

Identifying Opportunities to start Industries on the Food Production Potential in Telangana and Andhra Pradesh, India

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Abstract: *This paper discusses the opportunities to start agri-based industries in India, particularly in the recently formed state of Telangana. Since the agriculture sector is very vast, the discussion is confined to horticultural crops, i. e. fruits and vegetable sub-sector only. The Government is focusing on the development of industries and businesses through “Make in India”. One of the promising and sustainable sectors is “Agri-based and food processing industry”. Food processing and Agri-industries have tremendous potential to explore in India, which has strong agricultural base. This can play a vital role in fostering entrepreneurship in India. To start new ventures, it is very important to identify the areas where there is surplus agriculture production, especially in fruits and vegetable sector. Some of the important reasons are discussed in this paper by studying data from national horticulture board. Opportunity areas in horticulture are identified, and suggestions made for future entrepreneurs in this sector.*

Index Terms: *Fruit and Vegetable Production, Storage, Spoilage of fruits and vegetables, food security*

I. INTRODUCTION

India is the second largest producer of fruits and vegetables next only to China. India is the world's largest producer of bananas, papaya, mangoes and guavas and the second largest producer of potatoes, green peas, tomatoes, cabbage and cauliflower. As per the detailed report by Ranglal Jamuda, Secretary-food processing, MOFPI, Government of India (2015) [1], Present capacity of food processing is very low and massive quantities of farmers production is gone to wastage. All due to poor storage and little facilities of warehousing. Also highlighted on non availability of sufficient processing industries. He also highlights the large potential of food processing.

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Food processing and storage facilities also help in remunerative price to the farmers and adds much sought after food security to the Nation. Some of the data pertaining to the production of fruits and vegetables are very interesting for the new entrepreneurs and for exploring new opportunities for export-oriented products.

This paper presents some interesting facts and figures, which could throw light for the entrepreneurs to start new ventures in this sector.

II. LITERATURE OVERVIEW

Ahl (2006) [2] studied entrepreneurship from the point of view of women entrepreneurs to focus on new directions. They questioned about the inconclusive results on men being first to women. Suggestions are made on new directions on research based on discourse analysis of richer and more women's entrepreneurship aspects.

Birley (1987) [3] in their studies tried to find entrepreneurship by female entrepreneurs. They have found about the women entrepreneurs are significantly different than men based on data. Significant point was on market entry choices. Based on the Trade & Industry of UK government, they displayed on strategy point of recovery of economy.

Bruni et al. (2004) [4] made a study in Italy and based on ethnographic study about small enterprises on processes description which positions women and men gender. They high footing and gender commodification and footing were highlighted.

Das (2000) [5] Conducted studies in Kerala and Tamilnadu particularly medium and small enterprises owned by female entrepreneurs. They also found similar family-work conflicts in both western countries and these two states. Women entrepreneurs while setting up new enterprises and running them faced same problems of western countries women entrepreneurs.

Nayyar et al. (2007) [6] conducted studies in Himachal Pradesh, India specially in the area of carpet manufacturing, beauty parlors, handlooms, general stores, nursing homes, boutiques run by female entrepreneurs. About hundred female entrepreneurs were studied on constraints and issues of process of entrepreneurial journey. Technique of snowball sampling used for conclusions of results. Raw input materials scarcity, competition by bigger companies, units are located poorly, no proper rest and sleep, and lack of transportation facilities etc., are issues and problems faced by them. Final recommendations were to setup self help mutually supportive groups.

Ramesh Babu et al. (2016) [7] studied on preservation of vegetables and fruits and opportunities in all horticultural products. They have highlighted on fruit ripening aspects, food drying, value addition on green leafy vegetables, retort processed products, thermal processed products based on cereals and vegetables. Also mentioned about grading, sorting, washing, waxing, packing and export to get maximum price realization to the farmers. They discussed on what kind of opportunities to be looked into to add value to the farmers produce particularly fruits. Rural areas need to be strengthened based on the fruits or vegetables produced in that zone or locality. They also mentioned about effective utilization of facilities to be created by advance planning of crop and production availability during different seasons, so that complete year round utilization is there.

Table 1: Food processing opportunities for various commodities showing major producing states of India (Source: NIFTEM)

| Indicative Processing Opportunities | | |
|-------------------------------------|---|--|
| Commodity | Major producing states | Processing Opportunity |
| Green Peas | UP/Uttarakhand, M.P, Jharkhand, H.P, Punjab | Frozen (IQF), canning, pulp, puree, paste, sauces, snacks, dressings, flakes, dices, dehydration, pickles, juices, slices, |
| Tomato | M.P, A.P, Karnataka, Odisha, Gujarat | |
| Potato | U.P, West Bengal, M.P, Bihar, Gujarat | |
| Onion (white onion) | Maharashtra, Karnataka, M.P, Gujarat | |
| Mango | A.P, U.P, Karnataka, Bihar, Gujarat, Telangana | |
| Pineapples | Kerala, West Bengal, Assam, Karnataka, Tripura, Bihar | |
| Grapes | Maharashtra, Karnataka, Tamil Nadu, A.P, Telangana, Mizoram | |

| Indicative Processing Opportunities | | |
|-------------------------------------|--|--------------------------------|
| Banana | A.P, Karnataka, Gujarat, Tamil Nadu, Maharashtra | chips, jams, jelly, RTS drinks |
| Citrus fruits | A.P, Telangana, Maharashtra, M.P, Punjab | |
| Pomegranate | Maharashtra, Karnataka, Gujarat, A.P, Telangana | |

Table 2: Fruits and vegetables having major scope for processing and export

| Commodity | Production Volume (Mn MT) | Commodity | Production Volume (Mn MT) |
|-----------|---------------------------|-----------|---------------------------|
| Banana | 29.2 | Potato | 48 |
| Mango | 18.5 | Onion | 18.9 |
| Citrus | 11.6 | Tomato | 16.3 |
| Papaya | 4.9 | Brinjal | 12.6 |
| Guava | 3.9 | Cabbage | 8.6 |

Source: National Horticulture Board

India witnesses nearly 4.6-15.9% wastage in fruits and vegetables annually, due to lack of modern harvesting practices and inadequate cold chain infrastructure. National Horticulture Board is making agriculture statistics available for the Telangana state from 2015. These statistical data will be very useful to understand the opportunities in the Agri-processing sector in Telangana. Some of the fruit and vegetable production data are given below to understand the position of Telangana and Andhra Pradesh (Data from NHB Database) among other fruit and vegetable producing states.

Table 3: Production statistics of Sweet orange in India (Source: NHB)

| | | Area in 000 ha | | | | | |
|--------|----------------|-------------------------|---------|---------|---------|--|---------|
| | | Production in 000 Tonne | | | | | |
| S. No. | States/UTs | 2012-13 | | 2013-14 | | 2014-15 (2 nd Adv. Est.) | |
| | | A | P | A | P | A | P |
| 1 | Telangana | - | - | 122.67 | 1656.03 | 129.7 | 2557.34 |
| 2 | Andhra Pradesh | 204.07 | 3061.06 | 98.57 | 1330.64 | 94 | 1316.06 |
| 3 | Maharashtra | 99 | 245 | 95 | 712.5 | 35.29 | 461.85 |
| 4 | Madhya Pradesh | 8.53 | 109 | 8.53 | 108.98 | 8.7 | 111 |
| 5 | Karnataka | 2.9 | 50.6 | 2.09 | 31.54 | 2.06 | 32.55 |
| 6 | Punjab | 2.76 | 22.17 | 2.67 | 21.46 | 2.7 | 21.74 |
| 7 | Rajasthan | 1.7 | 16.67 | 0.3 | 7.19 | 0.29 | 7.07 |
| 8 | Mizoram | 1.5 | 4.65 | 1.52 | 4.86 | 1.69 | 4.94 |
| 9 | Tamil Nadu | 0.11 | 3.49 | 0.12 | 3.84 | 0.12 | 4.13 |

From Table 3, it can be seen that Telangana state is the leading producer of Sweet orange, where the opportunity lies to set up a large number of food processing industries in making of squash, nectar, juice, concentrate, whole fruit storage, etc.

Andhra Pradesh is the second largest producer and got the same kind of opportunities to start the food processing industries.

Table 4: State-wise statistics of production of Lime/ Lemon in India (source: NHB)

| | | Area in 000ha | | | | | |
|--------|----------------|-------------------------|--------|---------|--------|--|--------|
| | | Production in 000 Tonne | | | | | |
| S. No. | States/UTs | 2012-13 | | 2013-14 | | 2014-15 (2 nd Adv. Est.) | |
| | | A | P | A | P | A | P |
| 1 | Andhra Pradesh | 49.30 | 739.53 | 38.85 | 582.74 | 34.50 | 496.84 |
| 2 | Telangana* | - | - | 22.12 | 331.86 | 20.81 | 471.79 |
| 3 | Gujarat | 40.80 | 433.12 | 41.08 | 449.24 | 41.08 | 449.24 |
| 4 | Karnataka | 11.80 | 275.20 | 11.480 | 268.24 | 12.10 | 283.06 |
| 5 | Odisha | - | - | - | - | 26.63 | 261.07 |
| 6 | Madhya Pradesh | 10.68 | 235.00 | 10.79 | 237.38 | 11.12 | 245.00 |
| 7 | Maharashtra | 45.00 | 246.00 | 45.00 | 306.00 | 19.90 | 194.66 |
| 8 | Assam | 14.21 | 125.89 | 12.97 | 103.46 | 14.50 | 134.22 |

From Table 4, it can be seen that Andhra Pradesh and Telangana states are the first and second leading producers of lime/lemon respectively. New entrepreneurs must look into the vast potential of availability of raw

material to start the food processing industries in making lime/lemon based processed food products.

Table 5: State-wise statistics of production of Mango in India (Source: NHB)

| | | Area in 000 ha | | | | | |
|--------|----------------|-------------------------|---------|---------|---------|--|---------|
| | | Production in 000 Tonne | | | | | |
| S. No. | States/UTs | 2012-13 | | 2013-14 | | 2014-15 (2 nd Adv. Est.) | |
| | | A | P | A | P | A | P |
| 1 | Uttar Pradesh | 274.03 | 4386.99 | 262.16 | 4300.98 | 276.19 | 4309.54 |
| 2 | Andhra Pradesh | 489.66 | 4406.92 | 304.11 | 2737.01 | 315.69 | 2841.25 |
| 3 | Karnataka | 178.80 | 1795.10 | 180.53 | 1755.56 | 183.46 | 1739.64 |
| 4 | Telangana* | - | - | 190.88 | 1717.88 | 189.78 | 1733.81 |
| 5 | Bihar | 147.74 | 1363.80 | 149.00 | 1367.57 | 148.37 | 1271.62 |
| 6 | Gujarat | 141.26 | 1003.71 | 142.69 | 1125.61 | 142.69 | 1125.61 |
| 7 | Maharashtra | 482.00 | 633.000 | 485.00 | 1212.50 | 155.97 | 868.60 |
| 8 | Tamil Nadu | 152.43 | 714.08 | 161.58 | 785.50 | 169.66 | 864.00 |
| 9 | West Bengal | 92.50 | 735.00 | 93.50 | 430.71 | 95.43 | 784.65 |
| 10 | Odisha | 197.46 | 753.79 | 197.52 | 751.02 | 197.63 | 755.55 |
| 11 | Jharkhand | 51.33 | 517.92 | 51.33 | 517.92 | 51.84 | 523.14 |

From Table 5, it can be seen that Telangana is in the 4th position in the production of mangoes and only few processing

centres/processing units are available at present in the state, which indicates huge potential for starting new units.



Table 6: State-wise production statistics of Grapes in India (source: NHB)

| Area in 000 ha | | Production in 000 Tonne | | | | | |
|----------------|----------------|-------------------------|---------|---------|---------|--|---------|
| S. No. | States/UTs | 2012-13 | | 2013-14 | | 2014-15 (2 nd Adv. Est.) | |
| | | A | P | A | P | A | P |
| 1 | Maharashtra | 90.00 | 2050.00 | 90.00 | 2160.00 | 56.90 | 1911.07 |
| 2 | Karnataka | 19.70 | 320.90 | 20.46 | 302.39 | 21.08 | 404.64 |
| 3 | Tamil Nadu* | 2.68 | 43.38 | 2.84 | 47.72 | 2.99 | 52.56 |
| 4 | Telangana | - | - | 1.23 | 25.79 | 1.27 | 26.81 |
| 5 | Mizoram | 2.38 | 20.80 | 2.45 | 23.87 | 3.05 | 24.55 |
| 6 | Andhra Pradesh | 1.58 | 31.51 | 0.43 | 8.93 | 1.52 | 16.166 |
| 7 | Punjab | 0.44 | 12.52 | 0.42 | 12.02 | 0.42 | 12.10 |

Table 6 shows the position of Telangana state, which is the 4th largest producer of grapes. Several grape-based products like dehydrated products, juice products, concentrates, fresh grapes for export, and fresh grapes for storage using cooling technologies can be explored.

I. ‘MAKE IN INDIA’ THOUGHT WITH RESPECT TO FOOD PROCESSING:

“Make in India” thought given by the Hon’ble Prime Minister, Shri Narendra Modiji may be achieved by exploring more opportunities in the discussed fields, where India has surplus. Telangana state also produces significant quantities of citrus fruits, mangoes, papaya, turmeric, cotton, etc. “Make in India” is a flagship program conceived by the Hon’ble Prime Minister designed to facilitate investment, foster innovation along with development of skills apart from IPR. Also highlights to build manufacturing infrastructure of top class for in house manufacturing in India. India specializes on traditional foods and unorganized sectors manages it. NIFTEM is standardizing the mass production of traditional foods which got demand across globe. It is possible to make India the “Food factory of the world”.

IMPORTANT ISSUES TO BE ADDRESSED:

1. Lack of awareness on surplus resources of agriculture products
 2. Lack of knowledge of infrastructure requirements for food-related industries
 3. Lack of skilled manpower that are trained to manage food industries due to its special requirements like, FSSAI, ISO, FPO, FDA etc.
 4. Lack of knowledge on technical and financial support, like whom to approach?
 5. Doubts on the quality and safety of foods during handling, production and marketing
 6. Fear of microbial contamination and environmental issues.
- To create an atmosphere of entrepreneurship in food processing, the following institutes of Government of India

are carrying out research in the area of food processing and transferring the technology to the interested entrepreneurs.

1. Defense Food Research Laboratory, Mysore, Karnataka
2. Central Food Technological Research Institute, Mysore, Karnataka
3. Indian Institute of Crop Processing Technology, Thanjavur, TN
4. National Institute of Food processing Entrepreneurship Management, Kundli, Haryana
5. Indian Institute of Horticulture Research, Bangalore, Karnataka
6. Central Institute of Post Harvest Engineering and Technology, Ludhiana, Punjab.

These institutes provide technology and support after transferring the technology to the industries with nominal charges.

II. CURRENT STATUS OF EXPORT OF FRUIT AND VEGETABLES FROM INDIA:

Exports:

- During 2014-15, India exported fresh fruits and vegetables worth USD 1.2 Bn. Mangoes, Walnuts, Grapes, Bananas, pomegranates account for bulk of fruits exported from the country while Onion, Okra, Bitter Gourd, Green Chillies, Mushrooms and potatoes contribute largely to vegetable export basket.
- The major destinations for India fresh fruit and Vegetables are UAE, Bangladesh, Malaysia, UK, Netherland, Pakistan, Saudi Arabia, Sri Lanka and Nepal.
- India’s exports of processed Fruits and Vegetables were around USD 0.5 Bn in 2014-15, which majorly included Dried and Preserved Vegetables and Mango Pulp.

(Source: NIFTEM)



III. RESULTS AND DISCUSSION

The following conclusions could be drawn from the above study, which could be useful to the prospective entrepreneurs, both start-ups as well as seasoned.

1. Mangoes: Fresh fruit may be supplied to other states or exporting to other countries, pulp and juice canning, bottling, etc. can be explored.
2. Bananas: Bananas can be supplied to northern states where there is demand and little or no production. They can also be exported to other countries. IM (Intermediate moisture fruits) and freeze-dried products can be made and sold in the market. Ripening chambers should be set up for banana. These ripening chambers can be used for ripening of papaya, tomato and de-greening of citrus fruits.
3. Citrus fruits can be supplied to north Indian states or other countries or can be processed to make juice, concentrate and nectar etc.
4. For Vegetables, value addition can be done by modified atmosphere packing with cling film pack, storage in cold store or controlled atmosphere store. Dehydrated vegetables and semi-processed vegetables have got a lot of demand as an ingredient for other major food processing industries.
5. In the case of other fruits, short term, medium term or long term storage in cold/controlled atmosphere stores (CAS) under cooling may be explored, which gives the benefit of better price realization during off season besides reducing spoilage.
6. Sweet oranges, Lime/lemon are plentifully available in Telangana and Andhra Pradesh. This must be tapped by the entrepreneurs to start the processing industries to take the full benefit of availability of raw materials. This can be definitely cost-benefit and make the prices competitive.

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