

Importance of Horticultural Crops

OBJECTIVES

After studying this chapter, students will be able to:

- Explain the importance of horticultural crops in day-to-day life of human beings and its impact on national economy
- Develop an appreciation of nature and the environment

INTRODUCTION

Do you know it is dangerous to your health if the right content of food is not consumed? Well, let's face it. Bad eating habit(s) contributes about 35 -40 per cent of death globally.

Several diseases are also associated with imbalanced diet. That is why it is important for one to know the right food to eat at the right time. It may sound needless to talk about this as some of us pretend we already know the health benefits of eating fruits and vegetables, yet, how well do we do as people to practice it? How often do we do this? That is why, as human as we are, it is important we keep reminding ourselves in order not to deviate. Fruits and vegetables are essential building blocks of any diet. Not only are they loaded with vitamins and minerals which are essential for healthy living, but also satisfy you as part of balanced diet. By increasing an intake of fruits and vegetables, one is gradually reducing the risk of becoming ill, as this would boost the immune system as well as building resistance to common diseases and infections like: cardio-vascular diseases, kidney failure, stroke, hole-in-heart, and osteoporosis among others. Furthermore, it leaves you looking better and feeling great, as part of a healthy diet, which can be an all-round improvement for your well-being.

For the economy to flourish there must be an increase in productivity which highly depends on a healthy working force. The alternative is an increase in fruits and vegetable consumption. This is because of the natural goodness contained within these ultimate healthy foods that will provide the necessary energy to fuel you through the day and give you the drive and determination to progress through a course exercise to improve overall fitness.

Having said that, fruits can act as a substitute for sugary snacks, which otherwise deplete energy and lead to numerous other health problems. The natural sugar contained in fruits is

essential for the effective maintenance of the immune system and the body's natural defense mechanisms, as well as increasing fruits in the diet as a healthy snacking alternative.

Vegetables on the other hand, should account for a substantial proportion of each meal, to ultimately improve your diet and by ensuring a substantial role they play within your diet; you should end up seeing the benefits in your skin, hair and general health. On top of this, an increase in fruit and vegetable intake can leave you feeling physically better and more alert, increasing attention span and reducing fatigue. However, fruit consumption may have a side effect if not properly washed and rinsed and vegetables as well, if not well cooked. Therefore, maximum attention must be given to its preparation to avoid any damaging effect. Why not try introducing more vegetables and fruits into your diet today by doing a straight swap of fruits for sugary snacks and introducing vegetables to boost any meal as part of a nutritious and healthy balanced diet.

Fruit and vegetables have long been touted for their health benefits. In India, the virtues of horticulture now include the ability to lift rural communities out of poverty.

IMPORTANCE OF HORTICULTURAL CROPS IN HUMAN DIET

From human nutrition point of view, horticulture is most important to our daily living. Many of the horticulture crops and their products find place in our meals and diet. Human body requires vitamins, minerals, proteins, energy etc. for its health. All these are supplied by horticultural crops. Fruits and vegetables are the chief sources of vitamins, minerals, carbohydrates, fats, proteins etc. are recognized as protective foods as they are necessary for the maintenance of human health. No doubt these can be obtained by consuming meat, fish, egg etc. but for vegetarians the consuming of vegetables and fruits is the only solution for getting these essential nutrients for making a sound body with appropriate health.

Deficiency of any minerals and nutrients is depicted by the human body by giving typical symptoms. *The great majority of people obtain most of their carbohydrates and proteins from cereals and pulses but their diets must also contain significant amount of fruits and vegetables to ensure that they get the vitamins which are not provided by the staple cereal foods.*

A person should consume atleast 120 g of fruits and 300 g vegetables per day as per Indian Council of Medical Research, but the consumption of fruits and vegetables per capita in India is still low. However, the respective availability of fruit and vegetables is 172 g and 350 g per day in our country. In countries like Italy, France and USA the consumption is 308, 232 and 223 g / day respectively.

Vitamins: These are the important constituents of fruits and vegetables and are indispensable part of human diet. Although required in very minute quantities, they are absolutely essential for the maintenance of health. The deficiency of any vitamin from the diet for considerable period may lead to diseased state or disorder conditions. Fruits and vegetables supply several vitamins.

Vitamin-A: It is essential for normal growth, reproduction and maintenance of health and vigour. It affords protection against cold and influenza and prevents night blindness. The deficiency of this vitamin results in cessation of growth in young children, night blindness, drying up of tear glands in the eyes, eruption of skin (Rashes on the skin) and brittleness of the teeth

Sources: *Fruits*-Mango, Papaya, Dates, Jackfruit, Walnut etc. *Vegetables*-Greens like palak, spinach, amaranthus, fenugreek, carrot, cabbage, lettuce, peas, tomato etc.

Vitamin B1 (Thiamine) : Tones the nervous system and helps in proper functioning of the digestive tract. Its deficiency in human diet results in Beri-beri, paralysis, loss of sensitivity of skin, enlargement of heart, loss of appetite ,loss of weight and fall in body temperature.

Sources: *Fruits*-Orange, pineapple, jack fruit, cashew nut, walnut, dry apricot, almond, banana etc.,. *Vegetables*-Green chilli, beans, onion, sweet potato, tomato (red), leaves of colocasia.

Vitamin B2 (Riboflavin): This vitamin is required for body growth and health of the skin. The deficiency of this vitamin causes sore throat, anorexia cataract, and loss of appetite and body weight and also development of swollen nose.

Sources: *Fruits*- Bael, papaya, litchi, banana, apricot, pomegranate, pear etc. *Vegetables*-Cabbage, cauliflower, potato, peas and beans, methi, lettuce, asparagus, green chillies, leafy vegetables etc.,.

Vitamin -C (Ascorbic Acid): This vitamin promotes general health and healthy gums, prevents scurvy disease which is characterized by pain in the joints and swelling of limbs (rheumatism), bleeding of gums, tooth decay and keeps the blood vessels in good condition.

Antioxidants are naturally occurring substances found in most plants and have the potential to help combat heart diseases and fight cancer

Sources: *Fruits:* Amla, guava, ber, citrus, strawberry, pineapple etc. *Vegetables:* Tomato, palak, menthi, cabbage, green chillies, spinach, potatoes, peas and beans and carrot etc.,.

Vitamin-D: This vitamin is necessary for building up of bones, preventing rickets and diseases of teeth.

Sources: All green leafy vegetables are rich in this vitamin.

Vitamin-E: It has an important effect on the generative functions and promotes fertility.

Sources: Green lettuce and other green vegetables, as well as almonds, cashewnut, walnut etc.

Vitamin-K: This vitamin prevents blood clotting.

Sources: All green leafy vegetables and nuts are rich in this vitamin.

Minerals: Human body requires minerals like P, Ca, Iron, and Iodine etc. for maintaining good health.

Calcium: It is essential for development of bones, regulation of heartbeat, controlling blood clots.

Sources: Fruits- Acid lime, Orange, Fig, Dried apricots, wood apple etc. **Vegetables-** Cabbage, greens, beans, carrot, onions, peas, tomatoes, agati, spinach drumstick leaves etc.

Iron: It is required for production of haemoglobin and it is constituent of red blood corpuscles. Its deficiency causes anaemia, smooth tongue, pale lips, eyes and skin and frequent exhaustion.

Sources: Fruits- Custard apple, Guava, Pineapple, Straw berry, Grape, Black currents, dried dates etc. and **Vegetables** like Carrot, Drumstick leaves, beans and agave etc.

Phosphorus: It is essential for maintaining the moisture content of tissues and for development of bones.

Sources: Fruits- Guava, Grape, Jackfruit, Passion fruit, Orange and *vegetables* like Carrot, Chilli, Drumstick leaves, Beans, cucumber and onion.

Proteins: These are body building foods. These are essential for growth of the body. The deficiency of proteins in the body causes retarded growth and increases susceptibility to diseases and causes lethargy.

Sources: Fruits- Cashewnut, almond, pecannut, walnut etc. *Vegetables* like peas and beans are rich in proteins.

Enzymes: These are required for controlling several metabolic activities in the body.

Sources: Papaya-Papain and Pineapple-Bromelin.

Fibre and roughages (Cellulose and pectin): Fruits and vegetables supply roughages. These are required for digestion and prevention of constipation.

Sources: Fruits contain low content of fibre. Guava and anola are better sources compared to other fruits. Leafy vegetables are rich in fibre content

Energy foods: Fruits and vegetables contain Carbohydrates and fats there by supply energy to human body. Those fruits (Banana, Dates, Apple etc.) and vegetables (Potatoes, Sweet potato, Beans, Peas etc.), which contain carbohydrates, are called as energy foods. Nut fruits like Walnut, Cashew nut and almond etc. supply proteins besides energy.

IMPORTANCE OF HORTICULTURE IN THE NATIONAL ECONOMY

India is the 2nd largest producer in the world, with 76 million tones of fruits occupying an area of 6.70 million hectare and 156 million tones of vegetables from an area of 8.98 million hectare. In all, horticulture crops occupy an area of 23 million hectare and are said to annually yield 257million tones of crops. Horticulture sector not only impact the immediate life but play a very important role

Presently, the horticulture sector contributes around 31 % of the GDP and 38% of the total exports of agricultural commodities from around 14% of area.

in the Indian economy by proving to be an important source of income for the rural population. Fruits and vegetables are not only used for domestic consumption and processing into various products(Pickles, preserves sauces, jam, jelly squashes, etc.) but also substantial quantities are exported in fresh and processed form, bringing much-needed foreign exchange for the country. These groups of crops also provide ample scope for achieving bio-diversity and diversification to maintain ecological balance and to create sustainable agriculture and can make an impact on the national economy in the years to come.

- o Globally, second largest producer of fruits and vegetables
- o Largest producer of mango, banana, coconut, cashew, papaya, pomegranate etc.
- o Largest producer and exporter of spices
- o Ranks first in productivity of grapes, banana, cassava, peas, papaya etc.

Table: Area and production of Horticultural Crops.

Particulars	Area (million hectare)	Production (million tones)
Fruits	6.70	76.4
Vegetables	8.98	156.3
Flowers	0.25	76.7
Plantation Crops	3.58	16.36
Spices	3.21	5.95
Aromatic Plants	0.50	0.56
Total	23.22	257.3

Source: www.nhb.org.in

1. Horticultural produces contribute to national wealth. They are the important exportable commodities in many countries. Through export of horticultural produce, our country is earning foreign exchange. India is exporting flowers to America, Netherlands, Germany, Japan, UK; Onionsto Malayasia, UAE, Singapore, Sri Lanka and Bangladesh; vegetables to Sri Lanka, America, UAE, Spain, Saudi Arabia, Bangladesh, U.K., Kuawait,; Fresh grapes to UK,Netherlands, UAE, Bangladesh, Germany; Fresh fruits to Bangladesh, UAE, Saudi Arabia, UK and Sri Lanka.; Processed vegetables to Egypt, Srilanka, UAE, America and Turkey and Mango pulp to Saudi Arabia, UAE, Netherlands, Kuwait and Germany and Pickles and Chutneys to UK, America, UAE, Spain etc.

Export growth of fresh fruits and vegetables in term of value is 14% and of processed fruits and vegetables is 16.27%

Table: Export of Horticulture Produce in India (APEDA Website)

Product	Quantity (MT)	Value (Rs. Lakhs)
Floriculture	30926.02	36532.15
Fruits / Vegetable Seeds	15205.81	28776.35
Fresh Onions	1309924.82	172299.80
Other Fresh Vegetables	729810.62	129893.77
Walnut	5841.56	23108.40
Fresh Mangoes	63441.29	20974.30
Fresh Grapes	108584.56	60288.15
Other Fresh Fruits	271347.82	73586.20
Dried and Preserved Vegetables	138464.03	70018.80
Mango Pulp	150499.06	62082.91
Other Processed Fruits & Vegetables	459514.68	211785.85

2. Increased production of horticulture crops is possible in comparison to other agronomical crops because trees have a longer life and their production increases with advancement in age provided a proper care is taken. Similarly vegetables can also be grown 3 to 4 times each year giving the products all the time they are grown. More number of crops can be grown from same piece of land, whereas, cereal crops bind the land for a longer time. Furthermore, spices, medicinal, aromatic and flower crops are high value crops as these crops fetch more prices in the market.
3. Horticultural crops are more profitable since the average income per unit area is more in comparison to agriculture crops. One hectare area of horticultural crops may generate income to the tune of Rs. 10,000 to Rs. 1,00,000 and even more, depending upon nature and value of crops.

4. With the support of horticulture, many agro-industries can spring up in villages itself. It is an acceptable fact that horticulture can come in a big way to solve the problem of unemployment. Source of other industries such as rubber, oil, gum, dyes, chemicals etc. raw material for fruit and vegetable-processing plants, hence becomes a solution to reduce unemployment.
5. Horticultural crops provide gainful employment for small farmers and agricultural labour in doing field operations like fruit picking / harvesting, grading, packing, selling etc. through out the year. One hectare of fruit production generates 860 man-days per annum as against 143 man-days for cereal crops. Some industrial attribute crops and cultural intensive crops like grape, banana and pineapple, generate much large employment ranging from 1,000 to 2,500 man-days per hectare. The processing industries are labor intensive and offer high employment potential in collection centers, grading, packing, loading / unloading, storages (ware houses and cold storages) transport, marketing and processing units.

Entertainment

Roaming in the gardens, orchards or places well planted with flowerbeds etc. gives mental peace to the people. One enjoys fresh air and natural beauty, sheds of tension making him fresh. Paradise means garden. The hanging garden of Babylon (one of the 7th wonders of the world) and the Versailles garden of 17th century are unique examples.

Medicines

The parts like stem, leaf, flowers, roots and even the fruits of horticulture plants are used to make drugs, chemicals, insecticides, germicides etc. For example, rose water is used to cure eyes ailments. Similarly saffron is imported ingredient of many medicines, papain is a digestive enzyme, citrus fruit like sweet lime is used for liver ailment, rind of pomegranate and pectin from guava used for stomach upset, bark of arjun trees for heart troubles, neem water for skin irritation and allergies etc.

Aesthetic value and religious importance

Aesthetic value and religious importance is the unique factor distinguishing it from agricultural activities. Mango leaves, wood, banana leaves etc. are used for religious functions. Similarly the plantation of banana tree in the court yard or tulsi plantation is said to bring prosperity as per Hindu religion. Leaves of bael are famous for offering to Lord Shiva. Worshiping tree is considered pilgrimic action. This aspect of horticulture has lead to its universal popularity.

ACTIVITY/EXERCISE

Make a check list of fruits and vegetables being consumed by you in your daily diet and write the observations on the important fruits and vegetables required to meet daily requirement from nutrition point of view.

CHECK YOUR PROGRESS

- 1) Fruits and vegetables are protective food. Justify the statement.
- 2) What is the importance of horticulture in Indian economy?
- 3) Write an account on the medicinal properties of horticultural crops.
- 4) Discuss in brief the importance of fruits in daily diet of human beings.
- 5) Identify the causes due to which the following disorders develop and enlist the fruits and vegetables as their remedial measures:

Sr. No.	Disorder	Causes	Remedial measures
1.	Paralysis		
2.	Pain in joints and swelling of limbs		
3.	Night blindness		
4.	Sore throat, loss of appetite		
5.	Anaemia		

FILL IN THE BLANKS

1. Per capita consumption of fruits and vegetables in India isg andg respectively.
2. Night blindness is due to the deficiency of.....and can be corrected by takingfruits and vegetables.
3. Energy providing fruits are and
4.vitamin prevents blood clotting.
5. India is the largest producer and exporter of
6. Total area under fruits in India is and production is.....
7. India ranksin the production of fruits and vegetables.
8.and.....are required for digestion and prevention of constipation.
9. Proteins are called asfood.
10.fruit is the richest source of vitamin C and can be used to avoid scurvy.

SUGGESTED FURTHER READINGS

Bal, J.S. (2007). Fruit growing Kalyani Publishers, Ludhiana, India.

Chattopadhyay, T.K. (2012). A textbook on Pomology, Vol. 1 (Fundamentals), Kalyani publishers, Ludhiana, India.,

Singh, J. (2012). Basic Horticulture. Kalyani publishers, Ludhiana, India.,

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