

# Horticulture and Value Addition : Indian Context

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## Introduction

Horticulture deals a large group of crops having great medicinal, nutritional, health promoting values. *Horticulture will be a right step in the direction of enhancing farmers' income.* Value addition to horticultural products has numerous advantages for all stakeholders. Besides enhancing the shelf life of the product and reducing post-harvest wastage, it adds to higher income for the sector as exports and profits in the sector increase. On the strength of horticulture sector, there is vast scope for India to play its role by adding value to its produce.

Value Addition in Horticulture is the process in which a high price is realized for the same volume of a primary product, by means of processing, packing, upgrading the quality or other such methods. India as second largest producer of fruits and vegetables, only 10 per cent of that horticultural produce is processed.

For long, farmers have been comfortable with the way they have been handling agricultural produce. Most foods have been eaten fresh and they lacked awareness to preserve it. In general, most of vegetables are consumed unprocessed and very few are dried, canned or pickled or frozen. This in itself points to scope for expansion of processed food. For achieving this, processing of vegetable should be done near its production areas. Strategic geographic location and proximity to food-importing nations make India favourable for the export of processed foods. There is also a definite scope of processed vegetables in different consumable forms for all groups of consumers. India lags behind when it comes to the exports of its processed fruits and vegetables. In general, if farmers bring their produce in the market to sell, they tend to get lower price. However, if efforts are made to

raise the value addition, they can get higher price and the trend of getting lower price, can be reversed.

## Major Horticulture Produce in India

India's climatic variations is very suitable for the production of different types of fruits and vegetables. "The Indian arid zone covers around 12 per cent of country's geographical area occupying 31.8 million hectares of land. It covers parts of Andhra Pradesh, Gujarat, Haryana, Karnataka, Maharashtra, Punjab and Rajasthan states of India. With the increasing biotic pressure, most of the arid and semi-arid regions are confronted with the challenges of producing more per unit land with uncertain and dwindling supplies of water". It is important to note that most fruits and vegetables are seasonal and highly perishable. India is estimated to have produced close to three million tonnes of flowers from just around 320,000 hectares in 2020-21. The size of the country's flower market, reckoned by industry circles at around ₹ 20,700 crore in 2021, is anticipated to surge to over ₹ 42,500 crore in the next five years, clocking a robust compound annual growth rate of 13-14 per cent.

The produce of flower sector consists of a variety of products, such as loose flowers (for garlands and ornamentation), cut-flowers (with part of stem for making bouquets), potted plants, foliage, bulbs, tubers, rooted cuttings and dried or dehydrated flowers, and decorative leaves. The range of cultivated flowers, which was limited initially to chiefly roses, marigold, aster, gladiolus, chrysanthemum, and the like, has since expanded to include carnation, gerbera, gypsophila, liatris, nerine, archilea, anthurium, tulip, lilies and many types of orchids. Maharashtra, Karnataka, Madhya Pradesh, Haryana, Rajasthan, Andhra Pradesh, Tamil Nadu, and West Bengal have

emerged as major flower-producing states. During 2018-19, the production of horticulture crops was about 314.67 million tonnes from an area of 25.87 million hectares. As per National Horticulture Database published by National Horticulture Board, the total area under production of vegetable in India is nearly 10.44 million hectares with the production of 195.88 million tonnes during 2018-19.

## Concept of Horticulture and Value Addition

Value addition is a process in which for the same volume of a primary product, a high price is realized by means of processing, packaging, upgrading the quality or other such methods. In general, value-added agriculture refers to manufacturing process that increases the value of primary agricultural produce. Value-added agriculture may also refer to increasing the economic value of a commodity through particular production process, e.g., organic produce, or through regionally branded products that increase consumer appeal and willingness to pay a premium over similar but differentiated products. University of California (2022) has explained the concept of value addition by following USDA Value-added Agriculture :

1. A change in the physical state or form of the product (such as milling wheat into flour or making strawberries into jam).
2. The production of a product in a manner that enhances its value, as demonstrated through a business plan (such as organically produced products).
3. The physical segregation of an agricultural commodity or product in a manner that results in the enhancement of the value of that commodity or product (such as an identity preserved marketing system).

### Advantages of Value Addition

The objective of value-added agriculture is on production or manufacturing processes, marketing or services that increase the value of primary agricultural produce. Value addition carries number of benefits for the farmers. They are as under :

1. Reduce post-harvest losses.
2. Increased income of farmers.
3. Farmers start paying attention to quality of produce as per consumers demand.
4. Farmers become aware regarding farm gate value and retail value in the market.
5. In this process, farmers start considering some related aspects of value addition like costs of processing, transportation, and marketing.
6. Farmers get a good idea of having a share especially on the processing side.
7. Processing enhances shelf life and nutrition security. The longer the product can stay without getting spoilt, the more the guarantee one has of a product selling at their preferred price and time. Take the example of milk which hardly lasts over 24 hours but with boiling, it can last more days while with further processing into ghee, the same milk can last months.
8. With value addition comes increased bargaining power. Brand creation is one of the *de facto* outcome of value addition which is important in a sector where customers exercise a lot of brand loyalty.
9. Empower the farmers and other weaker sections of society especially women through gainful employment opportunities and revitalize rural communities. Increases opportunities for small farms through the development of markets. Diversify the economic base of rural communities.
10. Encourage growth of allied industries.
11. Source of foreign exchange earnings through exports.

### Importance and Role of Horticulture Products

Value-added agriculture is regarded, as a significant rural develop-

ment strategy. In India, the promotion of value addition is the step to solve some issues for betterment of the sector. Following points highlight some of the important role being played by horticulture sector :

1. Small scale processing unit, organic food processing, non-traditional crop production, agritourism and bio-fuels development are examples of various value-added projects that have created new jobs in some rural areas.
2. The composition of horticulture crops are varied which provides scope for value addition in various ways. Subjecting the produce to value addition will help solve the problem of post-harvest losses.
3. The Lucknow (UP) and Anantapur (AP) clusters for bananas, the Sangli, Nashik and Pune (Maharashtra) clusters for grapes, and the Nagpur cluster for oranges have played a big role in driving farm incomes and investments.
4. With processing scope for allied industries will open up and small farms and companies will benefit from this as there will be diversification of the economic base of rural communities.
5. The emphasis on marketing is the real crux of the sector and there is need for strengthening of supply chain for reducing the economic risk of marketing and strengthening farmers' financial stability.
6. According to Surinder Sud, commercial cultivation of flowers and ornamental plants, or floriculture, which has been accorded "export-oriented sector" status by the government, is far more lucrative than normal crop farming. He has emphasized that "it's a highly investment and technology-intensive activity that needs, preferably, to be carried out under controlled environmental conditions in greenhouses".
7. Metropolitan and big towns have become major flower consumption centres. However, the demand for loose flowers, used for garland-making and

decoration on social and religious occasions, still dominates the domestic market, accounting for nearly 60 per cent of the total flower sales.

8. Integration of flower farming with bee-keeping can help further improve the profitability of the floriculture units.
9. Growth in industrial demand for floricultural produce for making perfumes, natural colours, Ayurvedic drugs, and traditional products like 'gulkand' (sweetened preserve of rose petals) and 'sharbats' (beverages), has lent a further impetus to flower cultivation. This sector now accounts for nearly 2 per cent of the country's value of the crops sector

### Factors Contributing to Processed Horticulture Products

Some policy steps like the New Seed Policy in 1988 by the government helped improve the productivity of horticulture crops and farmers' income. Government policy is encouraging towards establishing units particularly in the small scale sector. Such policies take the form of facilitating infrastructure, adoption of technology, provision of finance and marketing. The following factors pinpoint some of the elements which have been contributing to the growth of horticulture sector :

1. The turning point in commercial flower farming on scientific lines was the promulgation of the New Seed Policy in 1988, which allowed the import of planting material for flowers conforming to global quality standards.
2. There has been increasing interest of corporate sector in processing and marketing of horticulture produce.
3. Increasing demand from domestic and foreign markets.
4. Improvement in technology for processing food items have attracted producers in this sector.
5. Owing to urbanization and increase in income, there is a distinct change in the food habits of people. Many varieties of food items have come to the market which attract youngsters and working couples.
6. There is a trend to prefer ready to use (RTU) and ready to eat

(RTE) processed products. Processed salads, vegetables and packaged items are becoming popular.

7. Processed horticulture products have longer shelf life and are less bulky in nature. Their nutritional value is improved.

#### Horticulture and Exports

As regards exports, the Agricultural and Processed Food Products Export Development Authority (APEDA) has been playing a commendable role. Major importing countries of horticulture produce from India are UAE, Bangladesh, Malaysia, Netherland, Sri Lanka, Nepal, UK, Saudi Arabia, Pakistan and Qatar. The important items of their vegetable import are onions, okra, bitter gourd, green chilles, mushrooms and potatoes. Creating an efficient value chains to drive farmers' income is the objective. Export-led agri-processing clusters present a big opportunity for farmers. Raising exports of fruit / vegetables / flowers, processed cereals, dairy and apiculture products, poultry and fishery would add to farmers' income. But India so far has not been able to tap its potentials to penetrate in the global markets.

Maharashtra, Gujarat, Andhra Pradesh and UP have promoted export-led farm processing clusters. It is pertinent to mention here that French Fry plants in Gujarat have transformed India from an importer to one of the leading exporters now. Similarly, exports of mango pulp, especially of Totapuri and Dasher mango varieties, have grown. A cargo export centre with every cluster needs to be set up as value chains develop and cater to international markets. Compliance with food safety standards and norms need to be adhered to. India exported flowers and their value added products to developed countries destination like the US, Canada, Germany, the UK, the UAE, and, most importantly, the Netherlands, which is the world's biggest flower market and auction centre for international trade.

#### Problems Related to Horticulture Produce

Despite fast growth of horticulture sector, there are number of problems which affect the production,

processing and research into horticultural sector. Some of the important problems are :

1. Inadequate farm infrastructure development and securing adequate credit from financial institutions. The COVID-19 pandemic has significantly impacted the provision of key intermediate products for horticultural producers and delayed the transport of products to market.
2. Ensuring freshness and vitality. Uncertainty in accessing qualities of material from a reliable source and non-availability of suitable processing varieties.
3. Environmental conditions and natural resource availability. Inadequate availability of environmentally suitable packaging materials at cheaper rate.
4. Inadequate storage facility particularly in rural areas and for small growers. There are many technological and logistical barriers that the sector faces like shortage of containers, linkages like reefer transport.
5. Skilled labour and low knowledge base.
6. Prevalence of large number of production challenges.
7. Inadequate mechanized production operations.
8. Lack of innovations of right kind.
9. No proper care of disease and pest management.
10. Insufficient availability of water.
11. Improper marketing facilities and unreliable supply chains.
12. Fast changing consumer preferences.
13. The stage of crop production immediately following harvest, including cooling, cleaning, sorting and packing may be termed as Post Harvest Handling, which is in poor shape. Farm produce begin to deteriorate immediately after its separation from the parent plant and suffer considerable losses during the process of marketing. These losses are in the form of : (a) Quality down-grading due to handling, (b) Physiological spoilage (rooting & sprouting), (c) Pathological Spoilage from pest and diseases, (d) Over-supply to markets. All these are inter-related.

In the field of exports, India has failed to live up to the quality parameters set by other nations. This is because exporters in India source their raw materials without having knowledge about which farm the product is sourced resulting in failure of meeting food safety requirements of exports markets. Moreover, the fact that there is a lag in implementation of laws and enforcement of safety standards and the ill-equipped state of testing labs of the country.

India needs to identify micro level problems related to value addition. The government should develop a mechanism to have proper collaboration and coordination with different stakeholders' right from the farmer's level to ensure uniform quality of produce, better storage and processing technology.

#### Potential for Horticulture and Value Addition

The potential growth of this sector is very bright because of India's climatic and soil condition. These possess a very wide scope for the cultivation of horticulture produce. In all the processing components, like primary processing (cleaning, grading, sorting, cutting, secondary processing (pulp, flakes, paste, frozen, diced, canned) and tertiary processing (jams, jellies, chips, ready to serve drinks, Indian ethnic products), ample opportunities exist for further growth of the sector.

ET Bureau has emphasized that "India produces almost half of the world's mangoes. But, exports are dominated by Thailand, Mexico, the Netherlands, Peru and Brazil. India must focus on brand-building and having a marketing presence globally." For increasing mango exports, there is need for greater collaboration among agencies involved in exports. Both public and private participants should consider this aspect. APFEDA has been in the forefront.

It is important to note that in the case of horticulture produce exports within short distances is preferred. As such, more innovation in food processing will be of help in enhancing exports not only to West Asia but also to other relatively far off countries. In this context, priority to be given to ramping up refrigerated containers for sea shipments.

Surinder Sud has pointed out that many indigenous flowers, which can command a good market abroad because of their uniqueness, remain unspotted and under-promoted. Orchids can be a case in point. India is fortunate to have the world's richest orchid habitats in the North-eastern region and the Western and Eastern Ghats. They harbour over 1,000 species of these distinguished flowers. Though some headway has been made in exporting orchids, especially from Sikkim, the export potential of other hotspots of orchids remains under-tapped

Through capacity building, farmers have been able to overcome some of the production barriers that used to bar them from realizing the maximum potential of their farms or produce.

#### Government Policy

The process of creating value addition involves finding out marketing channels, simplifying the supply chain, providing a service, lowering costs, etc. It is better not to forget, the more is the value addition, the more return is extracted from the market. The horticulture sector requires suitable policy measures to rectify the problems being faced by the sector. The policy should take into consideration adequate supply of nutritious foods to consumers. For this, conditions should be created for innovation. Further research related to the sustainability of horticultural production and education on the use of precision agriculture technologies is necessary for horticultural production and ensure food security.

Support from the government and positive policy measures will bring desired effect on this sector. Such measures may take the form of making farmers' aware about the following :

- (a) better post-harvest handling of produce.
- (b) multiple processing alternatives of produce.
- (c) harnessing indigenous technologies for value addition that are already embedded in the local skillsets.
- (d) potential uses of the 'waste' material from processed raw material.

One of the foremost vehicles for value-added agricultural development is the Value-added Producer Grant Program (VAPG). Arun Raste has highlighted the fact that the instability of agricultural commodities prices is systemic, given that agricultural production depends on the monsoon. This causes uncertainty around the pricing of agri-commodities and livelihoods of people dependent on agri-value chains, be it traders, corporates, processors, wholesale merchants or retailers. A stable price policy regime is required to ensure that the farmers and all the stakeholders in the value chain benefit.

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through Chinese ports. Nepal does not need India for anything as China has promised to do everything including their land and resources. But the reality is that it is not feasible for Nepal to trade through Chinese ports. The nearest Chinese port is 2600 kms from Nepal's border all through the hill roads. On the other hand, the distance between Nepal's border to Kolkata port is just 750 kms. But still Nepal signed this agreement with China to end India's monopoly on Nepal's trade and transit.

Nepal has agreed to join China sponsored BRI project. China has also extended \$ 145 million assistance to Nepal for post-earthquake reconstruction and up gradation of China-Nepal road links. Both decided to conduct first ever joint military exercise. Thus the rise of Maoists in Nepali politics in 1990s and political instability in Nepal have facilitated China's political and strategic involvement in Nepal. Nepal is replacing India in all fields in Nepal-Trade, development assistance, tourism and culture. Now China is not only the largest aid giver to Nepal, but it also contributes largest number of tourist to Nepal. China is giving financial assistance for the salary of Nepalese teachers, who teach Chinese language Mandarin to Nepalese students. The growing strategic proximity between Nepal and China causes security concerns in India as well as tensions in Indo-Nepal relations. However, the fall of Oli's communist regime in 2021 gave

new hope for rebooting Indo-Nepal relations. In this background the new Prachanda Regime (since December 2022) supported and backed by Oli raises apprehensions in India. China may further strengthen 1st strategic and economic foothold in Nepal.

#### Conclusion

No doubt India and Nepal enjoy the historic cultural and social ties. But in recent decades the two factors have deeply influenced Indo-Nepal relations in negative manner. First, the emergence of communist as influential player in Nepali politics, which gave China and opportunity to spread its influence in Nepal. Second, since China wants to emerge as global power, it has to counter India's influence in South Asia. India is the main strategic rival for China in South Asia and the Indian Ocean. Thus China has followed the policy of creating a strategic space in this region. It has co-opted many countries like Sri Lanka and Nepal to diminish Indian influence in this region. In addition Nepal is also attracted to China's economic rise as a new opportunity for economic cooperation. This new condition creates win-win situation for both Nepal and China against Indian position. Though India has launched the Neighbour-hood First Policy in 2014 to consolidate its position in South Asia, but the policy has met with limited success due to Chinese designs and inclinations of India's neighbours towards China. In view of these facts, India needs to reevaluate its regional policy in South Asia. Now the days of interference in the domestic politics of neighbours are over. India needs to focus on the mutually beneficial development partnership with her neighbours. Another factor which may work in favour of India is growing disenchantment against China due to its debt causing partnership in many countries. Sri Lanka is the victim of Chinese loans and economic partnership. In January 2023, Pakistan has also shown the sign of financial crisis. Pakistan is also a close economic partner of China. This enchantment against China may help India to reconsolidate its position in Nepal and South Asia.

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