

HORTICULTURE DEVELOPMENT IN NEPAL

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ABSTRACT

The agro-ecological conditions of Nepal are very much suitable for the successful cultivation of large number of horticultural crops. This paper briefly reviews horticultural development projects started from 1960 through 1997. Also, present status of horticultural activities through different Five-year Plan periods are outline along with production figures of fruits, vegetables, potato, tea, coffee, spices and flowers. Some recommendations are discussed to strengthen horticulture development in the future. From Sixth Five-year Plan onwards there is a trend of increase in area and production of fruits, vegetable and potato. As a result, per capita production of fruits, vegetables and potato comes to 20.4, 64.6 and 44.4 kg. respectively by the end of Eighth Five- year Plan.

Additional Key words: Fruits, vegetables, potato, tea, coffee, spices, flowers

INTRODUCTION

In the kingdom of Nepal agro-climatic conditions are very much suitable for successful cultivation of large number of horticulture crops. This includes tropical, sub-tropical, warm temperate, cool-temperate fruits, and vegetables, potato and flower. Along with this natural resource Nepal has adequate human resource also which is an important aspect of a country for its development. What is mainly required is utilization of the resources provided itself by the nature. Horticulture can be a real boon for Nepal. The economic status of the vast majority of the people of Nepal like other mountainous region is directly related to the development of horticulture. Nepal as a whole is well suited for horticulture development and at the same time horticulture crops have comparative advantage over other crops. In five year plans His Majesty's Government has given a great deal of emphasis on commercial cultivation of horticulture crops. For example, in the Seventh Five-year Plan under priority programme 20 districts were accorded for citrus cultivation, 15 districts for mango, 11 districts for apple, 10 districts for pear, 7 districts for walnut and 30 districts for vegetables to bring into commercial production. Horticulture crops are of high value, cultivation of these crops definitely will improve the rural economy. Consumption of nutritionally rich fruits and vegetables will increase nutritional level of the common people. The demand of fruits and vegetables is also increasing gradually year after year in the country. Also by planting fruit trees in massive scale helps to balance the environment, check soil erosion and landslides.

Good beginning for horticulture development has already been made and a network of research and development stations for tropical, sub-tropical, temperate fruits and vegetables have been established. The history of horticulture development in Nepal dates back to 1937 with the formation of Agriculture Development Board and establishment of fruit Nurseries at Godavari and Balaju. Systematic horticulture development programmes were started after the establishment of Horticulture Section under Department of Agriculture in 1955. During the period of sixties 14 Horticulture Farms/ Stations were established at different agro- ecological zones of the country and

10 more farms were added in the list on seventies to study the possibility of growing different horticultural crops, to serve as the demonstration orchards and to provide improved varieties of planting materials to the farmers. In 1967, Department of Horticulture was created to meet the demand of horticultural development activities of the country and remained functional until 1972. During this period horticulture development gained the real momentum. After the reorganization of Department of Agriculture in 1972 four horticultural development divisions, namely Fruit Development Division, Vegetable Development Division, National Citrus Development Programme and National Potato Development Programme were created to take a lead in the respective areas at the national level. In 1982, a position of Deputy-Director General to look after horticulture sector was created in Department of Agriculture. A political position of Assistant Minister (Horticulture) was created in Ministry of Agriculture to promote and strengthen horticultural activities in the country (Shrestha, 1998). In 1990 at the dawn of democracy the Department of Horticulture was re-established to promote horticulture development activities in an organized and planned manner. In 1993, National Tea and Coffee Development Board was established with the main objective to provide advice and guide to the government on effective policy formulation and implementation for tea and coffee development in the country. And in the same year Tea and Coffee Development Section was created in Fruit Development Division and Spices Development Section in Vegetable Development Division under Department of Agriculture for coordination, technical support to the growers, monitoring and evaluation and feasibility studies for commercial cultivation of the respective crops. To develop horticulture in a sustainable manner post-of Assistant Horticulturists has been created in all the 75 districts at District Agriculture Development Offices under Department of Agriculture. These events clearly show the commitment on the part of the government indicating the importance and need of horticulture development in the country.

REVIEW OF HORTICULTURAL PROJECTS

The role of horticulture in economic development and immense potentialities of its development in Nepal has been pronounced from the beginning of the Fifth Five-year Plan (1975-1980). HMG/N has been giving due attention to increase the production and productivity of horticultural crops from Fifth through Ninth Five year Plans period concentrating the production pockets along the accessible road corridors and near urban market centre areas. As a result of which from Sixth through Eighth Five -year Plans the area and production of fruits, vegetables and potato have been in increasing trend (Thapa and Gautam1995).

Many donor agencies were assisting to HMG/N through bilateral and multi lateral assistance programmes to develop horticulture sub-sector in Nepal. During the period of 1960 to 1973 in collaboration with Government of India under a bilateral assistance programme 14 Horticulture Farms/ Stations were established at different agro-ecological zones of the country with objectives: to study the possibility of growing different fruits and vegetable crops in different parts of the country, to provide improved varieties of planting materials and to provide technical assistance to the farmers. On the basis of studies made at different Horticulture Farms, areas like Mustang, Jumla and Baitadi, have been identified as potential areas for commercial cultivation of apple and dry nuts. At the same time progeny orchards of different exotic cultivars of different fruit crops have been established at Horticulture Farms/ Stations located at different agro-ecological zones. These progeny orchards are serving till now as mother plants for the multiplication of

planting materials required for the annual fruit production programme of the country (Shrestha and Verma 1995). From 1977 to 1980 fruit development programme of Hill Agriculture Development Project (HADP) was implemented under UNDP/FAO Technical Support- Programme for strengthening Horticulture Farms of Kirtipur and Jumla. It also introduced many exotic cultivars of deciduous and evergreen fruits and some cultivars of apple, peach, banana, avocado, macadamia nut and pecan nut have been popular amongst the farmers of the country.

In 1988/89 Hill Fruit Development Project under loan assistance of Asian Development Bank was launched in eleven hill districts of Eastern Development Region with the objective: to develop selected fruit crops for increased production and thereby increase farmers income (APROSC, 1987). The achievement of this project was not so satisfactory as per fixed plan and programme. The latest one was Horticulture Development Project under Grant Assistance and Technical Co-operation of Government of Japan through Japan International Co-operation Agency (JICA). This project was launched in nine districts of Central and Mid-western Development Regions during the period of 1985 to 1990 and 1992 to 1997 with the main objective: to increase the production of assigned fruit crops (citrus, grape, pear, persimmon and chestnut) through technology development, training and extension. The achievements of this project like an increase in area and production of Junar, a variety of sweet orange in Sindhuli and Ramechhap districts, development of techniques, training's to the Junior Technician / Junior Technician Assistants and to farmers about improved techniques and methods for increased fruit production, extension of improved techniques through the establishment of demonstration farms at farmers field and introduction of improved varieties of citrus, pear, persimmon, grape, chestnut etc. are remarkable and very impressive (HDP, 1996, 1997).

During 1981 to 1997 Fresh Vegetable and Vegetable Seed Production Project under Swiss/ FAO assistance was in operation with the objective to increase the production of fresh vegetables and vegetable seeds. The project has contributed a great deal in vegetable development like release of about 35 varieties of different vegetable crops, production of nucleus and foundation seeds, seed quality control, technology generation, creation of facilities for seed processing, package and marketing etc (DOA,1995). From 1977 to 1996 Swiss Development Co-operation (SDC) provided financial and technical assistance to National Potato Development Programme to develop potato production in Nepal. This programme has shown some good impact on potato production of the country.

Besides these, many others externally funded agriculture and rural development projects like Pakharibas Agriculture Centre, Lumle Agriculture Centre (U.K.), Hill Agriculture Development Project-Sinkalama (ADB/Manila) Integrated Hill Development Project- IHDP (Swiss), Janakpur Anchal Agriculture Development Project- JADP (Japan), Gandaki Anchal Agriculture Development Project GADP (Germany), Rapti Integrated Rural Development Project (USAID), Mahakali Integrated Rural Development Project (World Bank), Dhading Development Project (Germany) etc. had horticulture as important component in their respective agriculture development programmes. These projects have contributed to some extent in horticulture development in their respective command areas.

Many (INGOs) also are working in different parts of the country having horticulture as one of their development activities. Few of them have shown good result in the development of the horticulture.

PRESENT STATUS OF HORTICULTURAL ACTIVITIES

After the restoration of democracy in the country the government has given priority for horticulture development in order to achieve economic development, resource conservation and environment protection. Based on comparative advantage government has adopted a short -medium and long term policy to develop horticulture emphasizing to promote the production of fruits and vegetables to attain self sufficiency and substitute imports in short term and move gradually towards exports promotion in the long run. Priority has been given to develop production pocket of market led and demand oriented horticultural crops along the periphery of accessible roads and near urban and market center areas. For remote areas program of developing low volume and high value horticultural crops have attained the priority. In order to improve the nutritional level of the people general production program of fruits and vegetable has been implemented since Seventh Five -year Plan. Under special program potential districts and areas have been prioritized for commercial cultivation of major fruits like citrus, apple, mango, banana, pineapple, pear, walnut etc (NPC, 1990, 1997).

In recent past government has published planning documents with good policies and strategies for horticulture development in the country. Master Plan for Horticulture Development is one of them which developed the concept of agro-ecological zonation dividing the whole country into four distinct ecological zones as tropical, sub-tropical, warm temperate and cool temperate. The master plan serves as the framework for the short- medium and long-term development of horticulture sub-sector in Nepal. The plan has emphasized for the program like commercial production of fruits, vegetables, potato and spices, development of postharvest horticulture industry, research and extension, planning and monitoring, human resource development etc (PACMAR, 1991). The most recent well appraised document is Agriculture Perspective Plan (APP) and it has prioritized four horticultural commodities which are apple, citrus, vegetable and flower seeds and off season vegetables (APROSC, 1995).

In order to implement the horticulture development programs effectively certain strategies short-term and long-term have been visualized (Kaini, 1995).

Strategies for short-term horticulture development are:

1. National baseline survey of horticultural crops on area, productions and marketing.
2. Adoption of decentralization principle in the formulation and implementation of plan and programs
3. Enforcement of nursery act for quality control of planting materials.
4. Rejuvenation and proper management of existing orchards.
5. Promotion and expansion of commercial orchards.
6. Development of production technologies
7. Introduction and evaluation of superior varieties of horticultural crops.
8. Collection, evaluation and maintenance of indigenous horticultural germplasms.
9. Construction of low cost cellar stores at production sites.
10. Development of market centers at the major consumption centers.
11. Promotion of women participation in the formulation and implementation of horticulture development programs.
12. Formation of groups to make horticulture extension cost effective.

Strategies for long term horticulture development are:

1. Establishment of whole sale markets in major cities.
2. Construction of cold storage facilities.
3. Replacement of low yielding traditional varieties by the superior ones.
4. Development of low cost post harvest technologies.
5. Development of preservation and processing industries to support production program.
6. Construction of feeder roads to join production areas with the motorable roads and consumption centers.

In the Ninth Five - year Plan many programs and activities have been spelt out for horticulture development in the country. Some of the important activities are establishment of more nurseries and strengthening the existing ones at private sector, development of demonstration orchards, training support to farmers and extension workers, monitoring and evaluation, construction of cellar and collection centers in major production areas, market information collection and dissemination of pertinent information to the farmers etc.

As mentioned above from Sixth Five - year Plan onwards there is a trend of increase in area and production of fruits, vegetables and potato. The area under fruits increased by 21.6, 21.3 and 0.6 percent at the end of Sixth (1985), Seventh (1990) and Eighth (1997) Five - year Plan periods, respectively. Likewise area under vegetables also increased by 43.7, 1.8 and 3.2 percent in 1985, 1990 and 1997 respectively. The area under potato increased by 83.0 percent in 1997 over 1990 area (Fig.1) . Consequently, at the end of Sixth Five - year Plan the production of fruits, vegetables and potato increased by 24.8, 40.7 and 47.1 percent respectively over the Fifth Five - year Plan production figure. In Seventh Five -year Plan the increase in production of fruits, vegetables and potato was 34.5, 30.5 and 27.4 percent over the Sixth Five - year Plan and the trend of increase in production continued in the Eighth Five -year Plan period also (Fig. 2). As a result of which per capita production of fruits, vegetables and potato come 20.4, 64.6 and 44.4 kg. respectively by the end of Eighth Five - year Plan (MOA, 1997). In the first year of Ninth Five - year Plan the area under fruits, vegetables and potato increased by 3.6, 2.3 and 4.9 percent respectively over the Eighth Five - year Plan (1997). Some of the main reasons for an increasing trend in area and production was attributed to the government policy to encourage the cultivation of horticultural crops in commercial scale, technology development, easily availability of planting materials, training opportunities to the farmers and extension workers, better returns from horticultural crops than from traditional cereal crops cultivation etc.

In Nepal tea plantation was initiated from Ilam district at far eastern part of the country in 1863. Tea is a high value exportable commodity. In Nepal there exists very suitable agro-ecological conditions to expand tea plantation and increase its production. In FY 1996/ 97 the total tea production of the country was 2906 MT. and in FY 1997/98 the production reached to the level of 3021 MT.

The first coffee plantation was started at Aapchour village in Gulmi district in 1944 from the Arabica coffee seeds brought from Burma. In FY 1996/97 the production of coffee was 37 MT. and in FY 1997/98 the production went upto 56 MT. with an increment by 48.6 percent (MOA, 1997,1998).

Spices are high value, environmental friendly and exportable commodities. The major exportable spices of Nepal are cardamom and ginger. In FY 1996/97 the production of cardamom

was 3700 MT. and in FY 1997/98 the production increased by 21.7 percent to reach 4505 MT(MOA, 1997,1998).

In Nepal floriculture trade is in initial stage, it started only about a decade ago. At present there are more than 110 flower nurseries in private sector operating in 25 districts of the country. The annual transaction of cut flowers and ornamental plants is estimated to be 20 million rupees. Out of the total demand of flori products 40 percent is met from domestic production and rest from import (Shrestha and Shah, 1998). Floriculture Association of Nepal (FAN) is doing good job in promoting floriculture business in Nepal.

In 1993/94 Ministry of Agriculture, Agriculture Statistics Division curtailed about 25% in the total area and production figure of fruit crops to adjust the mortality of the trees in old orchards, mango trees used for furniture and replacement of short period fruits plants.

Fig.1. Area of Fruits, Vegetables and Potato in Fifth through Eighth Five-year Plan periods in Nepal

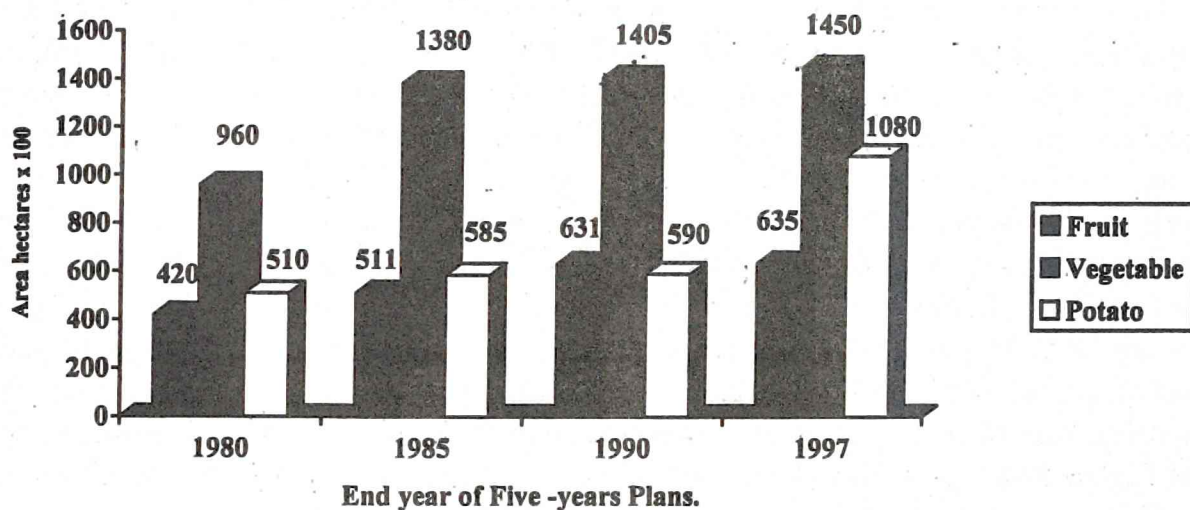
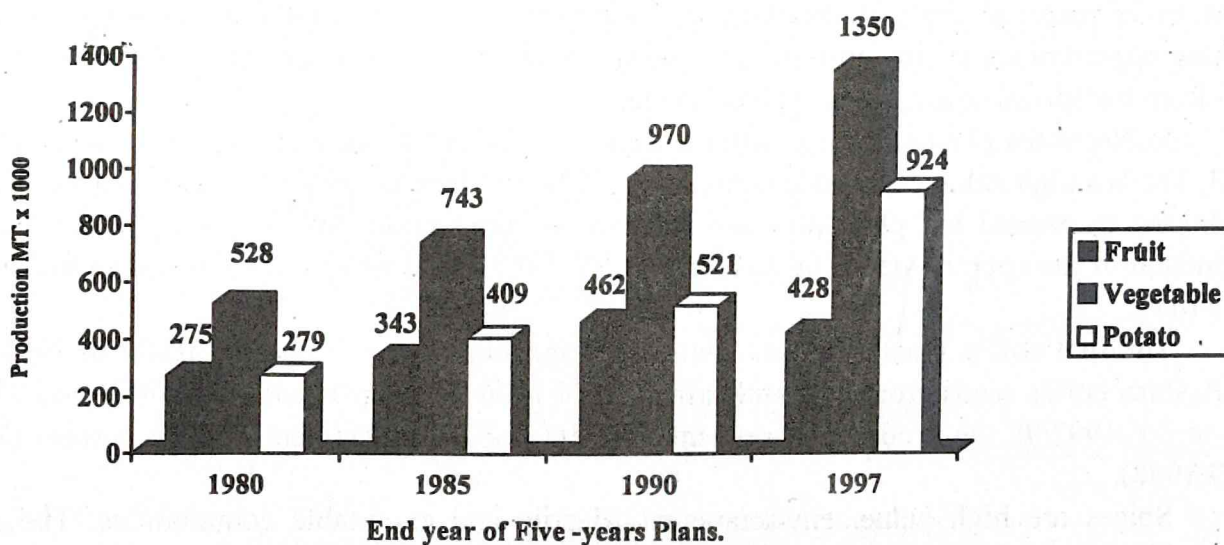


Fig.2. Production of Fruits, Vegetables and Potato in Fifth through Eighth Five-year Plan periods in Nepal



The achievement of horticulture development gained so far is not at levels of satisfaction as in other countries because of various constraints encountered in the development process during the past Five Year Plan periods. Some of the main constraints are listed below (Shrestha, 1998).

1. Adverse climatic conditions, poor soil and lack of irrigation.
2. Lack of genuine and quality planting materials.
3. Farmers ignorance about the nutritive and economic value of horticultural crops.
4. Inadequate transportation facilities and difficult terrain.
5. Lack of appropriate technologies.
6. Lack of storage, cold storage and processing facilities.
7. Lack of organized marketing channel and system.
8. Inadequate and untimely supply of inputs and credits.
9. Poor economic condition and small holdings of the farmers.
10. Lack of mid-level trained manpower resulting weak extension services.
11. Production program scattered and diluted.
12. Weak organization structures both in research and development sectors.
13. Lack of coordination between research and development organizations.
14. High frequencies in changes of organizational arrangement.
15. Inadequacy in gender consideration in horticulture development.

DISCUSSION AND RECOMMENDATIONS

For the real development of horticulture it requires sustained and dedicated efforts with sufficient technical and financial backing both at private institutions and government level. The agro-ecological conditions of Nepal are favorable for most of the horticultural crops, farmers are hard working, receptive to new ideas and technology. The only thing required is the strong organization and infrastructure capable of handling different and even difficult aspects of horticulture industry in an organized, scientific and coordinated manner. If these requirements are met horticulture will not only flourish and play an important role in national economy but will lead to a change in the existing cropping pattern which mainly consists of cereal crops at present.

The development of horticulture is in the interest of individual farmer, people at a whole and the country. In Nepal, most of the farmers have small and marginal land holdings. The land resource is limited. The only way out is the increase in productivity and net income per unit area. This can possibly be only through the introduction and development of horticultural crops. And of course it should be strongly backed up by improved technology, technical services, timely supply of inputs and credits, post harvest handling, cold storage, marketing and processing facilities. Some basic requirements like agriculture roads, irrigation, market infrastructure etc also should go hand in hand.

The research activities required for the development of horticulture crops are very poor. Research need to be directed to generate optimum production technologies to reduce cost of production and post harvest losses and also improving the post harvest management and marketing system.

There is a lacking of reliable statistical data on horticulture; this is one of the main factors responsible for horticulture development to be in low profile. Therefore, it is an urgent need to have a systematic survey for horticultural crops and marketing system. This will enable to establish a sound information flow system and database facility on horticulture. In the context of institutional

build up and organizational set up for horticulture development in Nepal many ups and downs have been experienced in the past. Keeping in mind the policies and strategies and to realize the increased contribution up to 15 percent to GDP as focussed in APP it is high time to give priority to reinstate Department of Horticulture to speed up the horticulture development activities in a planned, organized and coordinated manner.

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