

## CHAPTER-IV

### **HORTICULTURE**

Apart from revolutionizing the production of wheat and paddy in the state, the green revolution had brought in his wave several problems too, such as disturbances in the water table levels, soil health and overall agro-eco system and emergence of micro-nutrient deficiencies etc., which rang alarm bells for the agriculturists. The state, however, has witnessed several major deviations from the routine course in the past 40 years or so leading to a few land marks, thereby making it as one of the most dynamic systems in the country. Its resilience against severe weather onslaughts has been another dominate feature helping in keeping away the disasters which normally drops in annual food grain production. Diminishing returns from the traditional agriculture, however, has given us a new thinking towards the cultivation of fruits, vegetables and flowers.

Historically speaking, to boost the cultivation of fruits, Haryana state initiated the cultivation of improved varieties of Ber in the pre- independence period. The village common lands were the natural orchards. These lands gifted a number of fruits and herbs to common men. However, the pressure of population forced to bring these lands under crop husbandry. It was in a sense great set back to traditional horticultural activities. The loss was unimaginable. Except the plantation crop sector, a vast majority of operational holdings under horticultural crops in the State are small and unirrigated. There is a threat to valuable genetic resources after bringing village common lands under plough and there is a need to be taken for their conservation. Wastelands and hilly terrains being potential extension areas, matching technologies for dry land and hill horticulture need to be developed in Haryana.

The state is ideally suited for exploiting the potential of horticulture production, being in close proximity to the region of National Capital Delhi, which is one of the biggest markets of the country. With a view to give a boost to the growth of the horticulture in the state, the Government of Haryana created an independent Department of Horticulture from Department of Agriculture in 1990-91. Since then the department has made significant contribution in the development of horticulture in the State. A majority of the horticultural crops

especially fruit crops being perennial in nature having long gestation period require well planned and systematic planning for their development. As a result the state has now 6.30% of the total cultivable area under horticultural crops but still there is a great potential for enhancement of this sector in the present scenario of crop diversification for the better return per unit area, increasing more employment opportunities and upliftment of the farming community in the state. The growth scenario of horticulture is depicted in the following table:-

Area in '000' hect.

Sr. No.	Year	Cultivable Area	Area under Horticultural Crops	%age horticultural area over cultivable area
1	2	3	4	5
1.	1966-67	3819	19.17	0.50
2.	1990-91	3792	68.05	1.79
3.	1999-2000	3821	166.18	4.35
4.	2000-01	3817	166.92	4.37
5.	2001-02	3801(P)	184.77	4.86
6.	2002-03	3801(P)	198.46	5.22
7.	2003-04	3801 (P)	239.64	6.30

A perusal of above figures reveals that percentage of horticultural area over cultivable area increased from 1.79% (1990-91) to 6.30% (2003-04). Under the diversification action plan the area under horticultural crops will continue to go up. For the growth of horticulture the state has been divided in the following zones.

Zone	Fruit crops recommended
A. EASTERN ZONE	

	(i) Shivalik Hilly Region (Sub-humid with high rainfall) Kalka, Naraingarh, Chhachhrauli, Jagadhari, Karnal, Panipat, Ladwa and Indri.	Peach, Plum, Pear, Mango, Loquat, Litchi, Sapota, Papaya, Aonla, Jamun and Guava.
	(ii) Alluvial Plain (Semi-arid with medium rainfall) Faridabad, Palwal, Ballabgarh, Gurgaon, Nuh, Pataudi, Sonipat, Karnal, Panipat, Kurukshetra, Kaithal, Guhla, Pehowa parts of Rohtak and Jind districts.	Citrus, Guava, Grapes, Datepalm, Peach, Plum, Phalsa, Jamun, Mulberry.
B.	WESTERN ZONE	
	(i) Alluvial Plain (Semi-arid with medium to low rainfall) Parts of Hisar, Rohtak, Bhiwani and whole of Mahendergarh district.	Citrus, Grapes, Guava, Ber, Aonla, Datepalm, Jamun, Mulberry, Bael.
	(ii) Sandy dunal (Arid zone/Rainfed with low rainfall). In the Western and South-Western parts of the State and adjoining Rajasthan, Sirsa, Bhiwani, Rewari.	Ber, Bael, Aonla, Mulberry, Phalsa, Karonda, Pomegranate.

Apart from this the state has also ideal and most conducive soil and climatic conditions for the wide range of cultivation of different type of Kharif as well as Rabi vegetable crops, flower crops, aromatic and medicinal crops and spices crops detailed below-

#### **VEGETABLE CROPS :-**

##### **(A) Kharif :-**

Cucurbits, Ladiesfinger, Onion, Chillies etc.

##### **(B) Rabi :-**

Cabbage, Cauliflower, Onion, Peas, Radish, Carrot, Turnip, Brinjal, Tomato, Potato, Knol-Khol etc

##### **(C) Flower Crops :-**

Marigold, Roses, Carnation, Chrysanthemum, Gladiolus, Tuberoses, Zerbera & Lillium.

**(D) Aromatic and Medicinal Plants :-**

Akarkara, Isabgol, Mullathi, Lemon Grass, Safed Musali, Jatrofa, Sarpgandha, Ashwagandha, Guggal, Kalmegh, Aonla, Guarpatha and Konch etc.

**(E) Mushrooms :-**

White button Mushroom and Dhingri

**(F) Spices Crops :-**

Ginger, Turmeric, Chilies, Corriander, Methi and Fennel etc.

**MANAGEMENT OF GOVERNMENT GARDEN & NURSERIES IN THE STATE :-**

To cater the needs of quality planting materials the department has established 25 govt. Garden & Nurseries in the state. These nurseries have been set up in different zones of the state and keeping in view the different agro climatic conditions. Various types of fruit plants are being propagated on these nurseries. Good quality and diseased free planting materials and vegetable seeds are produced and supplied to the farming community of the State.

Total area under these Government Garden & Nursery is 720 acres, out of which cultivable area is 655, acres the rest area is under building, offices and other uses. The area under garden is 446 acres. The area under nursery is 24 acres. To enhance the income of these nurseries, intercropping of vegetables and seed production is being done. Total income from all sources viz. sale of plants, auction of fruits of the garden, sale of potato and other vegetable seeds etc. was Rs. 1,07,40,273/- during 2003-04. These nurseries have great potential for strengthening to achieve the goal of development of horticulture in the State. Besides these Government Garden & Nurseries, 35 private registered nurseries situated at various locations of the state are also producing fruit plants. The planting material produced since 1977-78 to 2003-04 at these Government Garden & Nurseries and Private Registered Nurseries are as under: -

Sr. No.	Year	Plants produced at Govt. Nursery (In lakhs)	Plants produced at Pvt. Regd. Nursery (In lakhs)	Total No. of plants produced (In lakhs)	Total foundation potato seed produced (qtls.)
1.	1997-98	2.75	4.85	7.60	3767
2.	1998-99	3.86	3.79	7.65	4114
3.	1999-2000	3.41	4.09	7.50	4620
4.	2000-01	3.11	3.89	7.00	7000
5.	2001-02	2.30	4.85	7.15	4560
6.	2002-03	2.76	4.24	7.00	5008
7.	2003-04	3.35	3.65	7.00	5937.45

The production of plants at Government Garden & Nurseries are effected due to lack of funds, deterioration of soil health, brackish water and drought conditions which prevailed during last two year. Due to which seedlings for grafting, budding could not flourish, which was the main reason for the low production of plants during last year. Apart from potato seed department also assists the Seed Production Programme of HSDC, NSC and other seed producing agencies.

Training facilities have been created with the assistance of Agriculture Human Resources Development and Horticulture Training Institute is in operation at Karnal where more than 1250 farmers have been imparted training who are directly or indirectly engaged in horticulture. Apart from this the existing extension staff is being trained for updating their knowledge through the technical inputs from State Agricultural University and outside the state from Regional Station and ICAR Institutes

#### **STATE INTERVENTION :-**

For the Development of Horticulture there are 7 non-plans, 6 plans, 2 Centrally Sponsored Schemes and one Sharing Scheme from Ministry of Agriculture, Government of India. The developmental programmes in the States are being implemented through macro management having 8 different sub-schemes including arid zone crops, plasticulture, commercial floriculture and information technology etc.

## **PRODUCTION OF HORTICULTURE CROPS**

### **FRUITS:-**

The area under fruits during 1966-67 was 7865 hectares with a total production of 27527 tonnes. The area and production under fruits has increased considerably from 12640 hectares and 99800 tonnes during 1990-91 (since the creation of the Department) to 31611 hectares and 257200 tonnes by the end of 2003-04 respectively.

### **VEGETABLES:-**

During 1966-67 in Haryana State the total area under vegetable was 11305 hectares with a production of 135360 tonnes. The area and production of vegetables have increased from 55360 hectares and 802240 tonnes during 1990-91 to 2,03,740 hectares and 27,01,300 tonnes by the end of 2003-04.

### **MUSHROOM:-**

The mushroom cultivation was non-existent at the time of bifurcation of the state in 1966-67. This high and nutritionally rich food picked up during 1989-90. Mushroom cultivation is a high income and employment generating activity. Steps have been taken to increase modern pasteurized compost and spawn production. Mushroom testing and disease identification centers, one at Murthal and other at CCS HAU, Hisar have been established. This will further augment the efforts for better quality mushroom production with increased yield. The production of mushroom during 1990-91 was 850 tonnes. It increased to 5954 tonnes by the end of 2003-04.

### **FLOWERS :-**

Commercial flower cultivation was non-existent at the time of re-organization of the state. Keeping in view the increased demand of flowers and cut flowers for domestic and export market, the Department has planned to introduce commercial floriculture. Before 1989-90 there was no planned programme of commercial flower production. There was hardly an area of 50 hectares under commercial flowers, but it covered an area of 4286 hectares during 2003-04.

### **INTRODUCTION OF NEW TECHNOLOGIES:-**

Water is a major constraint in the state and it is extremely necessary to conserve, preserve and utilize the irrigation water to achieve the higher

productivity with optimum utilization of available water by adopting new technologies such as drip and micro irrigation system. Although water is a renewable resource, but Haryana does not have any perennial river, therefore this type of irrigation facility is most suited to Southern area of the state. Fertilizer use efficiency can also be enhanced to 30-40 per cent, where it is applied through drip irrigation. It will also increase the productivity. Drip Irrigation System is a major component precision farming. By the end of the year 2004-05, 3569-hectare area under drip and micro irrigation system was covered.

Similarly Green house, poly house, have been found to be very successful for raising nursery, off-season production of vegetables and flowers, hardening of tissue culture plants and saving the saplings from vagaries of weather. By the end of the year 2004-05, 225 poly green, green houses were set up.

#### **MEDICINAL AND AROMATIC PLANT CULTIVATION:-**

In the changed scenario, cultivation of medicinal and aromatic plants is also becoming a rewarding sector for getting higher returns for unit area. The state has very conducive soil and climatic conditions for the cultivation of wide range of medicinal and aromatic plants. For the promotion and development of cultivation of medicinal and aromatic plants in the state, Department of Horticulture has initiated the following steps:-

Motivation of farmers for growing herbal/medicinal/aromatic plants at their fields to get more return per unit area with technical assistance from the Department through its extension personal in the field.

Trainings and visits of the farmers as well as field functionaries about the latest technical know how for the cultivation of various medicinal/herbal plants. Laying out of demonstration on various species of herbal/medicinal/aromatic plants at farmers field with assistance @ Rs.1500/- per demonstration for vital inputs under Macro Management Mode of Agriculture.

To provide a regular source of income to the Panchayats in the State, a drive of medicinal plant cultivation at Panchayat/community lands in the State has been started.

**STRATEGIES AND INTERVENTIONS:-**

In order to achieve the goal of overall development of horticulture for the upliftment of rural masses and farming community, the Department of Horticulture is going to adopt the following strategies and interventions: -

The farmers of the state will be assisted for bringing more and more area under horticultural crops through Centrally Sponsored Schemes of Macro Management Mode Schemes.

The farmers will be motivated and acquainted with the latest technologies for growing the horticultural crops by arranging Gyan Gosthies, field days, seminars, exhibitions, shows and trainings.

Arrangement of planting material certified and hybrid vegetable seeds, good quality spawn and pasteurized compost.

Demonstration of various horticulture crops with latest high yielding varieties.

Optimum use of available irrigation water by use of drip irrigation in horticultural crops.

By adopting cluster approach for growing various horticultural crops.

By introducing high yielding and value added horticultural crops.

By imparting training on different aspects of horticulture i.e. cultivation, grading and packing, processing and storage of horticultural produce.

By use of growth regulators for improving quality of various horticulture crops.

Balanced use of various fertilizers and nutrients for the proper development of horticultural crops.

By introducing new crops like Strawberry, Banana, Aonla, Exotic vegetables and Aromatic and Medicinal plants.

By introducing cultivation of Ginger, Turmeric, Garlic and Chillies for the expansion of area under spices in the hilly and semi-hilly region of the State.

By giving boost to off-season vegetable cultivation for fetching better market prices.



## **INSTALLATION OF AGRO BASED INDUSTRIES AND PROCESSING UNITS**

The farmers of the state will be motivated through extension staff of the department to adopt cluster approach for the cultivation of various horticultural crops. This will strengthen the base for setting up of agro based industries and processing units based on horticulture produce and strengthening the marketing base for such products. The State Government has also planned to setup four food parks/processing units at Dabwali, Narwana, Rai and Saha in the state.

### **POST HARVEST INFRASTRUCTURE AND MANAGEMENT:-**

There is dearth of infrastructure on post harvest management however; small-scale industries on pickle and preservation including a few small scale units on baby corn are in progress. The State Government is also intervening by establishing food parks, which is likely to give strength at one place for development of small-scale industry for post harvest management like grading, packaging and preservation and value addition. Concord Corporation of India is developing cool chain facilities at Rai.

### **MARKET:-**

Haryana State is having Haryana State Agricultural Marketing Board which is responsible for developing markets for fruits and vegetables in various growing zones, however, efforts are required to establish the modern fruits and vegetable market to reduce the post harvest losses not only for fruits and vegetables but flowers also. Mother Dairy Development Board is also intervening to some extent by establishing the cooperative marketing in the state.

### **EXPORT:-**

The mushroom is being produced around Delhi for which there is lot of potential for export. The flower and medicinal and aromatic plants are also having good scope for export as such for exporting the production to the various countries.

**FUTURE THRUST:-**

For boosting the horticulture production there is a need to develop cool chain facility and cold storage facility in different location.

Market intervention schemes needs to be provide to safeguard the interest of farmers.

Processing units and cooperative units needs to be introduced.

For boosting horticulture in the state canal irrigation quantum be increased.

Diversification of agriculture from the traditional land use of systems based predominantly on cereal-based cropping systems to more productive and remunerative ones has now become a new milestone to be achieved in the agricultural economy of the state. Horticulture provides one of the viable and most attractive alternative land use systems as a part of the diversification strategy. With this a new era in the agricultural scenario of the state has started emerging. The arid zone and the dry land areas of the state provides an opportunity in favour of agriculture. Haryana being in the proximity of Delhi has ready market for fruits and vegetables. The importance of introducing better post harvest management practices is gradually being realized. The trends towards this direction are visible through involvement of private sector in developing infrastructure, induction of improved technologies such as pre-cooling units, use of plastic crates, improved packaging replacing wooden boxes, organized marketing through modernized retail outlets. Mushroom cultivation has given greater edge over other crops and floriculture is gradually becoming a major component in the export programme. The emphasis on horticulture as a part of the diversification strategy has brightened up the scenario and all is set in the State to usher an era of Brown Revolution.

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