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## Entrepreneurial opportunities in horticulture

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### Abstract

The World Trade Organization (WTO) agreements have opened new vistas for horticulture development and diversification and, in turn, horti-business in the member countries including India. As such, increasing opportunities have emerged for developing entrepreneurship in horti-business sector especially horticulture, floriculture, pomology, olericulture, Post harvest sector etc. Understanding a problem, assessing a need, generating idea, an inner urge and zeal are the qualities that give birth to an entrepreneur. Horticulture presents several avenues available for entrepreneurship activities. In this regard an entrepreneur can play an important role Artificial ripening of fruits, Onion storage as an entrepreneurship, Fresh produce handling, Minimal processing, Processing of Horticultural produce etc. Keeping this in view this conceptual article has been put forth for the use readers as well as future entrepreneurs.

**Keywords:** Entrepreneur, entrepreneurial opportunities, horticulture

### Introduction

Horticulture is yet another agro-based important industry improving the productivity of the land, generating employment, improving economic conditions of the farmers and entrepreneurs, enhancing exports and above all, providing nutritional security to the people. Horticulture sector includes fruits, vegetables, spices, flowers and coconut etc. India has witnessed voluminous increase in horticulture production over the last few years. Significant progress has been made in area expansion resulting in higher production. Fruits and vegetables account for nearly 90% of total horticulture production in the country. India is now the second largest producer of fruits and vegetables in the world and is the leader in several horticultural crops, namely mango, banana, papaya, cashew-nuts, areca nut, potato and okra. Over the last decade, the area under horticulture grew by about 3% per annum and annual production increased by 5.4%. During 2016-17, the production of horticulture crops was about 295.2 million tonnes from an area of 24.9 million hectares. Presently horticulture contributes 30 per cent of Agricultural GDP. In Karnataka, several horticultural crops are grown on a commercial scale and provide livelihood to millions of farmers in the state. The one, who organizes, manages and assumes the risk of business or enterprise is known as an entrepreneur. The following write-up throws light on few of the plentiful opportunities exist in Horticulture.

### Artificial ripening of fruits

Ripening of fruits is an important part of post-harvest processing. Artificial ripening is done to hasten the process and produce more uniform ripening characteristics. Ethylene gas can be used to artificially ripen mangoes and bananas without any of the harmful effects of calcium carbide. It is also permitted by the Government. However this requires enhanced infrastructure in the form of ripening chambers and the requisite skills for operating them. The NCCD started a skill development program in artificial ripening of fruits. There are about 21 large scale ripening chambers in India. Low cost ripening structures with ethylene generator or ethylene tin may be employed by small entrepreneurs.

### Onion storage as an entrepreneurship

India is the second largest producer of onion in the world accounting for 16 per cent area and 10 per cent of production. It is the main Rabi crop which arrives in March-June. Since the bulk of Rabi Onion is harvested during April – May, just before the onset of the monsoon,

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the prices of onion decline during this period while the same shoots up during the rainy season. Non-availability of storage facilities at farm level forces farmers to sell their produce immediately after the harvest to save further deterioration during rains. In return, they get the most depressed prices and the middlemen in the trade get the advantage of volatility of prices of this essential commodity.

Storage of onion, especially in the long gap between the Rabi crop and next Kharif crop, can save tears both for farmers and consumers by evening out the supply and demand position. Onion, with appropriate scientific storage, can be stored for up to six months.

### **Role of Entrepreneur in onion storage**

Storage of onions could be an entrepreneurship activity to take advantage of storage problems with the farmers. An entrepreneur can erect the storage structures offering them for use by the farmers on rental basis. Facilities should be created to store about 20 -250 quintals of onion at the time of harvest to avoid distress sale so that the same can be sold after 4 months of storage which may fetch higher return which will strengthen the economic condition of the farmers as well as habituate them for grading, drying, sorting and storage in racking system of onion storage structure. Alternatively, an entrepreneur may buy onion produce from the growers and hoard them for some time after harvest and release periodically to the market. Taking onion storage as an entrepreneurship will benefit both consumers at large and farmers in particular. Onion Storage will also facilitate in promotion of onion exports from India.

In Hiwara Bazaar village in Ahmednagar district of Maharashtra more than 40 farmers have erected onion storage structures having capacity of 25 MT each. Together, these farmers stored over 1100 MT Rabi onion and released their stock in the market during August, 2010 fetching a price of Rs 800 per quintal as against Rs 400-500 prevalent after the harvest in May, 2010. With onion cultivation turning profitable for the farmers of Hiwara Bazaar, reverse migration has started. Farmers now find their agriculture lands providing better living to them compared to doing manual labour in Mumbai.

### **Fresh produce handling**

Fruits and vegetables are produced seasonally, but the market requires products throughout the year. Increased consumer incomes and year-round demand for fresh produce, force retailers or their representatives to establish buying points in growing areas of the country. In this regard, supermarkets are major suppliers of fresh fruits and vegetables. Supermarkets have been spreading very rapidly in developing countries for the past decade. Bringing fruits and vegetables to market requires special handling. To preserve quality and maintain marketability, each crop must be harvested, prepared for market, packaged, and shipped. To ensure the availability of fresh fruits and vegetables entrepreneurs may have contract with the large number of growers. To secure high quality, the entrepreneur need to directly source fresh produce from farmers from their villages through collection centers. With this concept, one can build a business model generating shared value that links the company supply chain more closely to poor farmers in Indian villages. In this way he will be providing a guaranteed market for the farmers' produce, reducing transaction costs and training the farmers in better and sustainable farming practices.

**Existing fresh produce handling units in India:** ITC' Choupal Fresh, Heritage's Fresh®, ABRL's More, RPG's Spencer's Retail, Reliance Fresh's Ranger Farms, Big Bazar, Namdhari Fresh, Big basket and Metro.

### **Minimal processing**

Fresh-cut products are fruits or vegetables that have been trimmed, peeled and/or cut into a fully usable product, which is subsequently packaged to offer consumers a high nutrition, convenience and flavour while maintaining freshness. The market for chilled fresh-cut produce has witnessed dramatic growth in recent years, stimulated largely by consumer demand for fresh, healthy, convenient and additive-free foods which are safe and nutritious. The food industry has responded to this demand with creative product development, new production practices, innovative use of technology and skillful marketing initiatives.

Fresh-cut produce is sold in open-air markets and food stands in many Asian countries and is increasingly being sold in supermarkets. Fresh-cut fruits, in particular, have gained popularity in urban centres of the region. The production of traditional dishes in most developing countries necessitates a variety of fresh ingredients. The drudgery of peeling vegetables, shelling peas and trimming herbs and vegetables, and then combining these ingredients, often deters the busy housewife from preparing these traditional foods. Similarly the difficulty of peeling fruits such as pineapple, pomegranate, jackfruit and sometimes their large size deters the consumer from purchasing them. Fresh-cut processing addresses all of these issues by making products available in a convenient, easy-to-use format with minimal waste. Packs of fresh-cut fruits and vegetables are increasingly being prepared by cottage industry suppliers in many developing countries and are being sold in wet markets in response to consumer demand for produce in a ready-to-use format.

Cottage industries and small vendors are still the major supplier of fresh-cut fruits and vegetables in most developing countries. Food caterers often supply fresh-cut fruit packs for school feeding programmes. Supermarkets in most developing countries produce fresh-cut fruits and non-leafy fresh-cut vegetables on site to meet consumer demand. Bagged leafy vegetables are supplied primarily by small enterprises engaged in fresh-cut production. Growth in the fast food sector and in the food service industry of many developing countries has also increased market opportunities for many small producers of fresh-cuts. Developed countries are constantly looking for innovative products, providing potential for tropical fresh-cut fruits and vegetables to fill a gap. Food products offering new colours, flavours and textures, if creatively packaged, would be welcome additions to the fresh-cut industry in developed countries.

### **Processing**

**Papaya:** Papaya fruit is the most economically important fruit. Market discarded papaya fruit processing is necessary, where it ensures fair returns to the growers to improve their economic condition. The over ripen and mechanical injured papaya fruits are wasted in large quantities due to absence of facilities and know-how for proper handling, distribution, marketing and lack of storage facilities. Fruit preservation has an important role in the conservation and better utilization of fruits in order to avoid wastage of fruits. Therefore, there is great scope for processing of papaya fruits to curtail the post harvest losses. The various products such as jam, jelly, candy, nectar, puree, concentrate, toffee, tutti-fruity, freeze dried

chunk, dried rolls, dried slices and pickles can prepared. These products have good consumer demand because of nutritional and medicinal value.

Other commercial processed products of papaya are frozen papaya cubes, tutti-frutti, aseptically canned papaya pulp, papaya ice cream and papaya kulfi.

**Jamun:** Jamun is a healthy fruit with absolutely no trace of sucrose. It is therefore, the only fruit with minimum calories. The juicy fruit pulp contains resin, gallic acid and tannin. The ripe fruits are used for health drinks, making preserves, squashes, jellies and wine. In association to its dietary use, all parts of the tree and, importantly the seeds are used to treat a range of ailments, the most important being *diabetes mellitus*. The sweetened Jamun juice is a delicious fruit beverage. Jamun RTS beverage alone or as blended beverage with other fruit juices can also find good acceptability. Jamun squash or syrup are the other products that can be made commercially.

**Tomato:** Tomato is one of the most important food crops in India. It grows in almost every state of the country. Tomatoes are used in the preparation of soup, salad, pickles, ketchup, puree, sauces and also consumed as a vegetable in many other ways. Tomato processing industry is huge. The only ketchup and sauce market in India is pegged at Rs 1,000 crore and growing at around 20% year-on-year. There is a big market for the processed tomato products. The market scenario has revealed a positive indication for the specially packed tomato sauce in local as well as outside market.

There is ample scope for a unit to come up in this product sector to cater especially to the suburban and rural sectors of India. Increase in the number of teenagers and youngsters with higher spending power as well as an increase in working population (especially women), is fuelling the growth of Fast food industry in India and globally.

Processed tomato products have good export potential, especially in the Middle East. Many units are operating in the small scale sector in the country. Initiating a small scale tomato processing unit, focusing on a single product is the financially viable investment opportunity.

**Pickles:** Pickling is the process by which fresh fruits and vegetables are preserved and with the addition of salt, chilly and spices, a tasty preparation known as "Pickles" is made. Pickles are also good appetizers and digestive agents. There are several varieties of pickles and they are consumed throughout the year by people from all walks of life. Unimaginable quantities of pickles are consumed round the year. On an average, each family consumes about 2 kgs of pickles every year.

**Beverages:** Fruit juice production and packaging are a profitable business in India. Within the beverages market, the packaged fruit juice is one of the fastest growing products. It has grown at a CAGR of over 30% over the past decade. At present, the Indian packaged juices market is valued at Rs 1100 crore and is projected to grow at a CAGR of 15% over the next three years. The rising number of health-conscious urban consumers is giving a boost to fruit juices. Growing affordability and rising disposable income are also responsible for the growing demand of fruit juices in the Indian market. There are three types of fruit juices available in the market. Fruit drinks, which have a maximum of 30% fruit content, are the highest-selling category. Fruit Juices, are 100% composed of fruit content and claim a 30% market

share at present. In contrast, nectar drinks have between 25-90% fruit content but account for only about 10% of the total market.

**Dehydrated onion slices:** Onion is one of the most important commercial vegetable crops grown in India. Both immature and mature bulbs are used as vegetable and condiment. It contains vitamin B and a trace of vitamin C and also traces of iron and calcium. The outstanding characteristic of onion is its pungency, which is due to a volatile oil known as allyl-propyl disulphide. Onions compared with other fresh vegetable are relatively high in food energy, intermediate in protein content and rich in calcium and riboflavin. Onion is dried / dehydrated to largely increase its shelf life. Dehydrated onion is used mainly for making soup in Europe and USA. Dehydrated onion is used as condiment and flavoring agent in manufacturing of tomato ketchup, sauces, salad, pickles, chutneys, meat sausages, masala breads and buns, pizza, breakfast food etc.

**Jackfruit:** Jackfruit is not easy to eat out of hand owing to morphological and/or biochemical hindrances associated with the fruit. Such indigenous or under-utilized fruits which are not easily marketed in the fresh form should be processed into acceptable products. Jackfruit is gaining popularity even in the United States due to emerging ethnic and mainstream marketing opportunities. Product diversification in jackfruit helps in popularising the fruit among the masses as it removes difficulty in separating the bulbs from rind.

Converting jackfruit bulbs into chips add variety to 'salty snacks', a popular group of food item. Papads are traditional savoury preparations whose quality depends much on the base raw material. Beside papads and chips, jackfruit can be processed in to various products. Jackfruit jam, jackfruit powder, biscuits, dehydrated jackfruit, jackfruit leather, jackfruit seed products, jackfruit seed coffee are some of the value added products with potential for entrepreneurship activity.

## 7. Pomegranate – Scope and opportunities for industries and marketing

Pomegranate juice is nutritionally rich and consumed often for its rich phenolic compounds (anthocyanins, ellagic acid, phytoestrogenic flavonoids and tannins).

Pomegranate – minimally processed products

- Difficulty in aril separation
- Convenience of consumers
- Low temperature, pH regulation, edible GRAS chemicals and preservatives
- Permeable polymeric films for package
- from being seen as a fruit that is difficult to eat to a highly sought after super fruit

Pomegranate – processed products - Jellies and jams

Pomegranate – Alcoholic beverages

- Wine is one of the options for management of non-marketable pomegranate fruits as wine
- Production of wines having medicinal and nutraceutical compounds would attract the consumers in terms of their health benefits
- The extraction of components of pomegranate in to wine, offers a highly valued health drink

Pomegranate – Dietary supplements

Pomegranate – Cosmetics industry

- Owing to their high antioxidants – protects skin from detrimental effects of UV exposure
- Ellagic acid – Prevents degradation of collagen from skin cells – maintain skin structure and slows the formation of wrinkles
- Face creams, lipsticks, mineral deodorant body spray, haircare solutions and many other
- Pomegranate seed oil
- Seed oil – one of only about six plant sources to contain conjugated fatty acids
- Conjugated fatty acids – inhibit eicosanoid metabolism at several points in the synthesis of prostaglandins from arachidonic acid
- Anti-inflammatory agents
- Richest known plant source – steroidal estrogen and estrogen

Pomegranate confectionary and sweets products

- Cakes, ice creams, chocolates

Online marketing portals

- Amazon, flipkart, bigbasket
- Body shop, pronaturainic

### Scope and opportunities for industries and marketing in Tissue culture

Demand and supply of tissue cultured plants: With increasing demand for agricultural, forestry, plantation and horticulture crops, the demand for high-quality, high-yielding, disease-free planting stock has increased significantly over the last two decades. Plant tissue culture has emerged as an important biotechnology and commercially viable tool to multiply elite varieties of high quality, disease free and high yielding plants rapidly in the laboratory irrespective of the season of the year. The market size in India is estimated at Rs.500 crores.

- At present, there is demand for 1-2 billion plants worth Rs. 500 crore (DBT, 2016), while production less than half of the demand, produced by 200 commercial tissue culture companies with a capacity: 500 million plantlets/annum and actual production of approx. 350 million plants
- Horticulturists (farmers) are the major customers of tissue cultured plants with an annual replacement ratio of 5-8%. Apart from that Landscape horticulturists that export ornamental crops and cut flowers require plants throughout the year. In addition, State agriculture and horticulture departments are promoting tissue cultured plants through Area expansion programme, Agro Export Zones. Among the 140 sugar factories spread across the country, there is an increasing awareness about the benefits of the TCPs over conventional plants. Although, at present only 6-7% of these are using TCPs, a larger number of factories are expected to shift over to TCPs in the next 3-5 years. More than registered seed companies require millions of doubled Haploids plants of various crop species in their plant breeding programme.

**Scope of Nursery:** In India there has been rise in crop cultivation which has created lot of demand for seedlings. Several nurseries can be set up in a village within a few kilometer radius supplying quality seedlings. Maintaining a nursery along with farming fetches better income

The advantage of maintaining a nursery as business. It is remunerative and can be conducted in a small area even behind the farmer's house. More than 250 seedlings in plastic bags can be accommodated in a sq. meters area. The initial investment for procuring the seedlings on wholesale might

work out to Rs. 10,000 to Rs. 15, 000 for fruit and flower varieties from government authorized nurseries.

And farmers can sell it to individual persons for Rs. 10 more a seedling than the price of purchase.

**Scope of Floriculture:** This sector has created lot of entrepreneurial opportunities because of High returns per unit area, Better employment opportunity and Expanding market with rise in income

**Scope of consultancy service:** There is lack of extension personals to meet large farmers hence there is lot untapped opportunity in this sector. The horticulture graduate can become consultant in different areas of horticulture to name few Soil and water quality cum inputs testing laboratories, Crop protection services and control services, trade service, storage service, etc.

**Scope of Horti tourism:** Horti-tourism is a commercial enterprise that combines horticulture and tourism on a working farm, ranch, or other agribusiness operation. Horti-tourism can be defined as "the act of visiting a working horticultural farm (fruit orchard or vegetable garden or ornamental garden) or horti-business operations for the purpose of enjoyment, education, recreation or active involvement in the activities of the farm or operation. It can be also referred to as "entertainment farming" or horti-tourism" is a means of diversifying the farm and adding value (i.e. the farm experience) to products already produced on the farm. This is a hospitality business that requires strong public relations and skills. It also necessitates the cooperation of the entire farm family.

### Conclusion

The horticulture sector is gaining lot of importance because of its nutritional value and also for its higher export potentiality exist in the trade of many perishable horti produce. From the above literature it shows there is lot of business opportunity in horticulture that needs to be tapped properly to improve the economy of India.

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