A STUDY ON EXPORTS CHANNELS OF MANGO PRODUCTS:
THE ROLE OF AGRI EXPORT ZONE (AEZ) IN CHITTOOR DISTRICT

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ABSTRACT
This article made an attempt to review the status of fruit processing industry and cluster of mango pulp exporting units needs lots of encouragement and the export marketing support from AEZ for the development of mango processing industry in Chittoor District of Andhra Pradesh. To leverage the advantage of an Agri Export Zone and to use additional infrastructure facilities both for the purpose of mango possessing as well as vegetables, an AEZ has been approved by the steering committee. The Zone covers the entire Chittoor District. A substantial amount of backward integration has already been done in this area. All this benefits the Agri Exports Zone which entails a total investment of around 53 crores of rupees out of which around Rs. 20 crores flow from various Central Government agencies like APEDA, National Horticultural Board, Ministry of Food Possessing Industries, etc. The State Government agencies also contribute on amount of around Rs. 9.5 crores, with the remaining amount coming from the private sector. It is expected that this additional investment will lead to an incremental export of more than Rs. 250 crores in the next five years, apart from considerably enhancing domestic sales as well. More than 500 formers stand to benefit directly.

KEYWORDS: Agri Export Zone, APEDA, National Horticulture Board, Mango Pulp and Exports

INTRODUCTION
Mango (Mangifera indica Linn.) is the most important fruit of India and is known as “King of fruits”. The fruit is cultivated in the largest area i.e. 2,396 thousand ha and the production is around 15.2 million tons, contributing 40.48% of the total world production of mango. The main mango producing states in India are Uttar Pradesh (23.86%), Andhra Pradesh (22.14%), Karnataka (11.71%), Bihar (8.79%), Gujarat (6.00%) and Tamil Nadu (5.09%). Total export of mangoes from India is 59.22 thousand tons, valuing Rs. 162.92 crores during 2011-12. India exports mango to over 40 countries worldwide. The major importing countries of India’s Mangoes during the period of 2011-12 were UAE (61.79%), Bangladesh (11.41%), UK (8.92%), Saudi Arabia (3.79%), Kuwait (2.32%), and Bahrain (2.19%) respectively.

Need for the Study
Besides being a rich source of nutrients, cultivation of mangoes brings higher income to the farmers. It is possible to have value addition through processing, which in turn, offers vast opportunities for employment and income generation. The processing of mango fresh fruits into pulp is an important agri-business in Chittoor District and hence the Agri Export Zone is located in this District for exporting mango pulp and fresh vegetables. So far very few research studies had attempted to study the economic aspects of mango processing and marketing in Andhra Pradesh in general and in Chittoor District in particular.

OBJECTIVE OF THE STUDY
The present study was undertaken with the following specific objective:
To study the different mango and mango product marketing channels in the study area.

To examine the role and the impact of Agri Export Zone on exports of mango and mango products in Chittoor District.

Sampling Design

From the list of 65 mango processing units, 12 processing units were randomly selected. In the study area, various categories of processing unit’s viz., small scale units with canning, small scale units with aseptic packing, medium scale units with canning and medium scale units with aseptic packing were present. The list of processing units under each category was prepared, eight units from small scale units and two units each from medium large scale units were randomly selected for the purpose of study. The number of processing units selected was twelve in total.

Collection of Data

Primary data were collected from the selected mango processors through survey method with the aid of pre-tested schedule designed for the purpose. Secondary data pertaining to the description and agro-economic aspects of the study area were collected from Agri-Export Zone (AEZ) and District Planning Office, Chittoor.

Tools and Techniques

Both primary and secondary data collected are meaningfully analysed using appropriate statistical tools. To study the trends in the growth of production and exports, compound growth rates have been calculated. The regression coefficients have been tested to their significance through ‘F’ values.

Description of Study Area

The District has 65 processing units, of which 53 came under the small scale sector. The list of processing units and the quantity processed in 2011-12.

The units in Chittoor were bifurcated into Small Scale Industries (SSI) and medium scale industries (MSI) based on the investment range, technology level and working capital. About 85 per cent of the units were SSI and 15 per cent of the units were in the medium scale. The most common range of installed capacity at SSI level was about 25 to 40 tonnes of pulp and in the medium scale units it was about 80 to 100 tonnes of pulp per day. These units predominantly process Totapuri (Banglora) mango and the average yield of mango pulp was 50 per cent. Alphanso mango was also processed and the average yield varied from 47 to 49 per cent.

The brix (total soluble solids) of the mango pulp produced was in the range of 14.5 to 15.0° in respect of Totapuri, the minimum and maximum levels varied from 13.5 to 17.0°. In respect of Alphonso, the brix is around 15.5 per cent depending on the fruit maturity and origin. The acidity level of mango pulp was maintained between 3.5 and 4.0 pH by all the units. During peak operations, the units operated continuously for 16 to 18 hours a day with 6 to 3 hours required for cleaning of equipment and maintenance.

Some Important Facts of Fruit Processing the District

During survey the following facts came to light regarding processing of mango. These were

- The aggregate investment of the processing units was nearly Rs.460 million.
The units predominantly processed mango and produce single strength mango pulp.

Some units also processed tomato, guava, papaya, banana, grapes and tamarind.

The aggregate installed capacity for processing single strength mango pulp was 2000 tonnes per day.

The mango processing units worked for 65 to 110 days during the season (April – July), depending on the raw material availability and prices.

About 1.3 to 2 lakh tonnes of mangoes were processed yielding 0.8 to 1 lakh tonnes of pulp. The value of pulp produced was estimated at Rs.170 to Rs.190 crore per annum.

Facilities were available for the manufacture of downstream products such as Ready-to-Serve (RTS) beverages, fruit bars, jams, jellies, etc.

The bulk quantity of the mango pulp produced was canned. Infrastructure for aseptic packing needs expansion.

About 76 per cent of the units operated on pre-contract basis for the leading merchant exporters of mango pulp and manufactures of mango bar and RTS beverages.

About 3 per cent of the units operated on both pre-contract and for their own. About 21 per cent of the units operated on their own account.

52 to 55 per cent of mango pulp produced was exported while the rest was consumed in the manufacture of downstream products.

Agri Export Zone (AEZ) in Chittoor District

With the primary objective of boosting agricultural exports from India, in March 2001, Government of India announced a policy of setting up of Agri Export Zones (AEZs) across the country. The Central Government has sanctioned 60 AEZs comprising about 40 agricultural commodities. AEZs is spread across 20 states in the country.

The Major Components of This Comprehensive Concept Are

- Cluster approach of identifying the potential products and geographical region in which these products are grown.
- Adopting an end-to-end approach of integrating the entire process, right from the stage of production till it reaches the consumption stage.
- Integration of the activities of various agencies connected with the department of the product.

The Anticipated Benefit to Accrue as a Consequence of Setting up of Such Zones are as Follows

- Strengthening of backward linkages with a market oriented approach.
- Product acceptability and its competitiveness abroad as well as in the domestic market.
- Value addition to basic agricultural produce.
- Bring down cost of production through economy of scale.
- Better price for agricultural produce.
• Improvement in product quality and packaging
• Promote trade-related research and development
• Increase employment opportunities.

**In Andhra Pradesh 4 AEZs were Identified. These are**

• AEZ, Hyderabad for exporting quality grapes and mangoes
• AEZ, Vijayawada for exporting Banganapalli mangoes
• AEZ, Vijayawada for exporting Gherkins
• AEZ, Chittoor for exporting mango pulp and fresh and processed vegetables.

Among them Agri Export Zone (AEZ), Chittoor is the first integrated initiative of the State to establish a niche position in the international market, especially in case of mangoes and vegetables. Mango pulp and fresh and processed vegetables were considered for export promotion from AEZ.

The Chittoor fruit processing cluster is the largest in the country. 70% of the fruit pulp processed here is exported. The Chittoor cluster is a government-designated Agri Export Zone (AEZ). Annually, about 4 lakh metric tonnes of mangoes are converted into pulp here. There are more than 65 mango fruit processing units in the cluster. 76% of the firms are small enterprises, 20% are medium enterprises, and 4% are large ones.

In 2011, India’s first mega food park opened in Chittoor. It offers end-to-end food processing facilities with backward and forward linkages between producers, manufacturers and exporters, and has been set up with the idea of benefiting all the contributors to the value chain. 53,000 hectares of land is under mango cultivation, and mango production is in the range of 5,69,000 tonnes. The major export destinations are Saudi Arabia, Netherlands, Yemen Republic, UAE and Kuwait.

**Slowdown Impact**

The downward trend in mango pulp exports has been continuing since 2011 due to the economic slowdown as well as the unrest in West Asia, according to officials of the Pulp Manufacturers Association.

“In 2011, the movement of stocks slowed down, which reduced demand in 2012. 3-4 tonnes of pulp commonly goes to Egypt, Yemen and nearby countries. The political unrest there has brought business to a standstill,” says Vijendra, a pulp merchant.

With leftover stocks remaining in the warehouses, there is little demand for new stocks. Many small factories are not finding it viable to operate, and are close to closure. Since this is a seasonal industry, there is a floating population of workers. Thousands of workers have no work this year, too. The peak season of operation is from April to July.

**Can the Government Do Something to Help?**

In 2011, the Tamilnadu government included mango milkshakes in the mid-day meals for schools, to help the mango farmers of Krishnagiri district, Tamilnadu. No such move has been made by the Andhra Pradesh government.
According to figures from the Ministry of MSME on the Chittoor cluster, annual turnover in the domestic market is Rs. 125 crore and the export market accounts for Rs. 330 crore. APDEA sources say that in 2011-12, the country has exported mango pulp worth Rs. 620.80 crore.

J Amarnath, owner of Bhagyalaxmi Fruit Canning Industry, who has been in the business for 30 years, says, “This year, the yield is down by 30% due to unseasonal rains in the state in April. Added to this, the demand is low due to economic slowdown. Our exports are down by 50%. The market is very bleak in Europe. In a good year, 4 lakh million tons of pulp is exported from Chittoor.”

There is a segment of farmers who are demanding that the government open up mango co-operative societies to help farmers tide over difficult times such as these. However, others like Amarnath disagree. He says, “This is a seasonal industry, where the action peaks for about 70 days in the year. During that time, if government officials come around, they will create disturbances in the name of inspections and other procedures. If the economic conditions improve, business will automatically pick up,” he says optimistically.

**In This Context, the Following Functions for AEZ, Chittoor are Stipulated**

- Identification of progressive farmers and processors in mango and vegetables in Chittoor District.
- Provision and use of quality seeds, fertilizers, pesticides, water, power, etc., in the production of mango and vegetables.
- Adoption and extension of production technologies and appropriate harvesting practices in mango and vegetables.
- Dissemination and use of post-harvest technologies to improve the quality standards of mango and vegetables by conducting training programmes and visits to fields of progressive farmers.
- Provision of infrastructure facilities and transport arrangements for export business.
- Provision of required documentation for exports.

The AEZ is providing all the required package of practices and support services to progressive farmers, processors and private investors involved in exports of mango pulp and fresh and processed vegetable in Chittoor District.

**Achievements of AEZ, Chittoor District**

- 50 training programmes involving 1769 farmers during 2005 and 30 training programmes involving 1843 farmers during 2003 were conducted by AEZ to create awareness on Integrated Pest Management (IPM) and Post-harvest Management Practices on Mango.
- In addition three training programmes involving 480 farmers were conducted on vegetable production during 2006.
- During the training programmes pesticides *viz.*, acephate, chloropyriphos, methyl euginol and decis with 50 per cent subsidy were distributed to farmers covering 2666 hectares.
- 1,47,600 plastic crates were supplied to farmers for transport of mango fruits and vegetables with 50 per cent subsidy from National Horticultural Board (NHB) since its inception.
During 2008 twenty farmers were sent on exposure visit to Indian Institute of Horticultural Research (IIHR), Bangalore for bringing awareness on vegetable cultivation.

Exports from AEZ, Chittoor District

The major exports from AEZ, Chittoor were single strength mango pulp besides guava pulp, papaya pulp and tomato processing. Majority of the units exported the product through merchant exporters. The merchant exporters paid the processing charges to the units on precontract basis and around 14 exporters were the main players operated in the District. There were about 4 units who directly exported both single strength and double strength mango pulp.

Marketing Aspects of Mango Pulp

The most common methods of marketing mango pulp in the study area were based on examining the marketing channels. The fruits which are supplied to the processing units may be either from producers or wholesalers or distant wholesalers. The prominent marketing channels for mango pulp in the study area were:

Channel-I

Fruit suppliers → Aseptic packing processing units → Export agencies – Fruit juice factory → Distributors of juice bottles (Maaza) → Retailers → Consumers

Channel-II

Fruit suppliers → Aseptic packing processing units → Export agencies → Fruit juice factory → Juice factory exporting juice bottles (Maaza) to other countries

Channel-III

Fruit suppliers → Aseptic packing processing units → Export agencies exporting pulp to other countries

Channel-IV

Fruit suppliers → Aseptic packing processing units → Processors exporting pulp to other countries

Channel-V

Fruit suppliers → Canning processing units → Export agencies exporting pulp to other countries.

Channel-VI

Fruit suppliers → Canning processing units → processing exporting pulp to other countries.

Price spread for one tonne of mango pulp in six marketing channels were worked out fruit supplier’s share in consumer’s rupee was higher (37.25%) in channels V and VI, followed by III and IV (32.04%) compared to other channels. The fruit supplier’s share in consumer’s rupee was less in channels I (11.17%) and II (12.41%), because of more number of intermediaries involved in channels I and II. The net margin retained by processing units was higher in channels IV and VI than in other channels. In channels IV and VI processor himself acted as exporter in exporting pulp to other countries. Hence, he retained higher net margin as he incurred more costs in channels IV and VI.

Export agencies were involved in marketing channels I, II, III and V. In channels III and V exporters have directly exporting the pulp to other countries and their net margins were 7.53 and 4.25 per cents respectively. In channels I and II
exporters have marketed the mango pulp in the domestic markets and their net margins were 4.91 and 5.46 per cents respectively. Domestically mango pulp was used in preparation of RTS (Ready-to-serve) beverages, mango jelly and other fruit bars. But in the study area (Chittoor District) only RTS beverages were prepared from mango pulp under the brand name of ‘Maaza’.

Juice factory (M/s. Parle International Limited) was involved in marketing channels I and II only, for preparing mango juice under the brand name ‘Maaza’. The juice prepared in channel I was marketed domestically through distributors of juice bottles to the retailers. The net margin or profit retained by juice factory, distributor and retailer was 11.64, 4.00 and 2.75 per cents respectively in this channel. In channel-II juice factory had exported the juice bottles to other countries and retained 15.71 per cent of net margin. The overall gross marketing margin was higher in channel I, followed by channel II because of more number of intermediaries involved in them.

CONCLUSIONS

Activities and performance of AEZ in Chittoor District since its inception, 2003. Eighty training programmes were conducted by AEZ involving 11300 farmers with the help of scientists available in Agricultural College, Tirupati to create awareness on IPM practices, post harvest management practices and marketing aspects of mango in Chittoor District. Besides three training programmes involving 480 farmers were conducted on vegetable production and marketing technology during 2003 with the help of scientists from Agricultural College and Department of Horticulture. 147600 plastic crates were supplied to farmers for transportation of mango and vegetables with 50 per cent subsidy from National Horticultural Board (NHB). ETPs in case of mango processing units were increased to 36 from the existing level of six units with 25 per cent subsidy from APEDA. Due to the efforts of AEZ particularly giving subsidies and imparting knowledge through training programmes and visits the area under mango increased from 44950 to 52721 hectares and productivity from 7 tonnes per hectare to 9 tonnes per hectare. Seven more mango processing units were added to the existing 44 processing units and the quantity of processed mango pulp increased from 48000 tonnes to 95360 tonnes. Export value of mango pulp also showed increased trend from 75 crore rupees to 190 crore rupees and value of processed vegetables was increased to Rs.13.41 crore from the existing level of Rs.1.4 crore. Area under IPM increased to 4280 hectares and area under drip irrigation increased to 11 per cent from existing 0.67 per cent. With regard to export of mango pulp AEZ helped the 30 processing units in District to get HACCP certification with 50 per cent subsidy from APEDA. Aseptic packing units were increased to six from the existing level of one with 75 per cent funds from APEDA. AEZ helped in establishment of two quality testing labs with 100 per cent fund from Ministry of Food Processing Industry (MFPI) for helping in export business. Similarly, it also helped in establishment of two cold storage units is Chittoor District.

REFERENCES


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