



## the Study on Economics of Mango Processing in Chittoor District

### KEYWORDS

Mango-Totapuri-Production-Productivity-Markets-Processing-pulp-Product.

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**ABSTRACT** *Andhra Pradesh State in India secured second position next to Uttar Pradesh with 32 lakh tonnes of production and 4 lakh hectares of area. In Andhra Pradesh, Chittoor District assumed prime importance with second rank next to Krishna District in area, production and productivity of mango. In fact mango fruit is being processed to prepare variety of products, such as drinks, desserts, squashes, syrups, jams, jellies and mango leather. In Chittoor District small scale canning units and medium scale aseptic packing units are being operated by both pre-contract system of processing and owned processing. Medium scale canning units and small scale aseptic packing units are being operated by owned processing only. In pre-contract system of processing export agencies provide raw mango fruits, cans or barrels and required chemicals to the processors (remaining all processing costs are incurred by processors) and pay Rs.2200 for canning units and Rs.5000 for aseptic packing units per one tonne of mango pulp. In owned processing all processing costs are incurred by processors including the raw mango fruits, cans or barrels and required chemicals for preparing the pulp and they directly market the mango pulp without the help of exporters.*

### INTRODUCTION

Annual mango production in India nearly amounted to 105 lakh tonnes on an average with 54 per cent of total world production. In respect of area it commanded 14.9 lakh hectares constituting 54 per cent in world area. Andhra Pradesh State in India secured second position next to Uttar Pradesh with 32 lakh tonnes of production and 4 lakh hectares of area. In Andhra Pradesh, Chittoor District assumed prime importance with second rank next to Krishna District in area, production and productivity of mango. Of late, the demand for mango fruits and its processed products is continuously increasing both in domestic as well as in foreign markets. In fact mango fruit is being processed to prepare variety of products, such as drinks, desserts, squashes, syrups, jams, jellies and mango leather. Hence, the present study was taken up to fill this gap with the following objective, to study and estimate the comparative economics of scale of processing of Totapuri mango in Chittoor District.

### MATERIALS AND METHODS

From the list of 50 mango processing units in Chittoor District, 12 processing units were randomly selected. In the study area, various categories of processing units viz., small scale canning units, small scale aseptic packing units, medium scale canning units and medium scale aseptic packing units were present. The list of processing units under each category was prepared, four units each from small scale units and two units each from medium scale units were randomly selected for the purpose of study. The number of processing units selected was twelve in total. The most common range of installed capacity in small scale units is about 25 to 40 tonnes of pulp per day and in medium scale units it is about 80 to 100 tonnes of pulp per day.

In Chittoor District small scale canning units and medium scale aseptic packing units are being operated by both pre-contract system of processing and owned processing. Medium scale canning units and small scale aseptic packing units are being operated by owned processing only. In pre-contract system of processing export agencies provide raw mango fruits, cans or barrels and required chemicals to the processors (remaining all processing costs are incurred by processors) and pay Rs.2200 for canning units and Rs.5000 for aseptic packing units per one tonne of mango pulp. In owned processing all processing costs are incurred by processors including the raw mango fruits, cans or barrels and required chemicals for preparing the pulp and they directly market the mango pulp without the help of exporters.

For convenience these processing units were categorized into six types viz., (1). Pre-contract system of processing in small scale canning units, (2). Owned processing in small scale canning units, (3). Owned processing in medium scale canning units, (4). Owned processing in small scale aseptic packing units (5). Pre-contract system of processing in medium scale aseptic packing units and (6) owned processing in medium scale aseptic packing units. In canning units pulp was filled in cans with a capacity of 3.1 kg and in aseptic packing units pulp was packed in barrels or drums with a capacity of 215 kg.

### RESULTS AND DISCUSSION

Table -1 provides particulars on costs and returns from six categories of mango processing units. In this table total output, total revenue, total costs, net returns, net income per rupee invested and rate of return in percentage were worked out for six categories of processing units. The mango pulp processed was higher (5000 tonnes) in category-IV units, followed by category III units (3000 tonnes). Total revenue, total costs and net returns were also higher in category-IV units. This was primarily due to higher quantity of pulp processed and higher investments on variable costs such as fruits and barrels. But these items were very less in case of category-I units. This was mainly due to less quantity of pulp processed, less processing costs and consequently less returns. With regard to rate of return, it was higher in case of category-V units (22 per cent), followed by category-I (17 per cent) and category-VI units (6 per cent). This was primarily due to less unit cost in these categories of units. The less rate of return was found in case of category-II units (1.80 per cent). This was primarily due to higher total costs and less net returns.

It was also clear from Table 1 that the total processing costs in owned processing was higher compared to pre-contract system. This was mainly due to not taking into the cost of raw fruits, barrels or cans and other chemicals in case of pre-contract system of processing.

Table - 2 shows information on costs and returns per one tonne of mango pulp in six categories of processing units. In this table variable costs, fixed costs, total costs, gross returns and net returns were worked out per one tonne of mango pulp for six categories of processing units. Total costs were higher and almost equal in case of category-IV units (Rs.21983) and category-VI units (Rs.21999). Similarly, the same trend was maintained in case of gross returns (Rs.23250) because of same prices per tonne of pulp for these two units. The net returns were slightly higher (Rs.1267) in case of category-

IV units compared to category-VI units (Rs.1251). This was mainly due to marginal differences in both variable and fixed costs. Lowest net returns were observed in case of category-I units (Rs.283) and the same was slightly higher (Rs.291) in case of category-II units. This was again due to marginal differences in variable costs as well as fixed costs.

It was also clear from Table 2 that the total processing costs per one tonne of mango pulp was higher in aseptic packing units compared to canning units both in pre-contract system of processing and owned processing. Because of the aseptic packing both variable costs and fixed costs were at higher level of magnitude in aseptic packing processing units com-

pared to canning units.

#### SUMMARY:

Cost of processing per tonne of mango pulp amounted to Rs.1916.85 for category-I units, Rs.19028.86 for category-II units, Rs.18943.26 for category-III units, Rs.21982.96 for category-IV units, Rs.4102.50 for category-V units and Rs.21999 for category-VI units. The net returns from one tonne of mango pulp were found to be higher in category-IV units with Rs.1267, followed by category-VI units with Rs.1251, category-V units with Rs.898, category-III units with Rs.377, category-II with Rs.291 and category I with Rs.283.

**Table 1: Costs and returns from six categories of mango processing units (Value in Rs. lakh)**

Sl. No.	Particulars	Small scale canning units		Medium scale canning units	Small scale aseptic packing units	Medium scale aseptic packing units	
		Pre-contract system of processing	Owned processing	Owned processing	Owned processing	Pre-contract system of processing	Owned processing
1.	Category number	I	II	III	IV	V	VI
2.	Mango pulp (in tonnes)	1500	1500	3000	5000	2500	2500
3.	Total revenue	33.00	290.32	580.64	1162.75	125.00	581.35
4.	Total costs	28.25	285.18	568.73	1107.50	102.54	550.03
5.	Net returns	4.74	5.14	11.91	55.25	22.46	31.35
6.	Net income per rupees invested	0.1679	0.0180	0.0209	0.0499	0.2190	0.0569
7.	Rate of return in percentage	16.79	1.80	2.09	4.99	21.90	5.69

**Table 2: Cost and returns per tonne of mango pulp (Value in Rs.)**

Sl. No.	Particulars	Small scale canning units		Medium scale canning units	Small scale aseptic packing units	Medium scale aseptic packing units	
		Pre-contract system of processing	Owned processing	Owned processing	Owned processing	Pre-contract system of processing	Owned processing
1.	Category number	I	II	III	IV	V	VI
2.	Costs						
	i.Variable costs	1482.21	18594.22	18560.79	21410.76	3526.56	21423.26
	ii.Fixed costs	434.64	434.64	382.47	572.20	575.74	575.74
	iii.Total costs	1916.85	19028.86	18943.26	21982.96	4102.50	21999.00
3.	Returns						
	i.Gross returns	2200.00	19320.00	19320.00	23250.00	5000.00	23250.00
	ii.Net returns	283.15	291.14	376.74	1267.04	897.50	1251.00

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