

State Horticulture Mission, Uttar Pradesh

Annual Action Plans of 2010-11 to 2012-13 of State Horticulture Mission, U.P. for the Development of Horticulture in the State

INTRODUCTION :

Horticulture crops cover a wide variety of fruits, vegetables, tuber crops, mushrooms, floriculture, medicinal and aromatic plants, spices, food processing and bee keeping. U.P.'s varied agro-climate permits growing of a large number of these crops throughout the year enabling their availability on a regular basis. U.P. holds vast potential for the development of horticulture.

Horticulture has emerged as one of the major agricultural activities as there has been a substantial increase both in area and production of horticulture crops. Horticulture crops have the inherent advantage of providing higher productivity per unit area of land as compared to other crops, resulting in higher income and employment generation in rural areas. Fruits and vegetables have been shown to earn 20-30 times more foreign exchange per unit area than cereals due to higher yields and higher prices available in the national/international markets.

One important trend observed in the last five years is that horticulture development has gradually moved out of its rural confines into urban areas and from traditional agricultural enterprise to the corporate sector. This trend has led to the adoption of improved technology, greater commercialization and professionalism in the management of production and marketing of different horticulture crops. As a result, we today witness a perceptible change in the concept of horticulture development in the State.

National Horticulture Mission Scheme has helped in exploring the horticulture potential of the State since 2005-06 as it provides for taking up a variety of components in the areas of development of planting material, production and productivity improvement programmes, PHM and marketing, which are to be implemented on a cluster approach for the development of potential crops. The thrust of Mission is on area based regionally differentiated cluster approach for development of horticulture crops, having comparative advantage.

Uttar Pradesh is a densely populated state. As per the population census 2001, the population of the state is 16.62 crores and it is on the rise since then. In order to cater the need of fruits, vegetables and other horticultural crops as per the recommendation of Indian Council of Medical Research, the production level of these crops need to be multiplied. Further, the requirement for value addition and processing purposes, inter-state trading and quality production for export requires special attention and enhance quality production. The area production and productivity of horticulture crop has considerably increased as the state and central Govt. have paid focused attention towards these crops. More income per unit area and employment generation in short span of time have attracted the enterprising farmers of the state which resulted in diversification towards horticulture crops. These crops have proved to be the boon to the small and marginal farmers of the state who accounts for more than 90% holding of the State. Nearly 70% of the population is dependent on agriculture.

The diverse and suitable agro-climatic and agro-ecological situations have enormous potential for horticultural crops production in the state. With the inception of National Horticulture Mission scheme since 2005-06, this potential is being explored and benefit harnessed by the farmers by getting more income per unit area, consumer by getting these crops round the year for consumption on affordable price, entrepreneurs/processors by having more raw material for value addition and unemployed youth by getting more employment through forward and backward linkages. In short, the advent of NHM in the State have explored the commercial aspect of the horticultural crops and this has resulted in commercialization of these crops to the fore.

During coming years, the planning of horticulture development in a holistic manner by identifying the critical gap in infrastructure, well knitting the linkages of production to harvesting, processing to value addition and exports to achieve the objectives of National Horticulture Mission in the state and country at large.

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.

NHM 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, 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 (NDDDB) model of cooperatives to ensure support and adequate returns to farmers;
- (vii) Promote capacity-building and Human Resource Development at all levels.

The brief account of strategy and road-map is formulated below taking into account the Utilized State Potential (USP), what is required to be achieved in coming years taking into account the challenges ahead and the constraints of the farming community.

Uttar Pradesh had been the leader in agriculture and allied sector since ages and National Horticulture Mission, Uttar Pradesh aspires to further establish the superiority and quality of all the horticulture crops.

A. PRODUCTION AND PRODUCTIVITY IMPROVEMENT :

1. Geography and Climate

Uttar Pradesh is **India's** fifth largest and most populous **state**, located in the north-western part of the country. Uttar Pradesh is bounded by Nepal on the North, Uttrakhand on the north-east, Himachal Pradesh on the north-west, Haryana on the west, Rajasthan on the south-west, Madhya Pradesh on the south and south-west, and Bihar on the east. Situated between 23°52 and 31°28'N latitudes and 77°3' and 84°39'E longitudes, this is the fifth largest state in the country in terms of area, and the first in terms of population. It spreads over a large area, and the plains of the state are quite distinctly different from the high mountains in the north. The climate of Uttar Pradesh can also vary widely, with temperatures as high as 47 °C in summer, and as low as -1 °C in winter.

Tropical monsoon climate of Uttar Pradesh is marked by three distinct seasons:

1. **Summer** (March-June): Hot & dry (temperatures rise to 45 °C, sometimes 47-48 °C); low relative humidity (20%); dust laden winds.
2. **Monsoon** (June-September): 85% of average annual rainfall of 990 mm. Fall in temperature 40-45° on rainy days.
3. **Winter** (October-February): Cold (temperatures drop to 3-4 °C, sometimes below -1 °C); clear skies; foggy conditions in some tracts.

Uttar Pradesh is a big state having geographical area of 2,40,928 sq.km. area with the population of 16.62 crores (census 2001). The population density is 690 per sq.km. The state has 18 Divisions and 71 Districts, 312 Tehsils, 689 Town areas and 820 Blocks. The rural structure consists of 8135 Nyay Panchayat, 52,000 Gram Panchayat and 1,07,452 Villages having 2.58 Crores Families.

Uttar Pradesh is being covered by following 9 Agro Climatic Zones:-

Zone	Region	Geography & Climate of the Region Districts
Zone-1	Tarai Region	Some part of the district Saharanpur, Muzaffar nagar, Bijnore, Moradabad, Rampur, Bareilly, Pilibhit, Shahjahanpur, Lakhimpur, Bahraich & Shravasti are under this zone. The soil type of this zone is mostly alluvial and clayey alluvial and contains sufficient quality of carbonic materials. The average annual rainfall of this zone is 1150 mm.
Zone-2	Western Plain Region	District Bijnore, Moradabad, Jyoti-ba-phule nagar, Rampur, Bareilly, Badaun & Pilibhit are under this zone. This is very fertile region and the soil type is mostly sandy & clayey the average annual rainfall of this zone is 700-1000 mm.
Zone-3	Central Western Region	District Saharanpur, Muzaffarnagar, Meerut, Baghpat, Ghaziabad, Gautambudh Nagar & Buland Shahar are under this zone. The soil of this region are clayey- alluvial, alluvial, sandy alluvial and sandy types. The average annual rainfall of this zone is 600-965 mm.
Zone-4	South-Western Region	District Agra, Firozabad, Mainpuri, Etawah, Aligarh, Hathras & Mathura are under this zone, The soil is mostly of aravalli, sandy, sandy-alluvial, alluvial & clayay alluvial type. Some area also has saline & sodic soils. The average annual rainfall of this zone is 750 mm.
Zone-5	Central Plain Region	District Lucknow, Unnao, Raebareilly, Sitapur, Hardoi, Kheeri, Kanpur Nagar, Kanpur Dehat, Etawah, Kannauj,

Zone	Region	Geography & Climate of the Region Districts
		Farrukhabad, Auraiya, Allahabad, Kaushambi, Fatehpur and Shahjahanpur are under this zone. Saline & sodic soil types covers major area. Besides these, alluvial-sandy, alluvial clayey, alluvium & clayey soil types belong to this region. The average annual rainfall is 850-900 mm.
Zone-6	<i>Bundelkhand Region</i>	District Jhansi, Lalitpur, Jalaun, Hamirpur, Mahoba, Chitrakoot and Banda falls under this zone. The soil type is mostly rocky. The average annual rainfall is 800-1000 mm.
Zone-7	<i>North Eastern Plain Region</i>	District Gonda, Baharaich, Balrampur, Shravasti, Gorakhpur, Maharajganj, Kushinagar, Siddarth nagar, Basti, Sant kabir nagar and Deoria are under this zone. Major soil types are sand-alluvial, clayey alluvial & diara. The average annual rainfall is 1000-1200 mm.
Zone-8	<i>Eastern Plain Region</i>	District Barabanki, Faizabad, Ambedkarnagar, Sultanpur, Pratapgarh, Jaunpur, Azamgarh, Mau, Ballia, Sant Ravidas nagar, Ghazipur, Varanasi and Chandauli are under this zone. Major soil types are sandy alluvial, clayey & sodic soil. The average annual rainfall of this region is 1000-1200 mm. Maximum temperature ranges between 40-42 ⁰ C and 4.6 ⁰ C.
Zone-9	<i>Vindhyachal Region</i>	District Mirzapur, Sonbhadra and Allahabad are under this zone. The maximum area is undulated and rocky. The soil of plain is light black clay and red alluvial. Average annual rainfall of this zone is 1100 mm. Maximum and minimum temperature ranges between 40-49 ⁰ C and 3 ⁰ C.

2. Brief of horticulture in the State (district wise/cluster wise) with SWOT analysis.

Horticulture crops comprises of a wide variety of crops viz. fruits, vegetables, flowers, spices, nuts, aromatics and medicinal plants, beekeeping, mushroom cultivation betel vine and other crops, which are important for food security and allied components. U.P. is blessed with diverse agro climatic conditions; those are conducive for cultivation of varied horticultural crops round the year. UP's varied agro-climate is ideal for growing large number of these crops round the year enabling their availability on a regular basis. Uttar Pradesh holds a vast potential for the development of horticulture.

The growth in horticulture based activities in the last five years, is due to the thrust given to this activity during the 10th five year plan by the central & state governments. The allocation was raised and a large number of concessions, subsidies and incentives were given to the growers and exporters.

There has been a substantial increase both in area and production of horticulture crops during the 10th plan. The area under fruits crops is expected to go up from 11.36 lakh hectare during 2009-10 to 12.25 lakh hectare during 2010-11 and production is also likely to go up from 135-85 lakh MT to 149.43 Lakh MT. Similarly, the production of vegetable crops is also expected to go up from 365.20 Lakh MT to 401.72 Lakh MT during 2010-11. The increase in production of Potato has also been significant as the production during 2009-10 is likely to the tune of 120 Lakh MT which is also likely to go up to 151.75 Lakh MT during 2010-11.

U.P. is the first State in the country to declare those areas as fruit belts where concentrated specific fruit growing areas exist. Major mango, guava and aonla fruit producing areas have been declare as fruit belts by the State.

The present share of Uttar Pradesh in total horticulture production of the country is approximately 26%. **U.P. ranks third in fruits, Second in vegetable and first in potato production** among all states. Important fruits grown in the state are mango, guava, aonla, papaya, banana, litchis, jack-fruit ber and citrus. The major vegetables grown in the state are-peas, chilies, okra, tomato, brinjal, cauliflower, cabbage, spinach, melon, radish, carrot, turnip and cucurbits. The state has about 30.00 lac hec. under various horticultural crops. **Uttar Pradesh is the second largest producer of vegetables** in the country after West Bengal. Significant increase in area under vegetables has been recorded on small and marginal farms. **As regards productivity**, the productivity of fruits was 11.5 MT/Ha. during 2008-09 which is likely to increase to 12.18 MT/ha during 2009-10. Productivity of vegetables is likely to increase to 18.09 MT/ha from 17.28 MT/ha during 2008-09.

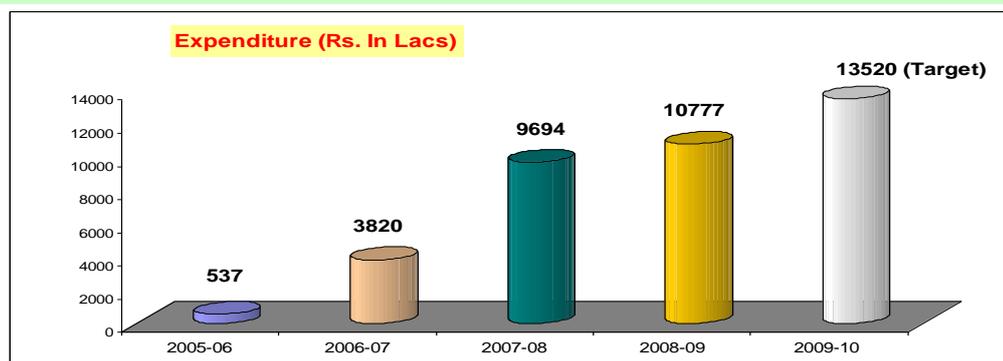
Area and Production Level of major crops Achieved in Five Year Plan Periods

(Area in Lac. ha, Prod. in Lac. M.T.)

S. No.	Plan Periods	Fruits		Vegetable		Potato	
		Area	Prod.	Area	Prod.	Area	Prod.
1	Ist FYP (1951-56)	1.00	5.00	1.00	10.00	0.97	6.86
2	IIInd FYP (1956-61)	1.50	9.00	1.50	15.00	1.13	7.99
3	IIIrd FYP (1961-66)	2.99	17.99	2.43	27.13	1.47	13.41
4	IV FYP (1969-74)	3.49	21.79	3.07	36.08	1.81	16.95
5	Vth FYP (1974-79)	5.23	28.15	4.94	55.25	2.70	42.51
6	VIth FYP (1980-84)	5.80	38.39	7.41	89.92	3.09	52.56
7	VIIth FYP (1985-90)	6.89	56.60	8.30	108.40	3.29	59.90
8	VIII FYP (1992-97)	8.10	81.78	9.97	159.00	4.11	92.63
9	IXth FYP (1997-2002)	7.73	71.56	13.47	203.68	4.71	89.72
10	Xth FYP (2002-2007)	9.14	103.00	16.67	276.90	4.71	104.60
11	XI FYP (2007-12)	13.21	164.37	24.10	441.90	6.81	166.93

Since 2005-06, the salient achievement under NHM in Uttar Pradesh have been as follows:-

NHM – Financial Progress 2005-06 to 2009-10



S. No.	Year	Opening Balance	Release	Total	Expenditure
1	2005-06	0	5340.00	5340.00	537.00
2.	2006-07	4803.00	1500.00	6303.00	3820.00
3.	2007-08	2483.00	11343.00	13826.00	9694.00
4.	2008-09	4132.00	7940.00	12072.00	10777.00
5.	2009-10 (Upto Feb., 2010)	1295.00	9143.38	10438.38	6802.91

The physical achievements since 2005-06 to 2009-10 have so far been as under:-

S.No.	Component	Unit	Achievement
1	Area Expansion - Perennial Fruits	ha.	35495
2	Area Expansion - Non- Perennial Fruits	ha.	13463
	Total		48958
3	Area Expansion - Flowers	ha.	14780
4	Area Expansion - Spices, Medicinal & Aromatic Plants	ha.	54710
5	Rejuvenation of old orchards	ha.	3944
6	Vegetable Seed Production	ha.	7090
6	Creation of Community Tanks/Ponds	No.	46
7	Mulching	ha.	6033
8	Promotion of IPM	ha.	21825
9	Promotion of organic farming	ha.	29427
10	Establishment of Vermi-Compost Unit	No.	3707
11	Training of Farmers	No.	75428
12	Distribution of Bee-colonies with hives	No.	37584

Infrastructure created under NHM

Programmes	Achievements (Unit in No.)				
	2006-2007	2007-2008	2008-2009*	2009-10 (Upto Feb.10)	Total
Estab. of Nurseries (a) Model Nursery	2	14	15	2	33
(b) Small Nursery	8	45	115	11	179
Rehabilitation of Tissue culture lab	0	6	1		7
Seed Infrastructure	0	17	3		20
Community Tank	0	0	0	45	45
Bio Control Lab	0	2	3	1	6
PHM (a) Pack House	13	87	102		202
(b) Cold Storage units	0	19	32	107	158
(c) Mobile Processing units	0	1	0		1
(d) Whole sale/Rural market	0	3	9		12
(e) Functional Infrastructure	0	22	0		22
(f) Mentha Distillation Unit	0	4	3		7
(g) Refer Van	0	1	1		2
(h) Onion Storage	0	0	6	1	7
(i) Primary Processing Unit	0	0	2		2

SWOT ANALYSIS

On analyzing the strength, weakness, opportunities and threats covering the horticulture sector, it is evident that horticulture sector would be competitive provided weaknesses are converted into opportunities.

Strength

- Endowed with agro climatic conditions suitable for a large number of horticultural crops with plenty of sunshine and large area of fertile soil & water.
- A number of cultivars and their adoption in different agro-climatic condition make the availability of horticultural produce for expanded period.
- Network of research infrastructure to support the development. Changing dietary habits of the people with rise in income would need more horticultural produce.

Weaknesses

It is clear from the forgoing review that there has been a substantial increase in area, production and productivity in major horticulture crops since last plan periods. However, the gaps in the horticulture development, in the state, have also been identified. Major gaps are listed below:-

- Lack of adequate quantities of quality planting material, improved/hybrid seeds.
- Comparably low productivity of various horticultural crops.
- Lack of efficient technology in the area specific & technical knowledge at various levels.
- Lack of awareness regarding pre and post harvest management practices.
- Lack of proper marketing infrastructure and strong marketing system having forward and backward linkages.
- Slow promotion of processing of horticultural produce, value addition and less availability of processing industries in the sector.
- Lack of human resource development, professional capability of departmental staff.
- Lack of technical personnel at block /grass root level.

Opportunities

- Adequate availability of raw material for processing industries.
- The state has sufficient number of institutions under Central Govt. viz. ICAR, CSIR, etc. and SAU's to backup the development programmes.
- Compact areas having cheap, hard working and skilled labour force.
- Large tract of alluvial soil in the basin of different rivers like- Ganga, Yamuna, Rapti, Ghaghara, etc.
- The activity will encourage the export of fruits, vegetables and spices from the state. This will provide better returns to the farmers as well as foreign exchange to the state.
- The approach will also be helpful in minimizing the post harvest losses during the handling of produce.
- The mission will also take care of environmental issues with respect to safe/organic produce for consumers.
- Vast opportunity to attract youth towards farming sector.

Threats

- Reduced productivity in the absence of improved technology.
- Malnutrition of millions if horticulture development does not move fast.
- Large number of production constraints and lack of infrastructure.
- Inadequate infrastructure for quality management and quarantine.
- U. P. is a land locked state.
- There is lack of reliable statistical information in area and production of horticultural crops.

3. PRESENT AREA, PRODUCTION AND PRODUCTIVITY OF THE CROPS (CROP-WISE) (2004-05 ONWARDS):-

The state horticulture development has been given a focused attention during Xth Plan period. This has resulted in spectacular change in the horticultural crops status.

Area and Production of Fruits, Vegetables and Potato in the state

(Area in Lac. ha., Prod. in Lac. M.T.)

Year	Fruits		Vegetable		Potato		TOTAL	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.
2004-05	8.73	97.49	15.46	251.44	4.40	98.22	28.59	447.15
2005-06	8.86	99.36	15.56	254.49	4.59	102.3	29.00	456.19
2006-07	9.14	103.00	16.67	276.90	4.71	104.6	30.52	484.54
2007-08	9.77	112.27	17.81	301.82	5.03	114.01	32.61	528.11
2008-09	10.53	123.50	19.21	332.00	5.43	125.42	35.17	580.92
2009-10 (Target)	11.36	135.85	20.72	365.20	5.85	137.96	37.93	639.01
2010-11 (Proj. Target)	12.25	149.42	22.34	401.72	6.31	151.75	40.91	702.91
2011-12 (Proj. Target)	13.21	164.37	24.10	441.90	6.381	166.93	44.11	773.20
2012-13 (Proj. Target)	14.20	207.89	25.92	482.89	6.49	170.80	46.61	861.58

4. Additional area covered during 2005-06 to 2009-10 indicating source of supply of seed/planting material along with name of the varieties.

Crop Specific Status- Pre & Post NHM Scenario in the State :

Crop/ U.P. rank	Pre NHM			Post NHM						
	2004-05			2008-09 Estimated			Area coverage under NHM (ha)	Prop. NHM Area coverage 2009-10 (ha)	Expected net coverage 2009-10 (ha)	Other Interventions
	Area (ha)	Prod. (Mt)	Pvty. (Mt./ha)	Area (ha)	Prod. (Mt)	Pvty. (Mt./ha)				
Fruits										
Mango IIInd	249527	2757487	11.05	271205	3465946	12.78	11371	2820	276175	Est. Nursery - 111 Rejuven. - 2227 ha. Trg. of Farmers Adoption of IPM and organic cultivation
Guava IIIrd	14015	143812	10.26	34012	425012	12.13	7314	3780	37419	Rejuven. -996 ha. Trg. of Farmers Adoption of IPM and organic cultivation
Banana	16015	464435	29.00	25432	940984	37.00	6818	3795	41227	Trg. of Farmers Adoption of IPM and organic cultivation, Introduction of G-9 TC Banana with Drip.
Litchi 10th	240	751	3.13	310 (2918)	1340	4.32	2722	1155	4667	Trg. of Farmers Intro. of Litchi Sahi & Rose scented var.
Aonla Ist	18645	92293	4.95	29308	319457	10.90	4663	2135	31443	Rejuven.- 415 ha. Trg of Farmers, Adoption of IPM and organic culti.
Flowers										
Gladioloi	2145	2145	1.000	7442	8190	1.101	3547	932	9122	Training of Farmers, Introduction of imported bulbs var.
Tube rose	508	1025	2.018	2757	6617	2.400	1200	600	4665	Training of Farmers, Introduction of quality bulbs.
Marigold	1825	3705	2.030	10194	25485	2.500	6719	1300	11594	Training of Farmers, Introduction of pusa narangi & pusa ketki.
Rose	3085	7724	2.504	4328	10899	2.518	669	125	4503	Training of Farmers, Introduction of pusa narangi & pusa basanti.

Spices										
Turmeric	1494	2770	1.85	5244	15417	2.94	2506	760	7004	Training of Farmers, Introduction of Improved varieties & establishment of 27 Turmeric Curing Units (19 Under NHM).
Dry Chillies	18027	16919	0.93	38451	39220	1.02	12064	2946	54461	Training of Farmers, Introduction of hybrid varieties.
Garlic	32345	140083	4.33	42839	220363	5.14	10494	1685	46524	Training of Farmers, Introduction of Jamuna safed & Jamuna Lal varieties.
Organic Cultivation (Adoption)										
Fruits (Mango, Guava, Litchi, Banana)	0	0	0.00	15000	135000	9.00	15000	-	16000	Training of Farmers, Adoption of organic farming under fruits & vegetables. (15000 Ha. In 2006-07, 5400 Ha. In 2007-08 & 9600 Ha. in 2008-09)
Vegetables	0	0	0.00	16000	208000	13.0	16000	9600*	17500	Certification process started for 15000 Ha. Area during 2007-08, 5400 Ha. Area during 2008-09 & 9600 Ha. Area is being proposed during 2009-10. (* - for Certification). Marketing Tie-Up with U.P Mandi Parisad is Being proposed by Alloting sperate space for Organically Produced Fruits & vegetables in every important Fruits & Vegetables Mandi.

Strategic Planning and Road Map:-

A. Plantation infrastructure and development:-

1. 16 model nurseries, 109 small nurseries and 4 new tissue culture unit are planned to ensure the availability of quality planting material particularly of tissue-culture banana. U.P. have only one Govt. TC lab at Lucknow which produces 1.70 lacs TC banana plants.

2. Vegetable Seed Production is planned in few districts having good potential for seed multiplication, particularly potato, pea and okra. During coming three years vegetable seed

production in 9152 hectares on public and private sector is planned. Since 2005-06 seed production in 7090 hectares was taken up. U.P. is number one producer of potato and pea in the country. This will help in higher seed replacement rate and production.

3. Area expansion with high density planting of mango and guava is being taken up in fruit belt and other major producing areas in 200 hectares in the state.
4. Strawberry cultivation in 30 hectares is being taken up Lucknow, Saharanpur, Muzaffarnagar, Meerut and Ghaziabad districts.
5. Area expansion programme of mango, guava, aonla, litchi, bael, citrus, ber in 28450 hectares is proposed during coming three years. Tissue culture banana is proposed in new clusters with a targets of 6190 hectares.
6. Flower cultivation in 1110 hectares is proposed with close linkage of erection of green houses and cost of planting material of high value flowers for poly houses.

B. Infrastructure Development :

1. 89 multi-community multi-chamber cold storages with technical specification as prescribed by Govt. of India are proposed in major 20 potato and vegetable growing districts which will help in motivating other already established coldstorages to upgrade their technology.
2. 233 pack-houses, 24 pre-cooling units, 30 mobile pre-cooling unit, 22 refer van/containers, 134 primary/mobile/minimal processing unit, 7 ripening chamber, 144 low energy cool chamber, 239 preservation units and 204 low cost onion structure are proposed to be established in major crop producing areas.
3. Considering the insufficiency of rural markets, 101 new rural markets and 250 retail markets are proposed. 938 mobile/static vending carts are proposed to reduced the post harvest losses. 75 functional infrastructure for collection, sorting, grading and packing are proposed.

C. Resource Management :

1. In order to facilitated the latest technology to the beneficiaries fields, human resource development programme is planned in a way that the get the technology at their door steps, through training within district, state and outside the state and through exposure visit 56812 beneficiaries will be trained through these programme.
2. Horticulture mechanization is planned in such a way that the 21 fruit belt of mango, guava and aonla are benefited by power operated machine and import of new machine for demonstration purposes. Rs. 4.00 Crores are proposed for these activities

Source of Planting material and varieties :

The quality planting material for area expansion programme is being arranged/procured primarily from Govt. nurseries of the department and in case of deficit, it is being arranged from Central Institute of Sub-tropical Horticulture Institute, RehmanKhera, Lucknow, State Farm Corporation, Govt. of India, State Agriculture Universities, CIMAP and other public sector organizations/institutions. At times the quality planting material is also procured from the private sector nurseries as per norms/standards fixed by Govt. of India.

The as per the GO no.- 3397/58-2008-249/2008 dated 11-09-2008 the quality of planting materials is being verified by the constituted committee by the District Magistrate in which the officers of the DHM, department of Agriculture, Forest and district Economic and Statistical officer are the members. This committee examines the quality of procured planting material on random basis. The quality of bio fertilizers is ensured as per the amended fertilizer (control) order, 2006.

The varieties recommended by Technical Support Group (TSG) of State Horticulture Mission, U.P. is listed below. These varieties are recommended to be planted/cultivated in the different agro-climatic zones of the State :-

Sl. No.	Crop/ Item	Varieties/Specification
1)	Grafted Saplings of different Fruit Plants	
	Mango	Dasehari, Chausa, Amarapali, Mallika, Ramkela, Totapari, Gaurjeet, Bombay Green, Dasehari-51
	Guava	L-49, Allahabad Safeda, Lalit, Sangam, Apple colour (Surkha)
	Aonla	NA-6, NA-7, NA-10, Kanchan, Laxmi-52
	Litchi	Rose scented, Shahi
	Bael	NB-5, NB-6 & other suitable selections
2)	Flowers	
	Gladioli bulb	White Prosperity, Friendship Pink, Big lime, Supereme, American Beauty, Novalux, Yellow supreme, Rose Supreme, Jitter, Jister gold, Jackson, willy gold etc.
	Marigold	Pusa Narangi. Pusa Basanti & Other Hybrids
	Tuberose	Vaibhav, Shringar, Suvasini, Swarnrekha, Rajatrekha
3	Spices	
	Turmeric	Rajendra Sonia, Azad Haldi-1 N.H.D.-18, Vallabh priya, Roma, & other important varieties
	Chillie(Hybrid)	Indira, Ujala (PS/NU)010A, Pari hot, NS-1101, NS211, Mahajwala, Divyajyoti, 86235, Siddhi, Jawahar Dhoom, Ulka, Daiya, BSS 414, Anmol
	Garlic	G-1, G-50, G-282
4	Aromatic Plants	
	a. Mentha b. Damisk Rose	Kushal, Kosi, Saksham Noorjahan, Rani Sahiba.

5. Crop wise extent of area identified for rejuvenation:-

Uttar Pradesh is a major mango, guava and aonla producing State. The old and senile/unproductive orchards are being rejuvenated under NHM since 2005-06 and an area of 3945 ha. have been rejuvenated since then. The Technologies adopted are as suggested / recommended by CISH, Rehmankhera, Lucknow.

The area under mango is 2.76 lac ha. in the State out of which the area in fruit belt districts is approximately half of it. Rejuvenation / replacement of senile plantation with canopy management is necessary for increasing the productivity. During past years, due to unawareness and unacceptability of this technique at farmer's level, the targets could not be achieved. However, during 2010-11 and 2012-13, an area of 4735 hectares in two years will be rejuvenated by way of light, medium and hard pruning and other recommended management practices. Similarly, aonla and guava orchards are also to be rejuvenated on priority basis in old orchards of major districts.

6. Crop wise identification for the State indicating specific varieties:-

S.No.	Crop	Varieties	Major Clusters/Districts
Fruits			
1	Mango	Dashehri, Langra, Chausa, Amprapali, Ramkela	Saharanpur, Meerut, Bulandshahar, Moradabad, Muzaffarnagar, Sitapur, Lucknow, Unnao, Barabanki.
2.	Guava	Allahabad-Safeda, Lucknow-49, Lalit, Sangam, Sweta, Surkha	Bareilly, Farrukhabad, Kanpur, Unnao, Kaushambi, Allahabad, Banda, Jhansi, Lalitpur, Varanasi, Ghazipur.
3.	Aonla	NA-7, NA-10, Krishna, Kanchan.	Jhansi, Lalitpur, Banda, Chitrakoot, Kanpur, Pratapgarh, Jaunpur, Raibareli.
4.	Litchi	Shahi, Kalkatiya, Rose-scented.	Saharanpur, Muzaffarnagar, Basti, Sant kabirnagar, Maharajganj, Gorakhpur, Sidharthnagar, Kushinagar.
5.	Citrus Fruits	Kagzi Lime, Mandrin, Kinno.	Jhansi, Lalitpur, Hamirpur, Banda, Chitrakoot.
6.	Ber	Umran, Karaka, Gola, Sabiya.	Jhansi, Lalitpur, Hamirpur, Banda, Chitrakoot, Mahoba.
7.	Bael	NB-9, CB-1, CB-2.	Jhansi, Lalitpur, Hamirpur, Banda, Chitrakoot, Mahoba.
8.	Banana	Grand-naine	Sidharthnagar, Basti, Sant Kabirnagar, Maharajganj, Kushinagar, Faizabad, Barabanki, Sultanpur, Lucknow, Sitapur, Kaushambi, Allahabad.
Spices			
1.	Turmeric	Rajendra-Sonia, Azad haldi-1, Roma, Vallabh- Priya	Sidharthnagar, Gorakhpur, Maharajganj, Kushinagar, Jhansi, Jalaun, Bareilly.
2.	Chillies	Hybrid-Indira, Ujala, Parihot, Anmol, Mahajwala, Divyajyoti.	Bareilly, Moradabad, Kanpur, Kaushambi and other districts.
3.	Garlic	G-1, G-50, G-282	Mainpuri, Etawah, Agra, Kanpur.
4.	Ginger	Suprabha, Suruchi, Surabhi, Baruasagar	Jhansi, Jalaun, Lalitpur, Kanpur, Kushinagar, Gorakhpur.
Flowers			
1.	Gladiolus	White Prosperity, Friendship Pink, Big lime, Supereme, American Beauty, Novalux, Yellow supreme, Rose Supreme, Jitter, Jister gold, Jackson willy gold etc.	Ghaziabad, Meerut, Muzaffarnagar, Saharanpur, Lucknow, Varanasi, Allahabad, Mathura.
2.	Tuberose	Vaibhav, Shringar, Suvasini, Swarnrekha, Rajatrekha	Ghaziabad, Meerut, Muzaffarnagar, Lucknow, Varanasi, Allahabad
3.	Marigold	Pusa Narangi. Pusa Basanti & Other Hybrids	Ghaziabad, Varanasi, Allahabad, Mathura, Kanpur, Lucknow, Kaushambi.
Aromatic Plants			
1.	Damask Rose	Noorjahan, Rani Sahiba.	Mahamayanagar, Ballia, Allahabad, Lucknow.

7. Crop wise (variety wise) Production and supply of nucleus seed/planting material:-

S. No.	Crop/Varieties	Unit	Reqmt. (per ha.)	Target (Ha.) 45 districts		Requirement (Lacs)		Avalibility at Govt. Units		Gap/ Surplus 2010-11
				2010-11	2011-12	2010-11	2011-12	2010-11	2011-12	
1	2	3	4	5	6	7	8	9	10	11
1	Mango	Plants	100	2300	2315	3.02	4.18	6.10	6.30	3.080
2	Guava	Plants	277	2915	2840	9.00	13.65	7.05	10.50	-1.950
3	Anola	Plants	100	1085	1090	1.08	2.70	2.25	3.00	1.170
4	Litchi	Plants	100	535	555	0.535	1.46	0.92	1.25	0.385
5	Bael/Ber	Plants	100	300	300	0.03	0.38	0.40	0.52	0.370
6	Citrus	Plants	277	175	175	0.48	2.07	2.50	3.00	3.080
	Total			11781	13548		23.33	19.22	24.57	-1.950
7	Banana (T.C)	Plants	3700	1990	2090	73.63	77.33	1.70	2.00	-71.93

8. Outsourcing of planting material indicating address of recognized sources, if need be:-

The planting material with the quality standards fixed by GoI, will be primarily arranged and supplied to the beneficiaries from Govt. nurseries of the department. The department produces 25.45 lakh quality grafts at its 133 Govt. nurseries, multipurpose farms and other production unit/farms.

The additional requirement of planting material will be met by identified GoI institutions located in the state as well as outside the state like CISH, Lucknow, State Farm Corporation, CIMAP, NBRI, IARI, IIVR, NRC-Litchi, NHRDF, National Seed Corporation, State Seed Corporation, SAU's and other units established under NHM, if they fulfill the quality standards. Indenting will be done well in advance to GoI institutions so that they are avail to produce and supply quality planting material at the plantation seasons.

Outsourcing of planting material will also be arranged from reputed seed producing companies identified by Technical Support Group (TSG). U.P. is a state having more than 1300 nurseries in private sector. These nurseries are being persuaded to get them accredited under NHB as per GoI directives. If they do so, they too will be considered as potential planting material supplier for NHM.

9. Number of nurseries / tissue culture labs, green house established along with the capacity of production of planting material:-

Since 2005-06, under NHM 212 model/small nurseries have been sanctioned by EC of NHM/SLEC. The model nurseries sanctioned in public sector are at production stage, but in private sector, the production level is yet to be attained as mother plants are new and younger to cater the need of scion and bud woods. Also necessary infrastructure like mother block, poly-house, shade-net, etc. are being established at these units.

10. Extent of creation of infrastructure facilities such as community tanks, tube-wells, drip irrigation, tissue culture units, disease forecasting units, biological labs and their utility:-

The community tanks : During 2009-10, against the target of 65, 45 community tanks are at the final stage of completion and 10 hectares of orchards, in the periphery of each community tank are planted. These tanks are planned in the water scarcity Bundelkhand

and Vindhyan region of the state. This programme is now picking up and more and more beneficiaries/farmer associations are coming forward to avail this facility in these areas. During 2010-11 and 2011-12, it is proposed to establish 397 community as well as individual tanks in dark and gray areas of rainfall and water strata of the NHM districts.

Drip Irrigation : This programme is being implemented in all 71 districts of the state under Centrally Sponsored Micro-Irrigation Scheme. However, the establishment of new orchards under NHM is dove-tailed with micro irrigation scheme thus, the farmers are benefited with the convergence of these two schemes.

Tissue-Culture Unit : 7 existing tissue-culture labs have been rehabilitated in public sector- SAUs - Meerut, Faizabad, Kanpur, BHU, Varanasi, CPRI, Meerut and Govt. Tissue-culture Lab, Lucknow. The labs are working with their full capacity and most of the produced planting material is being utilized in NHM programmes.

Disease Forecasting Units : One unit have been sanctioned at CSAUAT, Kanpur.

Bio-Control Labs : 6 bio-control labs at SVBPUAT, Meerut, Lucknow University, Bio-Tech Park, Lucknow, BHU, Varanasi, NDUAT, Faizabad, CISH, Rehmankhera, Lucknow have been sanctioned during 2006-07 to 2008-09. One lab have been sanctioned during 2009-10 at KVK, Hydergarh, Barabanki (NDUAT, Faizabad). Bio-agents, produced at these labs are being used by the farmers in the nearby areas.

11. Extent of creation of infrastructure facilities for on-farm handling indicating the quality of produce handled per unit:-

Pack house (on farm handling storage) : 202 pack house (on farm handling storage) unit have been sanctioned for different districts (Meerut, Saharanpur, Muzaffarnagar, Barabanki, Lucknow Ghaziabad, Bulandshahar, Ghazipur, Kaushambi, Fatehpur, Allahabad, Kanpur, Unnao, Faizabad, Moradabad) during 2007-08 to 2009-10. Under these pack houses various horticulture crops are being handled- harvesting, sorting, grading, packing.

Functional Infrastructure : 22 functional infrastructure have been sanctioned for different districts (Barabanki, Lucknow, Ghazipur). During 2007-08 to 2008-09 under this schemes the various main activities carried out by farmers/traders by applying sorting, grading, washing, packing, semi processing, minimal processing activities for the value addition of various horticulture produce.

On the basis of primary feedback from the field officers, the creation of these facilities at beneficiaries fields, the handling of produce have been done in a better and scientific way which resulted in better marketing management and remunerative prices to the beneficiaries.

B. PHM & Marketing

1. Quantum of produce available for domestic market and market surplus for export to other states / countries (crop wise):-

A large quantity of different fruits, vegetables, cereals, and pulses are grown in the State but most of them are consumed raw. Due to inadequate processing infrastructure nearly 2 percent of the total production is processed. If the processing facilities are improved, it would help in increase in farm income as well as employment in rural areas. The State Government has initiated a number of steps for encouraging investment in food processing sector by rationalization of procedures, encouraging entrepreneurs,

strengthening of food processing units in the State to focus on quality and brand building exercise.

There are 34000 small, medium and large food processing industries in U.P. Food processing industries include Foodgrains, Pulses, Spices, Fruits, Vegetables, Poultry, Meat, Dairy etc.

Horticulture and Floriculture hold immense potential in terms of high value additional to the farmers. The constraining factors include high cost of cultivation, transportation and marketing. In Western U.P. floriculture development has taken place due to better marketing facilities and potential of marketing at National Capital Delhi.

Mango, guava, aonla, karonda, jack-fruit and beal are the major fruit crops, which have good potential for processing. Uttar Pradesh produces 332 lakh MT of vegetables of which potato contributes to about 40% of the production. In vegetables pumpkin, carrot, tomato, petha, potato, green chilly, red chilly and green peas are good processing crops. Potato is the major raw material available in the state for processing. Chipsona-I and II have been successfully introduced among the farmers. Simultaneously, a few cold storages have come up in the state for storing processing varieties.

U.P. is a minor producer of spices, although a wide range of spices are produced in the state like turmeric, ginger, garlic, coriander, fenugreek, chilli, mustard, rai, fennel etc. Uttar Pradesh produces 1.14 lakh MT of spices of which Garlic contributes to 37% of the production, Chilli (13%), coriander (3.3%) and approximately 1.5% each by Turmeric and Ginger. Garlic production is concentrated in Agra division with state's share of 61% followed by Kanpur (13%), Bareilly (9%) and Lucknow (5%).

2. Extent of creation of infrastructure for post harvest management such as primary processing, cold storages, pack houses, refrigerated vans, packaging units, markets (Terminal markets, wholesale markets, rural primary markets) etc:-

Primary Processing : Two primary processing unit have been established in Barabanki and Lucknow district.

Cold Storages : 158 cold storages for storage of fruits/vegetables/spices/flower seeds have been established in various districts during 2007-08 to 2009-10.

Refrigerated vans: Two refrigerated vans/unit have been sanctioned in Lucknow district during 2008-09.

Markets (Terminal markets, wholesale markets, rural primary markets):12 markets mainly wholesale market for trading/marketing of fruits/vegetables/ spices/ flower seeds and one flower market of International level have been established in various districts during 2007-08 to 2009-10.

3. Networking of marketing and processing infrastructure including export.

In the state for networking of marketing various agencies/departments are working namely Mandi Parishad, U.P., HOFED, Agriculture Marketing and Export, U.P. For strengthening of processing infrastructure the UPSIDC actively engaged as development of agro-based food park at Lucknow, Varanasi, Gorakhpur. For export promotion council has actively working in the state.

Agri-Export Zones in U.P.

Four AEZs have been established for promotion of mango and potato exports. U.P. Horticulture Cooperative Marketing Federation is organizing horticulture producers as user-groups/SHGs/Primary Societies for facilitating marketing of perishable produce.

AEZ	Districts
Potato	Agra, Hathras, Farrukhabad, Kannauj, Meerut, Aligarh, Baghpat
Mango	Lucknow, Unnao, Hardoi, Sitapur, Barabanki
Mango	Saharanpur, Muzzafarnagar, Bijnore, Meerut, Baghpat, Bulandshahar

MOU for setting up these zones was sign between APEDA and the state Govt. Farmers have been identifying and training programme were organized on pre and post harvest management. 6 Potato graders have been supplied each at Meerut, Firozabad, Aligarh, Kannauj, Hathras & Agra and transport subsidy provided to the beneficiaries. One mango pack house each at Rehmankhara, Lucknow and Saharanpur have been established to facilitate the export of mango and brand promotion of U.P. mango with the brand of Nawab.

With the financial help of APEDA, these AEZ's will be further strengthen and export promotion will be facilitated.