Fruits and Vegetables Processing in India

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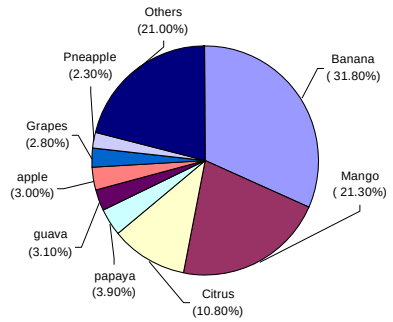
India is a major producer and also consumer of wide variety of farm products. With 57.7 million tonnes of fruits and 111.7 million tonnes of vegetables, India occupies second place in the world's total production of fruits and vegetables (Economic Survey, 2007-08). World production of fruits and vegetables was estimated at 5241 and 9026 lakh MT respectively in 2006. China is the largest producer of both fruits and vegetables. India ranked second and accounted for 8.11 and 9.11 percent of world production of fruits and vegetables, respectively. Two Asian countries alone i.e. China and India with a combined production of 1358 and 5306 lakh MT accounted for about 26 and 59 percent of world production of fruits and vegetables, respectively. The other leading countries in fruit production include Brazil, USA, Italy and Spain and that for vegetables include USA, Turkey, Egypt, Russian Republic and Iran

Among the fruits production during the year 2005-06, bananas occupied the top position with an annual production of 17.70 million tonnes accounting for about 32 percent of the total fruit production followed by mangoes (21.30 %), citrus (10.80%), papaya (3.90%), guava (3.10 %), apple (3.00 %), grapes (2.80 %) and pineapple (2.30 %) (Figure1). Among vegetables, potato occupied the top position with an annual production of 29 million tonnes accounting for about 26.70 percent of total vegetable production followed by tomato (8.60%), onion (8.50 %), brinjal (8.40 %), cabbage (5.40 %), cauliflower (4.80%), okra (3.40%) and peas (2.10%) (Figure 2).

Fig.1: Production of important fruits in India: 2005-06 (% share)

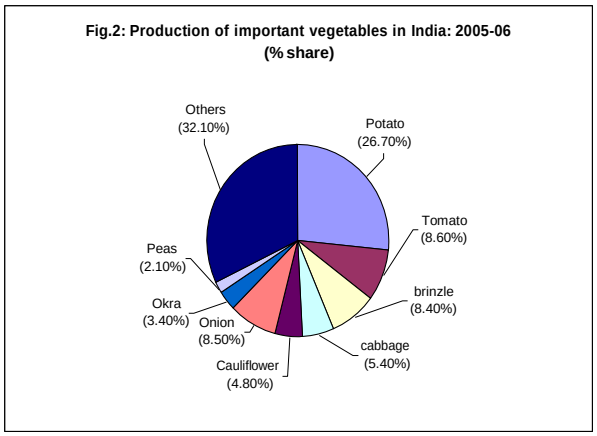


Despite major advantage in terms of raw material availability, India is nowhere in the world map in terms of processing

Table 1: World Production of Fruits and Vegetables by Major Producing Countries: 2006 (Lakh MT)

	Fruits			Vegetables			
Rank	**Country**	**Production**	**% share**	**Rank**	**Country**	**Production**	**% share**
1	China	934	17.82	1	China	4484	49.68
2	India	424	8.11	2	India	822	9.11
3	Brazil	365	6.98	3	USA	371	4.11
4	USA	273	5.22	4	Turkey	257	2.85
5	Italy	178	3.40	5	Egypt	165	1.83
6	Spain	165	3.15	6	Russian Fed	159	1.76
7	Indonesia	155	2.95	7	Iran	158	1.75
8	Mexico	151	2.94	8	Italy	147	1.63
9	Iran	138	2.64	9	Spain	125	1.39
10	Philippines	136	2.59	10	Mexico	110	1.28
	World	5241			World	9026	

when compared with other countries like Brazil, Philippines, Thailand, and Malaysia which are processing 70, 78, 80, and 83 percent, respectively, of their total horticulture produce.



As per available data, in 1980, the total fruit and vegetable processing units were 2026, which increased to 3846 in 1990 and 6097 in 2002 registering an increase by about 200 percent during 1980-2002 period. The total installed capacity of all the licensed units was 2.75 million tonnes in 1980 which increased to 8.94 million tonnes in 1990 and further increased to 23.00 million tonnes registering an increase of more than eight times during 1980-2003. As regards to the capacity utilization, only about 25 percent of the total installed capacity was utilized i.e. against installed capacity of 2.75 million tonnes only 0.70 million tonnes processed fruit and vegetables could be produced during 1980. With the passage of time, it slowly increased and reached to about 31 percent in 1990 which further increased to about 50 percent in 1996. Because of this low capacity utilization and as most of the fruits and vegetables are still consumed fresh, less than 2 percent of the total production of fruit and vegetables is utilized for processing purposes.

Table: 2 Number of Processing Units, Production, Installed Capacity and Capacity Utilization of Fruit and Vegetable Processing Industry in India.

Years	**No. of processing units**	**Production (Lakh tonnes)**	**Installed capacity (Lakh tonnes)**	**Capacity utilization (%)**
1980	2026	0.70	2.75	25.40
1990	3846	2.60	8.94	31.32
1992	4057	4.69	11.08	42.33
1994	4270	6.80	14.02	48.22
1996	4674	8.50	17.60	50.26
1997	4700	9.10	19.10	44.61
1999	5198	9.9	21.00	47.14
2000	5293	9.9	21.10	46.92
2001	5560	10.30	21.98	46.86
2002	6097	10.72	23.28	46.05
CGR (%)				
1990-2003	03.75	11.25	08.56	02.33

Note: Capacity utilization = production /installed capacity x 100.

A significant portion of processing of fruits and vegetables is carried out in small scale cottage industry. Traditional methods of processing are used on large scale in our country to process fruit and vegetables. For example, potato chips, banana chips, raisins, pickles, jellies, squashes, etc. are produced on large scale in household and cottage industry sector. This is one of the reasons for low capacity utilization in our country

Processing of fruits and vegetables, however, offers great opportunity. The demand for processed fruits and vegetables products is increasing day by day with the increase in real income, improvement in the standard of living, modern life style, urbanization, and contribution of women in household income, etc.

The fruit and vegetable processing sector in India has a tremendous potential for export also due to existence of diverse horticultural production and seasons. During the nineties particularly after liberalization, there was substantial increase in export of processed fruit and vegetable products. It was valued at Rs. 269 crore in 1993-94 which increased to Rs. 2502 crore in 2006-07 indicating that it increased about nine times during this period.

The data on export of processed fruit and vegetable products reveal that dried and preserved vegetables constituted the largest share in the total processed fruits and vegetables exports having 47.74 percent share in the total value of India's exports of processed fruits and vegetables (2006-07). Mango pulp comes at the 2nd place with its share of 20.21 percent followed by pickles & chutneys (11.73 %) during the same period. By comparing export over the years, it was found that the proportionate share of dried & processed vegetables has increased both in value and quantitative terms whereas that of pickles & chutneys has decreased in value terms but in quantitative terms it has increased from 10.88 percent in 1993-94 to 18.26 percent in 2006-07. On the other hand, the contribution of mango pulp to the total export of processed fruit & vegetables from India has decreased slightly both in value and quantity terms during this period.

Table 3: Composition and Direction of Trade of Processed Fruit and Vegetables, India

Sr.No.	Item	Major Importers from India
1	Dried & preserved vegetables	USA (18.72 %), France (14.48%), Russia (8.31%), Spain (7.98 %), Germany (7.94 %), Belgium (6.23%)
2	Mango Pulp	Saudi Arabia (26.72%), Netherlands (16.69%), Yemen Republic (8.54%), UAE (7.93%), Japan (5.17%), Kuwait (4.22%)
3	Pickles & chutneys	Russia (37.83 %), USA (17.52%), Belgium (9.28%), Spain (5.68%), France (4.81%), Estonia (4.80), Netherlands (3.62%)
4	Others	USA (29.39%), Netherlands (8.71 %), Saudi Arabia (8.21 %), UK (7.61%), UAE (5.40 %), Indonesia (5.35 %)

Indian horticulture sector is constrained by widespread fragmentation in supply chain, and low productivity levels. Inefficient post-harvest handling also causes substantial loss. Poor infrastructure in terms of storage, transportation system, cargo space, inefficient facilities at air/sea ports, poor quality in terms of international standard, etc are the main bottlenecks for the export of fruits and vegetables from India.

Since, fruits & vegetables are perishable, efficient post harvest management is of utmost importance. In India about 30 percent of fruits & vegetables produced go waste due to poor post harvest handling. Curtailing this loss by proper post harvest handling will not only add to our supply to meet domestic demand but also can leave enough quantity for processing and exports.

In our country cost of production of vegetables is half the average global price but transportation cost in India is higher than other countries, which works as a hindrance to India's exports. A World Bank report has revealed that India's international transport costs are 20-30 per cent higher than other countries. Transportation costs are found to account for nearly 45 percent of retail price when air transport is used and 25 percent in case of maritime transport. Indian products are 5 to 15 percent more expensive than their foreign counterparts simply on account of high international transportation costs.

There is an urgent need to develop air transport cargo system specialized for fresh fruits and vegetables, along with the airports, roads and rail connectivity with the area of procurements. India also needs to strengthen research on horticulture crops and develop demand-driven technology by improved variety, pest management, in both private and public sectors. Strenuous efforts are required to be made to achieve higher production through encouragement for zone wise area expansion of horticultural crops. Increase in productivity, use of suitable high yielding varieties, use of improved cultural practices and irrigation systems and integrated pest management are required for improvement of quality and quantity of the produce. Emphasis should also be given on quality control and for increasing shelf life as these are crucial for exports.

Based on the information given above, the following issues cropped up for further discussion:

1. Conduct SWOT analysis of fruits and vegetable processing in India;
2. Throw light on the problems of fruits and vegetable processing; and
3. Suggest measures to be taken by the government, processing units, exporters and cultivators to improve the processing of fruits and vegetables in India.