

Horticulture in India

by

M. S. RANDHAWA, D. sc., F. N. I., I. C. S.,
Vice-President, Indian Council of Agricultural Research.

Horticulture, a term under which I include cultivation of fruits and vegetables as well as ornamental flowering and foliage trees and shrubs as well as flower gardening, is as old in India as the people themselves. Our ancestors, the Aryans of the Vedic times, were great lovers of nature. The very name they gave to flowers - *Sumanasa* that which pleases the mind reveals their aesthetic sensibility. In the Buddhist sculptures at Sanchi and Bharhut we find a variety of ornamental trees sculptured in stone. Some of these sculptures are as old as two thousand years. The favourite trees of the Buddhist monks were the peepul (*Ficus religiosa*), the Bodhi tree under which the Buddha obtained enlightenment, the Asoka (*Saraca indica*) - the beautiful tree which bears clusters of orange red flowers under which Gautama is said to have been born to Maya, and the Nag-Kesar tree (*Mesua ferrea*). Of the fruit trees, mango was their favourite and we find a number of mango trees on the gateways of Sanchi with cheerful groups of monkeys gamboling in their branches. In Kushan Mathura we find beautiful sculptures of Yakshis, the Woodnymphs, in which we find ornamental trees associated with women. *Asoka*, *Kadamba* and *Champak* were their favourite trees. In the Hindu caves at Ellora there is a beautiful representation of Indra and his queen sitting under the shade of a mango tree laden with luscious fruits. After the ancient Buddhists and Hindus it were the Moghuls who laid out a number of gardens of extraordinary beauty in Kashmir, Lahore, Delhi and Agra. The garden architecture of the Moghuls is of surpassing beauty; running water marble or stone chutes with shell and wave designs, octagon or star parterres and terraces and *Baradiris* were their main features. The British gave us turf and the herbaceous border of annual flowering plants. Our parents were only familiar with such flowers as marigolds and vincas and it was the English official and his garden-loving wife who introduced phloxes, verbenas and antirrhinums and so many other annuals which beautify our gardens.

Under the First Five Year Plan Horticulture did not receive the recognition it deserved under the mistaken notion that cereals are more important than fruits and fruits are not foods. Apart from

the health-giving vitamin C in which a number of fruits are so rich, in terms of bulk and calorific values, fruits like grapes, banana, papaya and pine-apple produce more food than many farm crops per unit area of land. Hence increase in food production means not only adequate provision for protective food but also of total food. I am glad that Horticulture has found due recognition in the Second Five Year Plan. A scheme for establishment of two Horticulture Plant Introduction stations, one at Saharanpur in Uttar Pradesh and the other at Hassarghatta in Mysore, with the main station at the Indian Agricultural Research Institute, in Delhi, have been sanctioned by the Indian Council of Agricultural Research. A full-fledged Division of Horticulture is being established at the Indian Agricultural Research Institute at a total cost of Rs. 11,29,000/- which includes the cost of construction of an up-to-date laboratory and office building at a cost of Rs. 2 lakhs. This Division at I. A. R. I. will conduct research work on the improvement of fruits and vegetables and impart post-graduate training in Horticulture. In addition to the Research Station at I. A. R. I. there will be Regional Stations on six important fruits crops, such as mango, citrus, grapes, guava, pine-apple and apple. Each Regional Station will cost a sum of Rs. 5 lakhs on equipment, farm and personnel, the total cost being Rs. 30 lakhs for the Plan period. Apart from this, provision has been made for production and supply of plant material of reliable parentage, supply of manures and fertilizers on deferred payment basis and establishment of 6 training schools for *malis*. An efficient advisory service will be established at the central and State levels. The total expenditure on research and development of horticulture is estimated to be Rs. 13 crores. This is an ambitious programme which has provided great scope for horticultural development, and it is now for the research workers and the horticulturists of India to rise to the occasion to fulfil their obligations.

Plant introduction provides great scope for introducing new fruit plants in the country. The United States of America and U. S. S. R. have greatly benefited from efficient Plant Introduction Services which they have established in their respective countries. Apart from introducing wild plants which the geneticist and the plant-breeder can use, there is also a possibility of introducing new plants which should be fully exploited.

It is the plant breeder who has made the greatest contribution to human prosperity by developing improved varieties of plants. By the use of drugs such as colchicine and X-rays, mutations can be

artificially produced. The use of atomic energy has opened out new vistas. By the use of cobalt-60 plants are irradiated and mutations occur. This is a type of technique which deserves to be fully exploited in relation to fruit plants. Polyploidy is a fruitful source of new varieties of domesticated plants. Garden plants which are reproduced by means of bulbs, corms, tubers or cuttings provide an unusual opportunity of perpetuating the new varieties which are artificially produced. This is an aspect of horticultural work which deserves very close attention by the research workers. It should be possible to evolve seedless fruits, fruits of bigger size with a better flavour, higher vitamin content, earlier or late maturity and resistant to diseases and insects. The cytology of the fruit and vegetable crops should be worked out by a team of workers and fullest use of this knowledge should be made in producing new plants.

This soil chemist should be a closer ally of a horticultural worker in working out the nutrient needs and particularly the effect of minor or trace elements on the food value and vitamin content of fruits and vegetables and to evolve methods of increasing soil productivity. Optimum irrigation is another factor which would give heavier yields, higher quality products and prevent crop losses and thus give added profits. Another innovation in horticultural research is regional co-operation. It constitutes a long step forward in evaluating varieties and in both the application and adaptation of experimental findings.

I am glad to note that Horticulture has found greater recognition under the Community Project and National Extension Scheme. Steps are being taken to give a more intensive training to the village level workers at the training centres. They would also be provided with complete sets of gardening tools and implements during their training period and when they go out in the field, they would be given spraying equipment as well as insecticides and fungicides. I hope the State Horticulturists would extend their fullest co-operation in promoting the cultivation of fruits and vegetables in the villages in the National Extension Scheme. Wherever irrigation is available, fruit trees should be grown. In every farmer's home there should be grown at least three trees; the *Nimbu*, *Papaya* and *Kathal*, the trio, whom I regard as the most useful fruit trees which should have the widest popularity.

Here I should also like to make a mention of the Garden Colony Scheme of Panjab under which an area of 20,000 acres in 27 garden colonies is being brought under Horticulture. Apart from being an Horticultural scheme, it is a great social experiment in which the advantages of co-operation side by side with individual cultivation have been fully co-ordinated. While nurseries, cold storage and marketing of fruits would be co-operatively run, fruit production in the individual plots would be the concern of the owners. This is a type of experiment which deserves to be extended in other parts of India as well.

Last year a group of Delhi girls were camping in some village in Faridabad community projects under the Youth Camp Scheme of the Bharat Sewak Samaj. This camp was visited by a correspondent of a monthly magazine from Delhi. One of the criticisms made by that correspondent was that the town girls asked the villagers: "why don't you eat fruits?" While I would not advocate purchase of fruits by the villagers which they themselves do not grow, there is no reason why they should not raise their own fruits. Fruit eating has so far been the prerogative of the middle-classes of the towns only and it is only recently that apart from mangoes, the cultivation of other fruit trees is finding recognition in villages. I would say that our villager should include fruits and vegetables in his dietary. At present the diet of our farmer is proverbially unbalanced. There is a general lack of protective foods. In some areas it is the millets which form the staple diet of the farmer. Dullness and monotony in diet is possibly the cause of low intelligence. Now that opportunity is being given to all the citizens of India to fully develop their personalities, and benefits of development are being extended to the rural population also under the National Extension Scheme it is very necessary that we should pay all our attention to the encouragement of cultivation of fruits and vegetables in the rural area. It is mainly the lack of facility of seed which has been standing in the way of vegetable cultivation. Now provision has been made for supplying vegetable seeds in the form of packets from the vegetable stations in Kulu and Kashmir Valleys. This is a type of work which deserves the fullest attention on the part of the extension workers in Horticulture.

Apart from providing a health-giving diet to the people, it is the aesthetic and spiritual side of Horticulture which deserve as much attention. People who follow the art of fruit and vegetable raising not only make a living and earn more from land and labour

than other methods of farming, but also derive much benefit that cannot be measured in terms of money. Observation of plants from their childhood to maturity gives us much pleasure, their blossoms provide an endless source of enjoyment. In our horticultural programmes we should also give a due place to the flowering annual. Our public parks and gardens deserve a good deal more of attention. There is need of introducing improved flowering annuals. I am glad that the Government of India have agreed to the import of seeds of flowering annuals from countries of the West where a good deal of intensive work has been done and a large number of new varieties of flowering annuals have been evolved. While we should make the fullest use of the plants evolved in the West, we should also contribute our share to this great venture in the service of beauty.

Special Announcement

The Governor of Madras during the visit to the Agricultural College and Research Institute, Coimbatore on 19th June 1958, graciously announced the institution of a Rolling Shield to be presented to the student who does the best in practical work in the field allotted to him each year. The rules for the award will be announced shortly.