

Fruits

India is the second largest producer of Fruits after China. West Bengal is a major producer of fruits. In 2009, the production of fruits in West Bengal stood at 3.85 million tonnes. This abundant availability of fruits provides the state a competitive edge in the food processing industry.

Total production and demand in the state

Production of Fruits in West Bengal covers an area of 166.29 '000 Hectares with a total production of 2128.28 '000 MT during 2009-10. Out of a variety of fruits produced in the state, the principal fruits:

- Mango, Litchi, Pineapple, Orange, Banana and Guava
- Above five fruits share 75% of total area under fruits cultivation
- Above five fruits share 73% of total fruit production

There is a lot of confusion in the market place about processable and non-processable varieties of fruits and their availability. For example, West Bengal has a huge production of pineapples, but the units set up for processing of pineapples, can not get adequate raw material. At a gross level, processable varieties are those which are amenable for handling in machine operated conversations to value added products. Generally, in the case of pineapples, this means uniform sizes within close tolerances in terms of overall diameters, uniform core diameter and a reasonable consistency in flavor so that the ultimate products are reasonably consistent from batch to batch.

On the other hand, all other produce are really non-processable by machine or "table" variety. This does not mean they are inferior or inedible. They can also find good market as fresh fruits. They still need to be pre-processed to make them ready for the end market. And they can also be processed to a certain extent. In the case of pineapple again, they can be cut into bits and even sliced and suitably processed and packaged. In case the processor wants to use any semi mechanical aid, they can get such mechanical aids in India and from a host of small manufacturers in Europe.

Whether a fruit is processable or not depends on a host of factors, mostly related to methods of cultivation and planting materials used. Normally farmers do grow fruits for whatever they find a market for. If there is no requirement for processable varieties, farmers will not grow them as cultivation of processable varieties usually mean more care in cultivation and therefore more initial cost. That is why prospective users/ processors must work with local farmers much before the start of production in their units.

Processing: The fruit can be processed in a variety of manner to add value and shelf life to the produce. Such products include pulp, juice, slices and bits, pickles, sauces, squashes, concentrates, jams, jellies etc. Not every kind of fruit is converted into all the above categories.

Major players in the field of fruit processing in West Bengal are

- ITC
- Dabur
- Keventer Group
- Calypso
- Gita Fruit Products

- Malcos

There are many other smaller units. Not all of the above are necessarily doing well.

Mango:

Top five producing districts are:

Districts	Production (000 MT)	% of total state production
Malda	196.00	31.60
Murshidabad	135.00	21.77
North 24 Parganas	81.59	13.16
Nadia	57.52	9.28
Hooghly	39.00	6.29
Total	509.11	79.7

Varieties of Mangoes produce in large quantity are:

- Himsagar
- Laxmanbhog
- Gulabkhas
- Langra
- Fazli
- Aswina
- Gopalbhog
- Rani Pasand

Market:

- Markets in Murshidabad, Nadia
- Chitpur Market in Kolkata
- Contract cultivation reserves a fixed market and are supplied in bulk to the major traders
- Contract farming is allowed in many states in India, but not in West Bengal.

Litchi:

Top five producing districts are:

Districts	Production (000 MT)	% of total state production
Murshidabad	2.26	24.19
Malda	0.85	6.99
Nadia	0.74	8.88
North 24-pgs	0.71	6.95
South 24-pgs	0.46	4.65
Total	5.02	73.8

Varieties of Mangoes produce in large quantity are:

- Bombai' is the major variety

Market:

- Markets in Murshidabad, Nadia
- Chitpur Market in Kolkata
- Contract cultivation reserves a fixed market and are supplied in bulk to the major traders

Processing: The fruit can be processed in a variety of manner add value to the product. Such includes Litchi juice, litchi jam & jelley, Litchi pulp, canned litchi etc..

Pineapple:

Top five producing districts are:

Districts	Production (000 MT)	% of total state production
Darjeeling	3.98	104.03
Uttar-Dinajpur	2.54	74.24
Jalpaiguri	2.41	63.52
North 24-pgs	0.68	18.5
Nadia	0.55	16
Total	10.16	78.9

Market:

- Bhidannagar village in Silguri, West Bengal
- Export market in Nepal & Bhutan

Processing: The fruit can be processed in a variety of manner add value to the product. Such includes Pineapple juice, Pineapple jam & jelley, Pineapple pulp, canned pineapple etc..

Major Players:

- Druk
- ITC

Banana:

Top five producing districts are:

Districts	Production (000 MT)	% of total state production
Hoogly	4.49	82.65
North 24-pgs	4.1	80.12
Nadia	4	70
Jalpaiguri	2.22	48.7
Midnapore(E)	1.8	58.49
Total	16.61	72.9

Varieties of Banana:

- Attiakala',
- 'Bichkela-1',
- 'Bichkela-2'
- 'Hill Banana',

- 'Kalyani Local-3'
- 'Maricha' and
- Jhama Diara'

Market:

Bananas produced in West Bengal is consumed in the state and rest are distributed in markets of Patna, Ranchi, Raipur, Kolkata, Bhubaneshwar etc

Processing: Kaventers conduct training in banana cultivation and also support the farmers to produce export grade bananas. Rich in iron this fruit is a health supplement for all

Major Players:

- Kaventers Agro

Guava:

Top five producing districts are:

Districts	Production (000 MT)	% of total state production
South 24-pgs	1.72	30.15
North 24-pgs	0.82	13.6
Birbhum	0.73	9.1
Nadia	0.7	11.9
Bankura	1.8	58.49
Total	4.58	50.8

Varieties of Banana:

- 'Allahabad Safeda', '
- Khaja' (Bengal Safeda),
- 'Kafri',
- 'Teli',
- 'Bhagalpur' and '
- Baruipur'. 'Khaja' (Bengal Safeda)

Market:

- Guava produced in West Bengal is consumed in the state and rest are distributed through market channels to Bihar, Odisha, Madhya Pradesh etc
- Baruipur Market
- Chitpur Market

Seasonality in production of Fruits

Name of Fruit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mango												
Litchi												

Banana								Blue	Orange	Orange	Blue		
Pineapple				Blue	Blue	Blue	Blue	Orange	Orange	Blue	Blue	Blue	Blue
Guava	Orange	Orange	Blue	Blue	Blue	Blue	Blue	Orange	Orange	Blue	Blue		

Blue: tenure of production during the year Orange: indicates peak season

Major markets in West Bengal

- Chitpur Market in Kolkata
- Bidhannagar Market in Siliguri

Cultivation scenario in West Bengal

Cultivation: Variety of fruits cultivated in diverse of climate in the state. Some require dry climate other require cold and moist and yet other would require tropical climates. As in case of Mango, an entire orchard can be taken on lease for the production period. During this time, guards are kept posted to avoid theft and premature falling of fruits. Banana plant as a whole is consumed; the leaves are used as disposable plates the stem as a vegetable and banana is of course the fruit. Guava in West Bengal is cultivated almost during the entire year and fertilizer dose is split into two and applied once in January and once in August.

Packaging at farm level:

- In gunny bag- guava, mango, bael, ber
- In cloth bag – guava, mango
- In bamboo basket covered with leaves – guava, mango, litchi, papaya
- Without any packaging – banana, pineapple, jackfruit
- Wooden box – litchi, mango
- Plastic crate – litchi
- Cushioning materials – newspaper or leaves of the same fruit, covering with newspaper or banana leaves.

Distribution:

Channel 1. To central market by

- wholesalers through contract sale
- commission agents
- wholesalers who buy directly from orchards/ local markets.

Channel 2. Farmers/ contractors with big orchards send their produce directly to the central market (about 5%)

Channel 3. Farmers/ contractors bring their fruit to local wholesale markets were many vendors and even some consumers come to trade.

Channel 4. Directly to exporter without passing through any middleman. Exporter assign their agents or collectors to procure fruit of a specific grade.

Channel 5. Directly to processing unit with prior agreement on size, quality and price.

New projects

Prominent investors in West Bengal's food processing industry include Pepsico (through Frito-Lay India). Del Monte Pacific Ltd is setting up a pineapple and mango processing plant with an investment of US\$ 11 million while companies like Unilever and Nestle have expressed interest in setting up food processing units in the state.

Big names in marketing of Fresh & Processed Fruits

Fresh fruits are sold in local markets, mandis, and organized retail outlets. Processed produces are sold by all un-organized and organized retail outlets.

Some of the organized retail outlets in the state are:

- Spencers (RP Goenka Group)
- Food Bazaar (Future Group)
- Reliance Fresh,
- More (Aditya Birla Group),
- Arambagh

Research infrastructure required for Fruit processing

In the time of harvesting no scientific standards are primarily followed for determination of maturity. Most based on experience of the person, some times change of colour (litchi), softness (mango), attainment of size (banana, jackfruit) whether the fruit is ready for consumption is determined.. Harvesting before maturity due to sudden market demand (festival) or to get higher price early in the season (litchi, mango), avoiding pest incidence after rains (litchi, guava) are basic drawbacks which results in inferior quality- ultimate low market price.

Adopt the best practices

- Storage
 - ✓ Postharvest storage facilities
 - ✓ Collection centers
 - ✓ Cold chain
- Packaging
 - ✓ Special purpose containers to prevent damages
 - ✓ Protection from contamination
 - ✓ Not imparting any toxic substance
- Handling
 - ✓ Speciality handling tools and equipments
- Transportation
 - ✓ Freighters
 - ✓ Multimodal transport services
- Logistics service provider
 - ✓ Storage,
 - ✓ warehousing and
 - ✓ material handling services transportation

Conclusion

Problems encountered by the pre-harvest contractors from farmers and due to lack of infrastructural facilities

- Lapses on the part of farmers in the management of orchard resulting in deterioration of quality of fruits
- Problems of natural calamities (theft of fruits, losses due to rains, pest etc.)
- Inadequate storage facilities at local place
- Packaging problem (costly packaging materials and non- availability of skilled labour)
- High transportation cost and non-availability of refer van
- Non-availability of graders
- Non-availability of pre-cooling facilities

Constraints in implementing post -harvest practices:

- Numerous intermediaries
- High level of wastage (30-40%)
- Lack of transparency – prices, availability, demand, customer preferences
- Poor infrastructure – storage, packaging, transportation/ no cold chain
- Poor linkage in the marketing channel

Way Forward:

- Production technology on modern lines needs to be demonstrated to the growers on a massive scale.
- Farmers need to be educated about export requirements and international quality standards.
- Processed fruits in the form of jam, jelly, pickle, canned fruits etc are available in the market. What is required increase in their scope and scale.
- Thus a Fruit Processing unit is proposed in Malda, preferred location: On the 4 acre walled premises of Malda Mango Co. Op. Society Limited, Malcos, on rent, lease or any other suitable basis. Depending on the seasonality and availability of the fruits, puree, pulp, beverage, chutney, jam, jellies, slices, pickle, sauce, squashes, concentrated juice etc can be processed for a variety of Fruits. If there is variety, this state of art processing unit with modern machines will run throughout the year and will be a viable proposition compared to units like Gita Fruit Products and existing Malda Mango Co. Op. Society Limited, Malcos.
- Another new unit can be made in Malda Food Park and one each in Darjeeling and Murshidabad districts.
- Banana holdings in India are very small and it is not possible to install cable ways for transporting bunches from field to pack-houses to avoid bruises. Under these circumstances, groups of farmers need to be encouraged to have system of make shift pack-houses, to cut-hands from bunches in the field itself and send these hands to central pack-house for further processing /treatment and packing.

Most modern packhouse facilities need to be created, to begin with, in Nadia district. Preferred location would be Chakdaha on NH-34 which is well connected to other parts of the state.

- Market infrastructure should be improved through setting up of storage facilities, improvement in the road net work, cold-chain facilities, airport and port infrastructure for shipping and cold storage in public private partnership.
- The well-developed post-harvest infrastructure facilities even after allowing for 10 per cent post-harvest losses of total fruit production, will make available an additional 5 million tones of fruits for domestic and international markets. Market surveillance and information, export quality standards, terms of global trade, export ventures in partnership with exporters and linkage with export houses should be strengthened.
- **A very big problem in West Bengal for the processing sector in the small scale is lack of any packaging material. For example there is a severe shortage of “tetrapack” packaging units. Few people realize that “Terapack” is a brand name of an aseptic packing machine manufactured by a Company with the same name. Another example is the Xerox machine, which is essentially a reprographic machine and is manufactured by a host of Companies. But in popular terms, they are known in the market as Xerox machine, irrespective of the manufacturer. Similarly several European manufacturers make “tetra pack” or aseptic packing machines of various sizes and capacities. Tetra pack is a very big who essentially make very large capacity machines. They are also very expensive and totally beyond the capacity of SSI units, even in a cluster. Being a very big Company, Tetra Pack could afford an office in India and spread the word that they only manufacture such machines. What a group of SSI manufacturers can afford and should therefore buy are those manufactured by other European Companies. Unfortunately none of them have offices or marketing persons in India. The government must make these SSI units aware of these manufacturers and their product range so that a group of SSI units in a cluster can buy them. Even a new Company can buy such a machine and offer services to a host of SSI units.**
- **Such machines are urgently required in Malda and Murshidabad district.**
- **Finally, prospective investors of large units must realize that just because there is a lot of produce in a certain location, they are not necessarily processing variety or may not meet their specific requirements. They should start working with farmers and cultivators well before the start of production to ensure that they get the variety they desire when production starts.**