The State Missions can also set up State level TSG for project formulation, appraisal and concurrent monitoring. State Missions will have freedom to hire consultants for providing technical support at the State as well as District levels.

4.13 The indicative administrative structure of the NHM at the national State and sub-state level is given in **Annexure –I**.

## **5. PROCEDURE FOR APPROVAL AND IMPLEMENTATION**

5.1 States will be required to prepare a State Horticulture Mission Document (SHMD) projecting a plan of action for the X Plan and XI Plan periods. The SHMD will form the basis for preparing Annual Action Plans (AAP). The AAP will be area based, on the basis of existing potential for horticulture development, available infrastructure for monitoring and implementation, available unspent balance out of previous release and capacity to absorb the funds in commissioning the project. The Ministry of Agriculture would communicate the

tentative outlay for the year by April/May if not earlier to each State which in turn will indicate sector-wise/district-wise allocation. The agencies at the District level will prepare the Annual Action Plan (AAP) keeping in view their priority and potential and submit the plan to the State Horticulture Mission within the allocated sum. The States could engage TSG/Consultancy services for preparing the SHMD and AAP. The State Horticulture Mission in turn will prepare a consolidated proposal for the state as a whole, get it vetted by the State Executive Committee (SEC) and furnish 25 copies of the same to the Ministry of Agriculture (MoA) for consideration by the National Executive Committee. The SHM may spend up to 5% of the annual allocation for formulating the SHM and Annual Plans. Attempt would be made in the AAP to address all the issues relating to horticultural development covering production, post-harvest management and marketing. Format for submission of Annual Action Plan to the Ministry of Agriculture is given at **Annexure-II**.

5.2 The SHM will upload the AAP, as communicated to the National level EC indicating approval by SLEC, on the web site exclusively created for the purpose. The same will be replaced after its approval by National level EC. Attempts will be made to display the position regarding approvals of the AAP on line.

## **6. ROLE OF EXISTING NATIONAL AGENCIES WORKING IN THE AREAS OF HORTICULTURE**

### **National Horticulture Board (NHB), Gurgaon**

6.1 NHB will house the national level TSG and arrange to make payments to the personnel. An officer of NHB will be exclusively dedicated for interacting with the DAC. NHB will also implement programmes as per its mandate.

### **Directorate of Cashew and Cocoa Development (DCCD), Kochi**

6.2 DCC will be responsible for coordinating and monitoring the activities relating to plantation crops excluding coconut and arecanut. They will also be responsible for organizing National level training programmes, seminars & workshops on cashew and cocoa on regular intervals.

### **Directorate of Arecanut and Spices Development (DASD), Calicut**

6.3 DASD will be responsible for coordinating and monitoring the activities on development of arecanut, spices, and aromatic plants. They will also be responsible for organizing National level training programmes, seminars and workshops on spices and medicinal & aromatic plants on regular intervals.

### **National Committee on Plasticulture Applications in Horticulture (NCPAH), New Delhi**

6.4 NCPAH will be responsible for coordinating and monitoring activities relating to precision farming and hi-tech horticulture through the Precision Farming Development Centres (PFDCs).

### **Coconut Development Board (CDB), Kochi**

6.5 Although the CDB will function and implement its schemes on development of coconut, the Board will be involved in programmes involving coconut based farming system involving inter cropping of vegetables, flowers spices, aromatic plants etc.

### **Agricultural and Processed Food Products Export Development Authority (APFDA), New Delhi**

6.6 APEDA, Ministry of Commerce will be involved to promote coordinated development of AEZ for horticultural crops.

**Directorate of Marketing & Inspection (DMI), New Delhi**

6.7 DMI will be involved for providing market intelligence and monitoring of programmes relating to marketing.

**Ministry of Food Processing Industries (MFPI), New Delhi**

6.8 MFPI will be responsible for implementing and monitoring programmes relating to processing of horticultural produce, out of their own budget provision.

**National Medicinal Plants Board (NMPB), New Delhi**

6.9 NMPB would implement its scheme relating to development of medicinal plants in coordination with the Mission.

**National Horticulture Research & Development Foundation (NHRDF), Nasik**

6.10 The NHRDF will be involved for monitoring programmes relating to development of vegetables and vegetable seeds.

6.11 These organizations' schemes relating to horticulture will be coordinated with that of the NHM and in exceptional cases, these National level Agencies and others like NABARD, NCDC, NAFED, could be funded out of the NHM budget for taking up innovative projects.

**7. POSITION OF ONGOING SCHEMES**

7.1 Presently, horticulture development programmes are being implemented through a number of Schemes viz. National Horticulture Board (NHB) programmes, Coconut Development Programmes, Technology Mission for Integrated Development of Horticulture in North Eastern States (TMNE), Human Resource Development (HRD) in Horticulture, Integrated Development of Horticulture in Tribal and Hilly Areas and Horticulture Programmes under the Macro Management Scheme. Of these, the schemes on HRD and

Tribal Areas and Programmes under Macro Management will be subsumed under National Horticulture Mission (NHM). The Macro Management scheme provides flexibility to the States to allow new interventions within 10 per cent of the total allocation for the State; which will be maintained in the NHM. The NHB programmes are entrepreneur-driven and the Board would continue to implement its programmes. The NHB will also provide a launching pad for the Mission, by way of pooling experts and housing the Technical Support Group. Technology Mission in North Eastern States (TMNE) programmes, which are focused for the development of the North Eastern and Himalayan States, will continue as a separate scheme. The Coconut Development Board (CDB), which has been created through an Act of Parliament for overseeing the development of coconut in the country, would continue to independently implement coconut development programmes.

## **8. MISSION INTERVENTIONS**

8.1 The Mission will be demand and need based in each segment. Technology will play an important role in different interventions. Technologies such as Information Communication Technology (ICT), Remote Sensing and Geographic Information System will be widely used for planning and monitoring purposes including identification of sites for creating infrastructure facilities for post harvest management, markets and production forecasts.

8.2 The interventions envisaged for achieving the desired goals would be varied and regionally differentiated with focus on potential crops to be developed in clusters by deploying modern and hi-tech interventions and duly ensuring backward and forward linkages. Details of the components, its estimated cost along with the approved norms of assistance is given in **Annexure-III**.

### **Key Elements of NHM**

- Base line survey (Format at Annexure-II)
- Area based Annual and Perspective Plans based on end to end approach with backward and forward linkages (Para 3, 5.1).
- Research to be guided by Research Advisory Committee on the basis of felt need by Boards such as ATMA and SHM and funded by respective organizations out of their own budget (Para.8.3).
- Demand driven production based on cluster approach for potential crops having comparative advantage in different areas (Para 8.4).
- Best quality seeds and planting material to be produced and made available (Para 8.5).
- Technology driven programmes to improve productivity and quality (Para 8.2), e.g.
  - Introduction of improved varieties.
  - Rejuvenation with improved cultivars.
  - Use of Plastics.
  - High Density Plantations.
  - Capacity building of farmers and personnel (Para 8.24).
- Marketing infrastructure development linked with reforms (Para 8.46).
- Meticulous reporting and monitoring (Para 4.8).
- Data base generation, compilation and analysis (Para 4.10).

### **Research & Development**

8.3 The programmes under horticultural research will concentrate on technology generation as appropriate to each region/state keeping in view their specific agro-climatic and socio-economic conditions. Emphasis will be on effective transfer and dissemination of production technologies available in India and abroad. The Indian Council of Agricultural Research (ICAR) and Council of Scientific and Industrial Research (CSIR) in association with State Agricultural Universities (SAUs) and other research institutes/organizations in the public and private sectors having capabilities in this area will be partners in research programmes. Field experience of growers will be drawn upon to shape and design necessary interventions. Research programmes towards this end will be guided by an apex Research

Advisory Committee (RAC) and will address identified and emerging needs in the areas of planting material, production technology, post harvest technology, processing and value addition. Such research projects will work in tandem with Strategic Research Extension Programme (SREP) at the District level under the Agricultural Technology Management Agencies (ATMA) with focus on horticulture. Agencies taking up research projects would be provided assistance in accordance with the ongoing schemes of ICAR/CSIR without any financial commitment out of NHM budget. In short, the idea is to identify the research areas needing priority attention for achieving the Mission goals which will be executed by the existing research organizations out of their own funds.

### **Production and Productivity Improvement**

8.4 The Mission will specially focus on increasing both production and productivity through adoption of improved technologies for ensuring quality, including genetic up gradation of all horticultural crops. Special emphasis will be given on adoption of area based cluster approach for developing regionally differentiated crops, which are most suitable for the state/region. Availability of good quality planting material being central to the development of horticulture, will receive focused attention and efforts will be made to create necessary infrastructure in the form of nurseries and upgrade existing tissue culture units. This will be supplemented with plantation development programmes through addition of new areas under improved varieties to meet market demand.

### **Production & Distribution of Planting Material**

#### **Model Nurseries**

8.5 Production and distribution of good quality seeds and planting material is an important component of the Mission. Most of the States are having a network of nurseries for producing planting material, which were established through Central or state assistance. To

meet the requirement of planting material for bringing additional areas under improved varieties of horticultural crops and for rejuvenation programme for old/senile plantations, assistance would be provided for setting up new nurseries under the Public as well as Private sector. Infrastructure for model nurseries would include the following:

- (i) Mother stock block maintenance under polycover with a maximum area of 500m<sup>2</sup> to protect from adverse weather conditions
- (ii) Raising root stock seedlings under net house conditions
- (iii) Propagation house a maximum of 500m<sup>2</sup> tropical polyhouse with ventilation having insect proof netting in the sides and fogging and sprinkler irrigation systems.
- (iv) Hardening/maintenance in insect proof net house maximum of 2000m<sup>2</sup> with 35% light screening properties and sprinkler irrigation systems.
- (v) Pump house to provide sufficient irrigation with peak load of 5mm per day and water storage tank to meet at least 2 days requirement.
- (vi) Soil sterilization -steam sterilization system with boilers.

8.6 It has been estimated that a Model nursery with an area of 4 ha would cost Rs.18.00 lakhs per unit. The Model nurseries which would be established under the Public sector will be eligible for 100% assistance of a maximum of Rs.18.00 lakhs per unit. The Model nurseries would produce 4 lakh plants per year. It would be the responsibility of the nurseries to ensure quality of the planting material. For model nurseries in the private sector the assistance will be 50% of the cost subject to a maximum of Rs. 9.00 lakhs per unit.

### **Small Nurseries**

8.7 Small nurseries, covering area of about one ha, will have infrastructure facilities to hold 60,000 to 80,000 plants. These plants will be maintained for a period of approximately 9

months. Infrastructure for the small nurseries will consist of a net house of 2000m<sup>2</sup>, to screen 35% light. The floor of the net house will have raised beds of one-meter size, which will be covered with mulching sheet to control weed and ground pathogens. Micro sprinkler irrigation system will be provided over each bed throughout the net house. The nurseries will also have provision for solar sterilization of soil media to meet the contingency requirement of containers/transfer from small to big containers.

Small nurseries would cost Rs.3.00 lakhs per unit. The assistance will be to the extent of 100% of the cost for the Public sector and 50% of the cost subject to a ceiling of Rs.1.50 lakhs for the nurseries in the private sector. The small nurseries would produce at least 50,000 plants per year.

8.8 It would be the responsibility of the nurseries to ensure quality of the planting material through self accreditation. Nurseries will also be regulated under the legislation in force relating to seeds and planting material. The nurseries could be multi-crop or crop specific depending upon the requirements of planting material in the locality/project area. Hence, the type of nursery proposed to be established should be clearly indicated in the Action Plan. The Plan should also contain an assessment of the existing nurseries, the number of planting material being produced, crop wise and the additional requirement of nurseries.

### **Tissue Culture Units**

8.9 No new Tissue Culture (TC) units will be set up under the Mission. However, since a large number of TC units already exist, some of which need strengthening/rehabilitation, assistance would be provided for rehabilitation/ strengthening of existing TC Units subject to a maximum ceiling of Rs.8.00 lakhs for the TC Units in the Public sector and 50% of the cost with a ceiling of Rs.4.00 lakhs for the TC units in the Private sector.

## **Vegetable Seed Production**

8.10 The programme of production of disease free seedlings in vegetables will specifically apply to hybrid cultivars of vegetables in which case the seed is very costly and there is low germination of seeds and heavy mortality of seedlings take place when raised in open nurseries. Wherever necessary, plug technology and environment control for germination, growth and hardening of vegetable seedlings could be introduced. This will ensure production of seedlings in such a manner that early and late crops will be possible which in turn will ensure that production of vegetable takes place over a longer period and the alternation of glut and scarcity period is minimized. In addition, hybrid seeds will be selected after trials, which will ensure high production.

8.11 The infrastructure facilities will consist of a green house with a maximum area of 2000 m<sup>2</sup> designed for tropical conditions, with insect netting on the sides and rolling poly sheets. The plants will be propagated in plastic trays having small plugs. The plugs will be of varying sizes for different crops. Sprinkler irrigation system will be installed. The infrastructure for media sterilization i.e. steam boiler, holding bins, etc will also be provided.

8.12 The assistance for vegetable seed production will be Rs.50,000/- per ha for the Public sector and 50% of the cost subject to a ceiling of Rs.25,000/- per ha to the Private Sector limited to 5ha per beneficiary as credit linked back ended subsidy.

8.13 The State Horticulture Mission will ensure the timely availability of the good quality seeds and planting material to the farmers at nominal price.

### **Seed Infrastructure**

8.14 To facilitate proper handling, storage and packaging of seeds, assistance would be provided for creating infrastructure like drying platforms, storage bins, packaging unit and related equipments. 100% assistance will be provided to the public sector and the assistance to the private sector will be credit linked back ended subsidy limited to 25% of cost.

### **Establishment of New Gardens**

8.15 The Mission envisages coverage of large areas under improved varieties of horticultural crops. A farmer will be eligible for receiving assistance, normally, for one crop. The assistance for cultivation will be spread over a period of three years in the ratio of 50:30:20 in the first, second and third year. Assistance for the second year will be subject to 75% survival of the new gardens and for the third year the assistance will be subject to 90% survival of the plants. Crop wise details of assistance for bringing new areas under horticultural crops like fruits, flowers, spices, aromatic plants, and plantation crops like cashew, cocoa and arecanut are given in **Annexure-III**. The cost of raising new plantations will vary from crop to crop. The cost norms indicated in **Annexure-III** are indicative. The cost norms for different fruit crops are provided in **Annexure-IV**. The assistance for bringing new areas under fruit crops will be limited to 75% of the cost limited to a maximum of Rs. 22,500/ha for a maximum of 2 ha per beneficiary in the case of small and marginal farmers.

### **Rejuvenation / Replacement of senile plantations**

8.16 Low productivity of perennial fruits, like mango, citrus, apple and the plantation crops, like coconut and cashew nut is, primarily, due to small size of holdings, preponderance of old and senile trees and poor management of inputs such as water, nutrients and pesticides. Thickly shaded mango orchards in the Malihabad areas of Uttar Pradesh, seedling orchards of guava, pear, kinoo and other citrus fruits throughout the country,

including disease affected pepper, cardamom and cashew plantations are commonly seen in large tracts in different parts of the country. These have brought down the average productivity. Under the NHM, it is proposed to take up productivity improvement programmes through removal of senile plantations, re-plantation with fresh stock supported with appropriate and integrated combination of inputs, pruning and grafting techniques. The programme will be implemented through individual farmers, farmers' cooperatives, self-help groups, NGOs, growers' associations and commodity organizations. The assistance for rejuvenating senile plantations will be @ 50% of the cost subject to a maximum ceiling of Rs.15,000/- per ha limited to 2 ha per beneficiary.

### **Creation of Water Sources**

8.17 Under the Mission assistance would be provided for creating water sources through construction of community tanks, farm ponds/reservoirs with plastic lining. The assistance will be limited to Rs.10.00 lakh per unit for an area of 10 ha to be taken up on community basis. Maintenance of the water source will be the responsibility of the community.

### **Protected Cultivation**

8.18 Activities like green house construction, mulching, shade net and plastic tunnels would be promoted, the assistance for which is indicated below:

<b>1.</b>	<b>Green House (Hi-tech)</b>	<b>Estimated Cost</b>	<b>Pattern of Assistance</b>
	a. Small & Marginal Farmers	Rs. 650/ Sq. m. for hi-tech GH Rs. 250/- Sq. m. for normal GH	50% of the cost subject to a maximum of Rs.325/Sq.m for hi-tech and Rs.125/Sq.m for normal GH, limited to 1000 Sq.m./beneficiary
	b. Other farmers	-do-	33.3% of cost subject to a maximum of Rs.215/sq.m for hi-tech and Rs.67/Sq.m for normal GH limited to 1000 Sq.m.
<b>2.</b>	<b>Mulching</b>	Rs. 14,000/ha	50% of the total cost subject to a maximum of Rs. 7000/ha limited to 2 ha per beneficiary

3.	<b>Shade Net</b>	Rs. 14 / Sq. m.	50% of cost subject to a maximum of Rs. 3500/ 500 Sq.m limited to 2 ha per beneficiary
4.	<b>Plastic Tunnel</b>	Rs. 10 / Sq. m.	50% of cost subject to a maximum of Rs.5000/1000 Sq.m limited to 5 ha per beneficiary

### **Precision Farming Development and Extension through PFDCs**

8.19 Precision farming would involve the measurement and understanding of variability over time and space. Moreover, the system would use the information generated through surveys to manage this variability by matching inputs to conditions within fields using site-specific inputs. Finally, and most important, this system must provide for the measurement and recording of the efficiency of these site-specific practices in order to assess value on and off the farm. Thus, precision farming is technology enabled, information based, and decision focused.

8.20 The enabling technologies of precision farming can be grouped into five major categories: computers, Global Position System (GPS), Geographic Information Systems (GIS), sensors and application control. Some of the enabling technologies were developed specifically for agriculture and their origins date back more than 20 years. It is the integration of these technologies that has enabled farmers and their service providers to do things not previously possible, at levels of detail never before obtainable, and, when done correctly, at level of quality never before achieved. Availability of contiguous blocks of mono crops and equipments needed for survey, recording and analysis on near real time basis has made the Precision Farming technologies in these countries heavily equipment dependent.

8.21 Precision Farming in the Indian context is still in its infancy stage. A vast amount of data on various aspects like soil characteristics, climatic parameters, topographic features, crop requirement in terms of consumptive use and nutritional requirements have been generated and instruments needed for recording these parameters are also available.

Technology for delivering the required amount of inputs to the crop through fertigation /chemigation have also been developed in the country. However, the application of precision farming as a package in the farmers' field has not received much attention. This has been primarily due to the lack of awareness about the potential for increasing productivity and improving the quality of produce with minimum use of inputs. Secondly, there has been no serious attempt in the past to promote this technology by any agency. The infrastructure available in terms of remote sensing and GIS are yet to be used effectively in promoting precision farming. Hence, the development will have to be gradual in phases.

8.22 The focus would be firstly on technology development which is suitable under Indian conditions. The Precision Farming Development Centres (PFDC) will play a leading role in the development of regionally differentiated technologies validation and dissemination. The PFDCs are presently existing in 17 locations in the country which are mostly in the SAUs, ICAR Institute and IIT, Kharagpur. On account of their experience in conducting applied research on plasticulture application, they have the expertise in terms of manpower and equipment. The PFDCs will be equipped further with the necessary hardware and software needed for generating information on precision farming techniques in the farmers field. Five of the PFDCs viz. Indian Agriculture Research Institute, New Delhi, University of Agriculture Sciences, Bangalore, Gujarat Agriculture University, Navsari and Indian Institute of Technology, Kharagpur and Central Institute of Sub-tropical Horticulture (CISH), Lucknow would be developed as Centres for excellence for Precision Farming (CEPF). These Institutes will be fully equipped to take up research and development works on Precision Farming. The CEPFs would function as mother centres for providing technical support to other PFDCs located in the region. The ultimate goal will be to make available all the needed information to the farmers so that they are in a position to apply the necessary

inputs. Other organisations like ICAR Institutes and Institutes in the private sector will also be involved in technology development. For this purpose financial assistance would be provided to the PFDCs on project basis.

### **Promotion of Integrated Nutrient Management/Integrated Pest Management**

8.23 Assistance for INM/IPM will be @ 50% of cost subject to a maximum ceiling of Rs.1000/- per ha limited to 4 ha per beneficiary.

Assistance will also be available for developing facilities like disease forecasting units, Bio control labs, Plant Health Clinics and Leaf/Tissue Analysis labs as per the pattern of assistance indicated below:

<b>Promotion of INM/IPM</b>	<b>Estimated Cost</b>	<b>Pattern of Assistance</b>
i. Sanitary and Phytosanitary (Public Sector)	Project based	Project based
ii. Promotion of IPM	Rs. 2000/ha	50 % of cost subject to a maximum of Rs 1000/ha limited to 4 ha./ beneficiary
iii. Disease forecasting units (PSUs)	Rs. 4 lakhs/unit	Upto Rs. 4 lakh/unit
iv. Bio-control labs	Rs. 80 lakhs/unit	
a) Public Sector		Upto Rs. 80 lakh/unit
b) Private Sector		Upto Rs. 40 lakh/unit
v. Plant health clinics)	Rs. 20 lakhs/unit	
a) Public Sector		Upto Rs. 20 lakh/unit
b) Private Sector		Upto Rs. 10 lakh/unit as credit linked back ended subsidy.
vi. Leaf/Tissue analysis labs.	Rs. 20 lakhs/unit	
a) Public Sector		Upto Rs. 20 lakh/unit
b) Private Sector		Upto Rs. 10 lakh/unit as credit linked back ended subsidy.

8.24 Assistance for setting up sanitary and phyto sanitary certification facilities would be provided to the Public Sector on project basis. Assistance will also be extended for meeting the cost of sanitary and phyto sanitary certificates for importing / exporting horticultural produce and planting material on case to case basis.

## **Organic Farming**

8.25 Organic farming in horticulture is becoming increasingly important. Its environmental and economic benefits have captured attention in many countries. Consumers' demand for organically produced food products and society's demand for more sustainable development provide new opportunities for farming and business around the world.

8.26 The basic rules of organic production are that the natural inputs are to be applied and the synthetic inputs are prohibited. But there are exceptions in both cases, certain natural inputs determined by various certification programmes to be harmful to human health or the environment are prohibited (e.g. Arsenic). Certain synthetic inputs determined to be essential and consistent with organic farming philosophy are allowed (e.g. Insect pheromones). An organic production system would be designed to:

- Enhance biological diversity within the system;
- Increase soil biological activity;
- Maintain long-term soil fertility;
- Recycle plant and animal waste;
- Rely on renewable resources in locally organized system;
- Promote healthy use of soil, water and air and minimize all forms of pollution;
- Handle agricultural products with emphasis on careful processing methods in order to maintain organic integrity and vital qualities of the product at all stages.

8.27 In view of the growing demand for the organically produced food items worldwide the natural advantages in this regard needs to be fully exploited. In order to help the growers obtain the required certification for organically produced crops, awareness has to be

generated through training and distribution of information material. For adopting organic farming for perennial and non perennial fruit crops, aromatic plants, Spices etc. additional assistance will be given over and above the area expansion programme @ Rs. 10,000 per hectare subject to a limit of 4 ha per beneficiary. For organic cultivation of vegetables, the maximum assistance will be limited to Rs. 10,000/- per ha. The NHM will also provide financial assistance up to a maximum of Rs 5.00 lakhs for a group of farmers covering an area of 50 ha, duly recommended by State Govt., on a case to case basis for certification of organic process/produce.

### **HRD in Horticulture**

8.28 Human resource development through trainings and demonstrations is an integral part of the Mission. Under this programme, training of the farmers, field level workers and officers will be taken up. Programme for providing appropriate training to the farmers for the adoption of high yielding varieties of crops and farming system will be taken up. Programme for training of the officials concerned with the implementation of the programme and the field level workers who will in turn train/guide the farmers will also be taken up. An important activity under the training is to provide resource materials to the farmers and to acquaint them about various farming techniques through exhibitions and demonstrations. In order to ensure wider and full participation publicity about the training programmes will also be required. It is proposed to provide assistance to the agencies involved in training programme @ of Rs.1500/- per farmer trained. This activity will be carried out both by government sector as well as private and NGOs. Successful and progressive farmers' field may also be used as training centers. In order to familiarize the farmer about the production practices being followed in other states, organise training and field visits outside the state may also be taken up. For this, assistance of Rs.2500 per participant will be provided which

will include transportation, lodging, per diem allowance and training kit. The training-cum-visit will be organized for a minimum period of 7 days, which will include traveling time.

8.29 Trainers at the level of project officers, district horticulture officers, agricultural officers and extension workers will be trained in the modern technological advances in horticulture at various ICAR Institutes in or outside the State. These officers in turn, will train the staff and farmers in their respective regions. For this purpose, actual cost limited to Rs.50,000 per participant will be provided which will include travel material and training cost at the institute.

8.30 The ongoing scheme on HRD in horticulture will be subsumed under the NHM. The assistance will be for organizing training courses for supervisors, entrepreneurs, gardeners and field functionaries.

8.31 The focus will be to bridge the gap of knowledge and skill, both managerial and technical by training people to become entrepreneurs or self-employed in the horticulture sector and to create skills for employability in the horticulture units / farms and upgrade their knowledge. Emphasis will be on hands-on training rather than on theory.

8.32 The scheme has three components viz.

- (a) training of supervisors
- (b) training of gardeners
- (c) training of entrepreneurs

8.33 The training programme for the Supervisors, Entrepreneurs to be organised through selected State Agricultural Universities (SAU) / ICAR Institutes and Gardeners training through the Krishi Vigyan Kendras and SAUs while the departmental staff would be trained under various ongoing training programmes. The training expenses for such trainings will be met through the Mission.

8.34 The minimum qualification for Supervisory & entrepreneurs training programme would be Higher Secondary and for Gardeners, Class-VIII (Middle) standard. The indicative cost for organizing the training courses for the Supervisors and Entrepreneurs would be to the tune of Rs.18.00 lakh as per the following breakup:

**Cost structure for training of Supervisors and Entrepreneurs**

<u>Item</u>	<u>Cost (lakh Rs.)</u>
Stipend @ Rs.1000/- p.m (One year course for 25 trainees)	3.000
Course Material	0.125
Support to Institutes for strengthening infrastructure (One time)	10.000
Operational Support	5.000
<b>Total</b>	<b>18.125</b>

8.35 Similarly the indicative cost for organizing training course for Gardeners will be Rs. 13.5 lakhs as per the following details:

**Cost structure for training of Gardeners**

<u>Item</u>	<u>Cost (lakh Rs.)</u>
Stipend @ Rs.800/- p.m (Courses of 6 months for 25 trainees)	2.400
Course Material	0.125
Support to Institutes for strengthening infrastructure (One time)	6.000
Operational Support	5.000
<b>Total</b>	<b>13.525</b>

8.36 The training institutions have been given the option to draw up the course details within this structure in consultation with the DAC.

8.37 The States which already have a strong horticultural production base and have institutional set up for training in horticulture will organizing the training programmes in horticulture.

8.38 The institutions identified for training should have the basic infrastructure facilities like class rooms, staff, hostel facilities etc.

8.39 The courses will be of one year duration for Supervisors and of six months for Gardeners and of three months for Entrepreneurs. In order to attract the candidates and more importantly retain them and prevent their drop out, a monthly stipend will be provided to them in the form of Boarding & Lodging Charges in the concerned Institute. The courses will be residential. At the end of the training, Supervisors will be awarded a Diploma in horticulture and Gardeners and Entrepreneurs a Certificate of training in horticulture. About 25 Supervisors, 50 Gardeners and 20 Entrepreneurs will be trained in each participating institution annually.

8.40 These trained people would be the potential candidates for employment by the Firms engaged in horticulture development.

8.41 In case the States wish to organize specialized training courses on horticulture related subjects, assistance will be provided for the same to the concerned Institutes directly based on the recommendation of the concerned State (s). Such training would generally be of short duration of 7 - 10 days for 20 to 25 participants.

8.42 Trainers who are required to train others could be deputed for training abroad also, to a limited extent, for which assistance would be made available for meeting the travel cost and course fee. The concerned State Departments of Horticulture/Agriculture/SHM would

function as the nodal agency for this purpose. Funds would be made available to the SHMs for meeting the expenses of the candidates involved in implementation of the Mission programmes based on their specific proposal.

### **Pollination Support through Bee-keeping**

8.43 In order to maximize agricultural production, honeybee can be used as an important input. The overall responsibility of coordinating the beekeeping development programme in the State shall be vested in the identified State Designated Agency (SDA) or any institution/society having capability. The nodal State Designated Agencies (SDA) who have been implementing the beekeeping programmes will be integrated in the NHM and representatives of the respective SDAs will be Members of the State Level Executive Committee.

### **Development and Multiplication of Nucleus Stock**

8.44 The All India Coordinated Research Project (AICRP) Centres and other institutes in public and corporate sector would be involved for developing nucleus stock of selected bee species (*A. cerana* and *A. mellifera*). The Institutes would have to submit a specific proposal indicating their existing infrastructure and deficiencies therein which need to be removed and the assistance would be considered on project to project basis subject to a maximum limit of Rs.3.00 lakhs.

8.45 The bee breeders from corporate/private sector shall be registered with SDA, and they will be selected based on their technical expertise, qualified personnel and infrastructure. The registered bee breeders shall be eligible for financial assistance in the form of grant-in-aid to a maximum of 50% of the cost of the additional facilities required limiting to Rs.2.50 lakhs per breeder mainly for strengthening infrastructure facilities. Each

bee breeder will be required to multiply and produce a minimum of 3000 colonies per annum for a period of five years. If, however, a breeder is not in a position to meet the above target, the SDA will take appropriate steps to reduce the assistance proportionately.

### **Distribution of Bee Colonies, hives & equipments**

8.46 The superior bee colonies produced by selected bee breeders as defined above, would be distributed to the farmers/beekeepers. To encourage purchase of superior bee colonies, subsidy support would be provided at the rate of 50 percent of the cost subject to a maximum ceiling of Rs. 350 per colony of four frames. The colonies of *Apis cerana* are cheaper and hence the subsidy amount in such cases will be less. The registered beekeepers shall be given a proper identification number by the SDA for each of their hives.

8.47 Standard bee hives are a pre requisite for the upkeep of bee colonies. Therefore, with a view to ensure supply of quality hives and equipments, subsidy support would be provided at the rate of 50% of the cost of hives/equipments or Rs. 450/- per set, whichever is less. The manufacturers of repute involved in the supply of bee hives and related equipments will be registered with the SDA. The SDA shall ensure that only those manufacturers who manufacture hives of standard specification are registered. Each beneficiary will receive subsidy support for 20 hives.

8.48 While supplying the honey bees, preference will be given to those farmers/beekeepers who have undergone training on bee-keeping.

### **Technology Dissemination through demonstrations/ Front line demonstration**

8.49 Latest technologies will promoted or crop specific cultivation, use of IPM/INM, protected cultivation, organic farming through farmer participatory demonstration in a compact area of one ha. This will be organized at strategic locations in farmer's field for which assistance will be limited to 75% of the cost. For green house cultivation, the area will

be limited to 500 Sq. m. Farms in the public sector, SAUs could be sites for front line demonstrations, for which 100% assistance will be provided.

### **Post Harvest Management**

8.50 Post harvest management includes packaging, grading, transportation, curing and ripening and storage. These facilities are essential for increasing the marketability of the horticulture produce, adding value to the produce, increasing profitability and reducing losses. It is proposed to create a network of infrastructural facilities for horticulture storages, transportation, marketing, packaging and grading, and export. The existing schemes of the National Horticulture Board (NHB), Directorate of Marketing and Inspection (DMI) and National Cooperative Development Corporation (NCDC) will be made use of to the maximum possible extent. In this context, specific programmes which would be taken up under the NHM would include establishment of pack houses, ripening chambers, cold storage units, Controlled Atmosphere (CA) Storage, supply of refer vans and mobile processing units besides support for market intelligence. All these projects will be entrepreneur driven through commercial ventures for which the Central Government assistance will be credit linked back-ended subsidy @ 25% of the total project cost in general areas and 33.33% in case of Hilli & Tribal Areas. State Govt. agencies will also be entitled to the assistance for such activities to the same extent. Assistance for market intelligence will be project based.

### **Creation of Market Infrastructure**

8.51 The programmes for marketing are also project based. States Missions, after approval of the Executive Committee of the State Mission will submit viable projects to EC.

8.52 The main objectives of providing assistance under this component are (a) to induce investments from private and cooperative sectors in the development of marketing infrastructure for horticulture commodities (b) Strengthen existing horticulture markets

including wholesale, rural haats; (c) focus on promotion of grading, standardization and quality certification of horticulture produce at farm/market level to enable farmers to realize better price; and (d) create general awareness among farmers, consumers, entrepreneurs and market functionaries on market related Agricultural Practices including contract farming. Assistance under the scheme will be provided on the following norms:

i) Credit linked back ended subsidy @ 25% of the capital cost of the project would be provided for new infrastructure projects for marketing of horticultural commodities and for strengthening and modernization of existing horticulture markets such as wholesale or rural haats. In hilly and tribal areas, rate of subsidy will be 33.33%.

ii) 'Marketing Infrastructure' for the purpose of this Scheme may comprise of any of the following:-

(b) Functional infrastructure for collection/ assemblage, drying, cleaning, grading and standardization, SPS measures and quality certification, labeling, packaging, ripening chambers, retailing and wholesaling, value addition facilities (without changing the product form).

(c) Market user common facilities in the project area like shops/ offices, platforms for loading/ un-loading/ assembling and auctioning of the produce, parking sheds, internal roads, garbage disposal arrangements, including drinking water, sanitation arrangements, weighing and mechanical handling equipments.

(d) Infrastructure for Direct Marketing of horticulture commodities from producers to consumers/ processing units/bulk buyers.

iii) Assistance for setting up markets will be linked with market reforms and preference will be given to those States which amend their State Agricultural Produce Marketing Acts for facilitating alternate marketing by farmers/farmer groups involved in horticulture;

iv) Assistance will be available to individuals, Group of farmers/growers/consumers, Partnership/ Proprietary firms, Non- Government Organisations (NGOs), Self Help Groups (SHGs), Companies, Corporations, Cooperatives, Cooperative Marketing Federations, Local bodies, Agricultural Produce Market Committees & Marketing Boards and State Governments.

v) Cost of land in infrastructure projects will be restricted to 10 percent of the project cost in rural areas and 20 percent in Municipal areas. The entrepreneur will not alienate the land during the period of the loan for any purpose other than the purpose for which the project is sanctioned. The size of the project will be determined on the basis of economic viability and commercial considerations;

### **Export Promotion**

8.53 Special impetus would be provided to promote the export of horticultural produce through Agri-Export Zones, for which there is potential global market. Special groups will be set up for the purpose of examining and recommending appropriate legal and promotional measures for facilitating export of different horticultural products for consideration of EC, GC and the Government. State Mission Authorities will also make appropriate recommendations to the National Mission authorities for promoting exports of the State's produce.

8.54 The State Mission authorities may align their marketing strategies keeping in view the programmes of national level agencies namely, National Horticulture Board, Directorate of Marketing and Inspection, National Cooperative Development Corporation (NCDC), Tribal Co-operative Marketing Development Federation (TRIFED) and Agriculture and Processed Food Products Export Development Authority (APEDA). The existing schemes of the National Horticulture Board (NHB), Directorate of Marketing and Inspection (DMI) and National Cooperative Development Corporation (NCDC) and Small Farmers' Agri-Business Consortium (SFAC) should be used to the maximum possible extent.

### **Contract Farming**

8.55 Contract farming in horticulture could cover three categories: i) market – specification, ii) resource provision, and iii) production management. Market specification contracts are pre-harvest agreements that bind the firm and grower to a particular set of conditions governing the sale of the crop. These conditions often specify price, quality and timing. Resource provision contracts oblige the processor to supply crop inputs, extension, or credit, in exchange for marketing agreement. Production management contracts bind the farmer to follow a particular production method or input regime, usually in exchange for a marketing agreement or resource provision. In various combinations, these contract forms permit firms to influence the production technology and respond to missing markets without having to operate their own plantations. The concept of contract farming in the commercial realm of horticulture is still in its infancy and there can be different organizational models for contract farming, viz. Centralized Model, Nucleus Estate Model, Multipartite Model, Informal, or individual developed Model, and Intermediary Model. Assistance for infrastructure development (minus staff) is proposed to be provided under the NHM for promoting Contract Farming of horticultural crops. A Contract Farming unit will be

established in each State within the Directorate of Horticulture/ Agriculture/SHM for coordinating the matter. A summary of the pattern of assistance for marketing is given below:

Sl. No.	Item	Estimated Cost	Norms of Assistance
1.	Buy back intervention	Project based	Project based
2.	Establishment of Marketing Infrastructure for horticultural produce in Govt./Private/Cooperative sector		Credit linked back-ended subsidy @ 25% of the capital cost of project in general case and 33.33% in the case of hilly, backward States.
a)	Wholesale markets	upto Rs. 100.00 crores	25 % of the capital cost of project
b)	Rural Markets/Apni Mandis/ Direct Markets	Rs. 15.00 lakh	25 % of the capital cost of project
c)	Functional Infrastructure for collection, grading etc.	Rs. 15.00 lakh	25 % of the capital cost of project
d)	Extension, quality awareness and market led extension activities for fresh processed products	Project based	100% assistance

### **Processing & Value Addition**

8.56 Processing of horticultural produce and value addition is an important activity, which will be promoted by the Ministry of Food Processing Industries (MFPI) out of their ongoing schemes.

### **Micro Irrigation**

8.57 Drip and Sprinkler irrigation form essential input for improving productivity and quality of horticultural produce. Funding for promoting this technology will be provided

through a separate scheme on Micro Irrigation for which the Guidelines will be issued separately.

## **9. MISSION MANAGEMENT**

### **9.1 Support to Cooperatives and other National Level Organisations for infrastructure**

The NHM, in exceptional cases shall provide funds to the National level organisations for taking up innovative projects in the area of horticulture development, post harvest management, processing and marketing.

### **9.2 Institutional Strengthening, hire/purchase of vehicles**

The Mission HQ will be strengthened with manpower including hiring of technical services, database development, use of Information Technology, development of software and procurement of hardware, hiring and if necessary purchase of vehicle, engagement of personnel on contract who can assist in the day to day functioning of the office including driver.

### **9.3 Collaboration with International Agencies**

Attempts will be made to collaborate with the international agencies like FAO, World Bank, Asian Development Bank etc for taking up programmes for the development of horticulture. The FAO has a Unilateral Trust Fund (UTF) programme under which there is provision to operate projects on mutually agreed terms and conditions. The UTF would be availed for facilitating activities like import of planting material, hiring of International Domain Experts, organize study tours, organize training programmes under the aegis of the NHM. The funds for this purpose will be earmarked in the Annual Budget.

#### 9.4 Evaluation & Other Studies

Term end evaluation will be conducted at the end of the X Plan. Concurrent evaluation will also be carried out by engaging suitable agencies. Assistance for such studies will be on project basis. The NHM would commission short term studies on various aspects of horticulture depending on the need and emerging requirements. Such studies will also be on project basis. Monitoring Missions, comprising of experts will be sent to the States from time to time by the National Mission which will be organized through TSG in the NHB.

### 10. OVERALL TARGETS UNDER NHM

10.1 Mission stands approval in principle up to the end of XI Plan. However, annual allocations have been approved only for X Plan Period. The tentative national level targets for the mission during the period up to XI Plan and during the remaining two years of X Plan are broadly as follows:

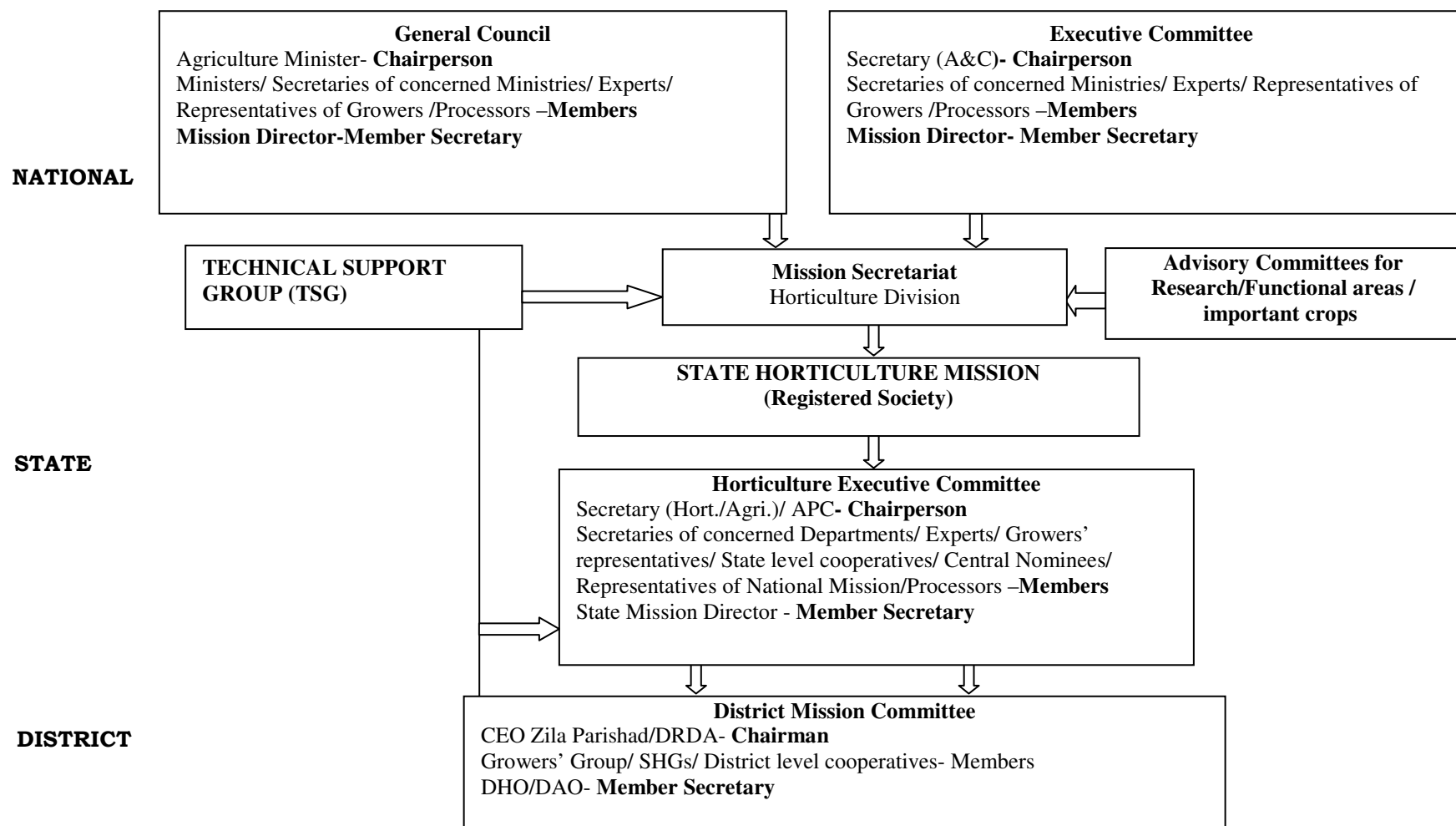
#### BROAD TARGETS FOR X AND XI PLAN UNDER NHM

(Area in lakh ha)

Programmes	Total (X Plan)	During XI Plan
Area expansion with improved varieties	5.38	27.90
Rejuvenation	1.10	15.0
Integrated Pest Management	6.0	21.0
Nurseries	790 Nos.	2040 Nos.
PHM Infrastructure	5096 Nos.	13010 Nos.
Markets	490 Nos.	930 Nos.

10.2 The programme for XI Plan, however, will depend among other things, on the availability of funds for the purposes, which will be finalized later. The overall target is to raise production of horticultural produce in the country to the level of about 300 Million Tonnes by the end of XI the Plan.

**Structure and composition of NHM at the National, State and District levels\***



*\* The above structure is indicative. The institutional arrangement at the state level and below state level would be flexible and the state will have the flexibility to adopt an appropriate model viz cooperative federations in the pattern of NDDDB, incorporated companies (with cooperatives for procurement, joint sector for processing and corporates for marketing) or orient existing institutions to carry out the tasks of the Mission*

## Annexure-II

### FORMAT FOR SUBMITTING ACTION PLAN BY STATE HORTICULTURE MISSION

Name of State:

Year of Action Plan: **2005-06**

#### Summary Indicators:

Area, Production & Productivity (Year 200 )\*

Sl.No	Crop	Area (000 ha)	Production (000 t)	Productivity (t/ha)
1.	Fruits			
2.	Vegetables			
3.	Spices			
4.	Flowers			
5.	M&A Plants			
6.	Mushroom			
7.	Plantation crops			
	<b>Total</b>			

(\* For the first year, the above information will constitute base line data)

#### Summary of Action Plan:

#### Financial

(Rupees on Lakh)

Sl. No	Activity	Balance as on 01.04.2005	Outlay as per action plan (2005-06)	Percentage of total
1.	Research			
2.	Production & Productivity			
3.	Post Harvest Management			
4.	Monitoring/TSG			
	<b>Total</b>			

#### Physical: (quantifiable major outputs) for the year:

Sl.No	Activity	Ha.	Sl.No		No
1.	Additional coverage of area		6.	New Nurseries	
2.	Rejuvenation		7.	PHM Infrastructures	
3.	INM/IPM		8.	New Markets	
4.	Protected cultivation		9.	New Processing units	
5.	Organic farming				
	<b>Total</b>			<b>Total</b>	

**Format for submitting Detailed Action Plan**

**Description**

- 1. Background Information**
  - 1.1 Geography & Climate
  - 1.2 Potential of Horticulture
  - 1.3 Land Availability
  - 1.4 SWOT Analysis
- 2 Project Details**
  - 2.1 Objectives & its Strategy
  - 2.2 **Implementation Agency with contact address, phone & email ID**
  - 2.3 Salient aspects of the Annual Action Plan for
  - 2.4 Plantation Development including Supporting Infrastructure
  - 2.5 Post Harvest Infrastructure and Management
  - 2.7 Production of Planting Material
  - 2.8 Establishment of New Gardens
  - 2.9 Fruits (Perennial)
  - 2.10 Fruits Non-Perennial
  - 2.11 Spices, Medicinal & Aromatic Plants
  - 2.12 Flowers
  - 2.13 Plantation including Coastal Horticulture
  - 2.14 Rejuvenation/Replacement of Senile Plantation
  - 2.15 Protected Cultivation
  - 2.16 Promotion of INM/IPM
  - 2.17 Organic Farming
  - 2.18 HRD in Horticulture
- 3. Mission Management**
- 4. Annexures**
  - I.** Map of District indicating potential belt and location of existing infrastructure facilities like nurseries, TC units, cold storage unit, processing units etc and location of proposed infrastructure to be created.

## Norms of Assistance for programmes under NHM

S. No.	Programme	Estimated Cost	Proposed assistance
<b>A.</b>	<b>RESEARCH</b>		Central Government Institutes under ICAR, CSIR and others will take up research & development works out of their existing budget for which a Research Advisory Committee will identify the thrust areas of research.
<b>B.</b>	<b>PLANTATION INFRASTRUCTURE &amp; DEVELOPMENT</b>		
1	Production of planting material		
	a) Public sector		
	i. Model nursery (4 ha)	Rs. 18.00 lakh/unit	Maximum of Rs. 18.00 lakh per nursery
	ii. Small Nursery (1 ha.)	Rs. 3.00 lakh per unit	Maximum of Rs. 3.00 lakh per nursery
	iii. Rehabilitation of existing tissue culture units	Rs. 8.00 lakh/unit	Maximum of Rs. 8.00 lakhs per unit
	iv. Rehabilitation of TC labs and related units in SAUs	Rs. 8.00 lakh/unit	Maximum of Rs. 8.00 lakh per unit
	<b>b) Private sector</b>		Credit linked back ended subsidy
	i. Model nursery (4 ha)	Rs. 18.00 lakh/unit	50% of cost limited to Rs. 9 lakh/nursery
	ii. Nursery (1 ha.)	Rs. 3.00 lakh per unit	50% of cost limited to Rs. 1.5 lakh/nursery
	iii. Rehabilitation of existing tissue culture units	Rs. 8.00 lakh/unit	50% of cost limited to Rs. 4.00 lakhs
	<b>iv. Vegetable seed production</b>		
	a. Public Sector (ICAR, SAUs & State Depts.)	Rs. 50,000 per ha	100% of the total cost
	b. Private sector	Rs. 50,000 per ha	50% of the total cost subject to maximum of Rs. 25,000/ha limited to 5 ha as credit linked back ended subsidy..
	<b>v. Seed Infrastructure</b>		
	a. Public Sector	Project based	100% of cost
	b. Private sector	Project based	25% of cost as credit linked back ended subsidy
2	<b>Establishment of new gardens (ha.)</b>		
	<b>i. Fruits (Perennials)</b>	Rs. 30,000/ha	75% of cost subject to a

			maximum of Rs. 22,500/ha limited to 4 ha per beneficiary in three installments of 50:20:30 subject to survival rate of 75% in 2 <sup>nd</sup> year & 90% in 3 <sup>rd</sup> year.
	<b>ii. Fruits (Non-Perennials)</b>	Rs. 30,000/ha	50% of cost subject to a maximum of Rs. 15,000 per ha limited to 4 ha per beneficiary in three installments of 50:20:30 subject to survival rate of 75% in 2 <sup>nd</sup> year & 90% in 3 <sup>rd</sup> year.
	<b>iii. Flowers</b>		
	<b>(A) Cut Flowers</b>	Rs. 70,000/ha	
	a. Small & Marginal Farmers		50% of the cost @ Rs. 35,000/ha limited to 2 ha. per beneficiary
	b. Other farmers		33% of the cost @Rs. 23,100/ha limited to 4 ha per beneficiary
	<b>(B) Bulbous Flowers</b>	Rs. 90,000/ha	
	a. Small & Marginal Farmers		50% of the cost @ Rs. 45,000/ha limited to 2 ha. per beneficiary
	b. Other farmers		33% of the cost @Rs. 29,700/ha limited to 4 ha per beneficiary
	<b>(c) Loose Flowers</b>	Rs. 24,000/ha	
	a. Small & Marginal Farmers		50% of the cost @ Rs. 12,000/ha limited to 2 ha. per beneficiary
	b. Other farmers		33% of the cost @Rs. 7,920/ha limited to 4 ha per beneficiary
	<b>iv. Spices, Aromatic Plants</b>	Rs.15,000/ha (average)	75% of cost subject to a maximum of Rs. 11,250/ha limited to 4 ha per beneficiary in three installments of 50:20:30 subject to survival rate of 75% in 2 <sup>nd</sup> year & 90% in 3 <sup>rd</sup> year
	<b>v. Plantation crops including coastal horticulture</b>	Rs.15,000/ha (average)	75% of cost subject to Rs. 11,250/ha limited to 4 ha per beneficiary

3	<b>Rejuvenation/ replacement of senile plantation</b>	Rs. 30,000/ha (average)	50% of the total cost subject to a maximum of Rs. 15,000/ha limited to 2 ha per beneficiary
4	<b>Creation of water resources sources</b>		
	Community tanks on farm ponds on farm water reservoir - (No.) with use of plastics- 100% assistance	Rs. 10.00 lakh/unit	Upto Rs.10 lakh /unit of 10 Ha.
5	<b>Protected cultivation</b>		
	1. Green House (Hitech)		
	a. Small & Marginal Farmers	Rs. 650/ Sq. m. for Hi-tech Rs. 250/ Sq. m. for normal	50% of the cost subject to a maximum of Rs.325/Sq.m for hi-tech and Rs.125/Sq.m for normal GH, limited to 1000 Sq.m. per beneficiary
	b. Other farmers	-do-	33% of cost subject to a maximum of Rs.215/sq.m for hi-tech and Rs.67/Sq.m for normal GH limited to 1000 Sq.m. per beneficiary.
	2. Mulching	Rs. 14,000/ha	50% of the total cost subject to a maximum of Rs. 7000/ha limited to 2 ha per beneficiary
	3. Shade Net	Rs. 14 / Sq. m.	50% of cost subject to a maximum of Rs. 3500/ 500 Sq.m limited to 2 ha per beneficiary
	4. Plastic Tunnel	Rs. 10 / Sq. m.	50% of cost subject to a maximum of Rs.5000/1000 Sq.m limited to 5 ha per beneficiary
6.	<b>Precision Farming development and extension through PFDCs</b>	Project based	100 % of cost to PFDCs.
7.	<b>Promotion of INM/IPM</b>		
	i. Sanitary and Phytosanitary (Public Sector)	Project based	project based
	ii. Promotion of IPM	Rs. 2000/ha	50 % of cost subject to a maximum of Rs 1000/ha limited to 4 ha./ beneficiary
	iii. Disease fore casting units (PSUs)	Rs. 4 lakhs/unit	Upto Rs. 4 lakh/unit
	iv. Bio-control labs	Rs. 80 lakhs/unit	
	a) Public Sector		Upto Rs. 80 lakh/unit
	b) Private Sector		Upto Rs. 40 lakh/unit as credit

			linked back ended subsidy.
	v. Plant health clinics)	Rs. 20 lakhs/unit	
	a) Public Sector		Upto Rs. 20 lakh/unit
	b) Private Sector		Upto Rs. 10 lakh/unit as credit linked back ended subsidy.
	vi. Leaf/Tissue analysis labs.	Rs. 20 lakhs/unit	
	a) Public Sector		Upto Rs. 20 lakh/unit
	b) Private Sector		Upto Rs. 10 lakh/unit as credit linked back ended subsidy.
<b>8.</b>	<b>Organic Farming</b>		
	1. Adoption of organic farming	Rs. 20,000/ha	50% of cost subject to a maximum of Rs.10,000/ha limited to 4 ha. per beneficiary.
	2. Vermi compost units	Rs. 60,000/unit	50% of cost subject to a maximum of Rs.30000/unit
	3. Certification	Project based	Rs.5 lakhs in cluster of 50 hectares
9	<b>HRD including horticulture institute</b>	Project based	100% assistance
10	<b>Pollination support through beekeeping</b>	Rs. 1600 per colony with hive	50% of the cost subject to maximum of Rs.800/ colony with beehive
11	<b>Technology dissemination through demonstration/Front line demonstration</b>	Project based	75% of cost
<b>C.</b>	<b>POST HARVEST MANAGEMENT</b>		
	1. Pack houses	Rs. 2.50 lakh/unit	Credit linked back-ended subsidy @ 25% of the capital cost of project in general area and 33.33% in case of Hilly & tribal Areas.
	2. Cold storage units	Rs. 2.00 crore/unit	-do-
	3. C.A Storage	Rs. 16.00 crore/unit	-do-
	3. Ref. vans / containers	Rs. 24.00 lakh/unit	-do-
	4. Mobile Processing Units	Rs. 24.00 lakh/unit	-do-
	5. Market Intelligence	Project based	Project based
	6. Buy back intervention	Project based	Project based
	7. Establishment of Marketing Infrastructure for horticultural produce in Govt./Private/Cooperative sector		Credit linked back-ended subsidy @ 25% of the capital cost of project in general case and 33.33% in the case of hilly and backward area.
	a) Wholesale markets	upto Rs. 100.00 crores	-do-

	b) Rural Markets/Apni Mandis/ Direct Markets	Rs. 15.00 lakh	-do-
	c) Functional Infrastructure for collection, grading etc.	Rs. 15.00 lakh	-do-
	d) Extension, quality awareness and market led extension activities for fresh processed products	Project based	100% assistance
<b>D.</b>	<b>PROCESSING &amp; VALUE ADDITION</b>		The MFPI will sanction projects on food processing out of their budget provision.
<b>E.</b>	<b>MISSION MANAGEMENT</b>		
	(i) State & Districts Mission Structure including additional manpower & project preparation cost		5% of total annual expenditure on the basis of appraised needs
	(ii) Support to cooperatives for infrastructural requirement		Project based
	(iii) Institutional Strengthening, hire/purchase of vehicles, hardware/software		Project based
	(iv) Technical Support Group (TSG)		Project based subject to a ceiling of Rs. 5 crore per annum
	(v) Collaboration with International agencies like FAO, World Bank etc.		Project based

**Annexure-IV****INDICATIVE COST OF AREA EXPANSION OF SELECTED FRUIT CROPS**

( In Rs.)

<b>Crop</b>	<b>Distance (meter)</b>	<b>No. of Plants</b>	<b>Cost of Planting Material (Grafted)</b>	<b>Cost of Fert./ Pesticides and Other Input</b>	<b>Total</b>
Apple	6x6	277	13,850	25,000	38,850
Mango	10x10	100	7000	14,000	21,000
Grapes	05x05	360	7200	36,800	44,000
Grapes	04x04	625	12500	80,000	92,500
Strawberry	1x1	10,000	40,000	40,000	80,000
Litchi	10x10	100	7000	14,000	21,000
Citrus					
a)Mandarine Orange	06x06	277	8310	20,000	28,310
b) Sweet Orange	06x06	277	7756	18,000	25,756
c) Sapota	10x10	100	6700	14,000	24,700
Guava	10x10	100	3000	10,000	13,000
Pomigranate	05x05	400	8000	10,000	18,000
Aonla	07x07	200	7000	10,000	17,000
Ber	07x07	200	7000	8,000	15,000
	05x05	400	14000	10,000	24,000