

Constraint analysis of Cassava growers and strategies for increasing production and productivity in Salem, Tamil Nadu

A. J ANAKI RANI AND P.P. MURUGAN

See end of the article for authors' affiliations

Correspondence to :
A.J.ANAKIRANI
Department of
Extension Education,
Tapioca and Castor
Research Station,
Yethapur, SALEM
(T.N.) INDIA

ABSTRACT

In Salem district for the last three years the Cassava area and production has been reduced due to many reasons. Hence, a study was conducted among the Cassava growers in Salem district to assess and identify the constraints influence the low yield and reasons for area shrinkage. It was found that, among the several constraints marketing constraints like exploitation by middle man (88.33 per cent), malpractices in Point scale fixation (86.66 per cent), lack of regulated market (83.33 per cent) low price for tubers due to fluctuations in price (80.00 per cent) followed by production constraints like mosaic and tuber rot diseases (83.33 per cent), labour scarcity (80.00 per cent) unavailability of quality planting materials (73.33 per cent) and lack of short duration varieties (68.33 per cent) were the major constraints expressed by many of the cassava growers.

INTRODUCTION

Cassava is an important tuber crop in India grown in 2.7 lakh hectare area with a production of 71 lakh tonnes. The average yield of tapioca is 22 tonnes per hectare. Cassava is a richest source of starch (25 to 35%) mainly processed for starch and sago. Cassava is an industrial crop of Tamil Nadu which occupies 32.97% of the area with 45.98% of the production in India (Edison *et al.*, 2006). In Tamil Nadu major traditional tapioca growing districts are Salem, Namakkal, Erode, Cuddalore, Dharmapuri and Kaniyakumari mostly as rainfed. Among the districts Salem district stands first in area (27000 ha) and with the production of 10.475 lakh MT (Anonymous, 2006).

There are about 900 sago and starch factories in and around Salem, Erode, Namakkal and Dharmapuri districts which depends on tapioca tubers. The number of factories in Salem district alone is 650. It is estimated that 60% of the starch produced in India is from Salem district. Because of ease in cultivation, drought tolerance and raise in prices of tubers, the area under tapioca is on increase in other District of Tamil Nadu *viz.*, Erode, Trichy, Coimbatore.

Yield gap:

Even though the area is increasing the production is not sufficient to meet the demand

of the food and textile industries. Even though the area is increasing, the farmers are cultivating tapioca in larger area; the scientific method of cultivation is poor. Scientists are developing lot of varieties, new improved technologies etc., while seeing the knowledge and adoption of recommended practices were found to be least (Lakshmi and Pal, 1986).

It has been well demonstrated by the research system through its out reach programmes that yield of tapioca could be boosted to a level of 35 tonnes per hectare in farmer's field if farmers adopt the recommended practices. But in practical farmers are getting 20-25 t/ha.

Shrinkage in area:

For the past three years, particularly in Salem district, the tapioca area and production has been reduced. In 2005-2006 the area was about 27,000 ha but this had comedown drastically to 10,564 ha in 2007-2008. It slightly increased to 15,728 ha in 2008-2009. This had created a shortage in the supply of tuber to starch mills and affected the production. Shortage in the supply of tapioca tubers is posing a serious threat to the survey of tapioca starch manufacturing units in Salem districts. Due to the low production about 300 factories have already been closed.

Many farmers switching over to short term crops such as sunflower and maize in

Key words :
Cassava,
Constraints,
Strategies

Accepted :
September, 2009

Area and production of Cassava over years in Salem district Statistical Report 2008, Salem district of Tamil Nadu)

Years	Area (ha)	Production (lakh mt)
2004-2005	9,908	3.567
2005-2006	27,007	10.475
2006-2007	13,287	4.783
2007-2008	10,564	3.803

many parts of Salem and neighboring districts, Namakkal and Dharmapuri. If the remaining starch manufacturing units are closed because of shortage of tubers, the livelihood of a large number of people employed in these units will be affected.

Hence, there is an urgent need to channelise our efforts to increase the Cassava yield in farmer's field to achieve the targeted yield. In view of these, a study to assess and identify the factors influence for the low yield at farm level and reasons for area shrinkage may be useful to generate technologies and to design promotional strategies.

METHODOLOGY

The study area considered for this project is Salem district in Tamilnadu. There are 9 taluks and 20 blocks in Salem district. Based on the maximum area under Cassava, Attur taluk (9649 ha) was selected purposively. From Attur taluk two blocks namely, Attur and Pethanaiken Palayam were selected based on maximum area. From the selected blocks, 3 villages/ block were selected based on maximum area. The selected villages were Manjini, Mullaivadi, Ammampalayam, Rmanaiken Palayam, Veeragoundanur and Chelliyam Palayam. In each village, 10 cassava farmers were selected randomly. Totally, 60 farmers were selected as respondents for the study. An interview schedule was constructed, pre tested and finalized and used for collecting data from the respondents. Group meeting also held to identify the constraints. Relevant data collected pertaining to the study

were analyzed, interpreted and meaningful conclusions were drawn using percentage analysis and mean.

RESULTS AND DISCUSSION

The constraints faced by the cassava growers are presented in the following Table 1.

It could be observed from Table 1 that in Cassava cultivation mosaic virus and tuber rot are the important diseases in reducing the yield loss upto 40 per cent. This was expressed by majority of the farmers (83.33 per cent). Labour scarcity was another production constraint expressed by most of the respondents (80.00 per cent). Agricultural labourers are being seasonal, there is always shortage of labour during peak season. The migration of the labour from agriculture to other occupations and to other sectors has also contributed to the labour problem. Unavailability of quality planting material was expressed by 73.00 per cent of the farmers. Cassava is an eight to ten months old crop. So, lack of short duration varieties is one of the major constraints expressed by 68.33 per cent of the farmers.

Nowadays, Cassava area is reducing due to the introduction of short duration crops like maize, sunflower etc. They felt that they have to wait one year for harvest of tapioca as tubers and also not fetching good rate in the industries. But the above crops had three months of duration and cultivation of these crops may increase the income within three months was expressed by 45.00 per cent of the farmers. Due to lack of water facilities, cassava growers could not be able to irrigate their lands. This was expressed by 65.00 of the growers.

Processing constraint:

Due to physiological and pathological processes within the tubers the keeping quality of the Cassava tubers gets reduced (Table 2). This was expressed by 80.00 per cent of farmers. Due to this problem forced to sell their produce even for lower rate to the industries (Lakshmi *et al.* (1992).

Table 1 : Distribution of respondents according to their production constraints

Sr. No.	Constraints	No.	Percentage	Rank
Production constraint				
1.	Lack of short duration varieties with high starch	41	68.33	IV
2.	Labours scarcity	48	80.00	II
3.	Un availability of quality planting materials	44	73.33	III
4.	Mosaic and tuber rot	50	83.33	I
5.	Decline in area due to the introduction of short duration crops	27	45.00	V
6.	Assured irrigation	39	65.00	VI
		Mean	69.11	

Table 2 : Distribution of respondents according to their processing constraints

Sr. No.	Constraints	No.	Percentage	Rank
Processing constraints				
1.	Poor keeping quality	48	80.00	I
2.	Lack of Government programmes for value addition	31	51.66	V
3.	Lack of technical guidance for value additon	34	56.66	IV
4.	Lack of Government support for commercialization	38	63.33	III
5.	Lack of post harvest technology units	43	71.66	II
		Mean	64.66	

Processing the tubers into sundried chips and other products which have a better shelf life. So lack of post harvest technology units in the study area was expressed by 71.66 per cent of the farmers. In Tamil Nadu, especially in Salem district there is no government factory for commercialization into food, feed and industrial purposes. This was expressed by 63.00 per cent of the farmers. The research system only concentrates on the production aspects. If farmers were trained in value addition, the women tapioca growers will get additional income in their leisure time. More than 200 value added products can be made from it so lack of technical guidance for value addition was expressed by 56.66 per cent of the farmers. Extension programmes motivate farmers to know the production practices and value addition to start a venture on their own. So, lack of Government programmes for value addition was experienced by 51.66 per cent of the farmers.

Marketing constraint:

It could be observed from the Table 3 that majority of the farmers (88.33 per cent) expressed that the tubers are sold mainly through brokers. Private industry personnel fix the rate of tubers/ton. Here brokers were playing major role and was felt as a major market constraint.

Cassava is the only crop sold through point scale method. Sometimes the point scale fixation was not done in front of the farmers. They felt that some malpractices were done by factory personnel and was expressed by

86.66 per cent of the farmers. And also they felt if the rate fixed based on weight basis, no need formal practices.

There is no regulated market or market federation for Cassava, which leave the farmers at the mercy of contract merchants or carrying out the job by themselves. So, they need direct procurement and it was expressed by 83.33 per cent of the farmers. Due to low keeping quality interference by middle man and excess flow of tubers the rate of tubers become getting lower. This was expressed by 80.00 per cent of the farmers. In and around Salem district, 650 private industries are functioning. But no Government factories are functioning to fix rate for tubers. This was felt by 75.00 per cent of the farmers.

About 58.33 per cent of the farmers expressed that the factory personnel mixing urea and potash in the water in order to reduce the Point scale value for tubers. By this practice, they felt the starch quality and starch content might have reduced.

Socio-economic constraint:

Absence of adequate financial institution like Agricultural Banks, Co-operative Society etc. and rigid rules and regulations to get credit was felt by 41.66 per cent of farmers (Table 4). They also felt that the inputs are high end expressed as a constraint by 38.33 per cent of the farmers. They expressed that subsidy may be provided to encourage the Cassava cultivation. Only few training programmes were conducted by government and held at distant places. This was expressed by 56.66 per

Table 3 : Distribution of respondents according to their marketing constraint

Sr. No.	Constraints	No.	Percentage	Rank
Marketing constraint				
1.	Low price for tubers	48	80.00	IV
2.	Exploitation by middle man	53	88.33	I
3.	Lack of regulated market	50	83.33	III
4.	Male practices in Point scale fixation	52	86.66	II
5.	Adulteration by factory personnel by mixing urea and 'K'	35	58.33	VI
6.	Government factory to fix rate	45	75.00	V
		Mean	78.66	

Table 4 : Distribution of respondents according to their socio-economic and extension constraint

Sr. No.	Constraints	No.	Percentage	Rank
Socio-economic constraint				
1.	Lack of credit facilities	25	41.66	II
2.	High cost of inputs	23	38.33	III
3.	Lack of training programmes	34	56.66	I
		Mean	51.00	

of Cassava in Salem district.

Strategies needed:

Based on the constraint analysis, the following strategies may be adopted to increase the production and productivity and also to improve the socio-economic status of Cassava growing farmers.

- Development of Cassava mosaic disease resistant, short duration varieties with high starch content for industrial utilization.

Table 5 : Distribution of respondents according to their technological constraint

Sr. No.	Constraints	No.	Percentage	Rank
Technological constraint				
1.	Not aware of TNAU varieties	39	65.00	III
2.	Lack of awareness on raising nursery	34	56.66	V
3.	Sett treatment methods	38	63.33	IV
4.	Top dressing on 90 th day	44	73.33	I
5.	Micro nutrient application	34	56.66	V
6.	Whitefly and tuber rot management	41	68.33	II
		Mean	68.83	

cent of the farmers.

Technological constraint:

Top dressing on 90th day with urea and potash is essential for the development of tubers. Due to lack of technical guidance it was not adopted and was expressed by 73.33 per cent (Table 5). Due to lack of knowledge farmers could not know the control measures for whitefly and tuber rot and it was expressed by 68.33 per cent of the farmers. Most of the farmers in the study area are cultivating only the local varieties like Kunguma Rose, White Rose, Burma etc. They do not know much about high yielding Tamilnadu Agricultural University varieties like CO2,3,CO(TP)4 and CO(TP)CTCRI-5 and importance in increasing the yield and resistance to CMVD and it was expressed by 65.00 per cent of the farmers. Lack of awareness and knowledge, the farmers were not following the sett treatment methods and it was expressed by majority of the farmers 63.33 per cent. Micronutrient application and raising nursery were not known by 56.66 per cent of the farmers.

By working out the mean for different constraints, the marketing constraint stood first and marketing analysis may be given top most priority for research. Production constraint ranked as second. So training cum demonstration on the cultivation aspects and value addition may be given to increase the production and productivity

- Large scale production and distribution of quality planting material of tapioca

- Popularization of TamilNadu Agricultural University varieties through various extension methods.

- Creation of awareness on recommended technologies like nursery techniques, sett treatment methods, importance of top dressing on 90th day, micronutrient application and management of CMVD and Tuber rot.

- Frequent training cum demonstration programmes on Cassava cultivation and value addition with communication materials.

- Training for Self Help Groups, NGOs, women farmers on value addition of Cassava and to start their venture on own.

- Establishment of post harvest technology units for processing and storage, provision of credit facilities, establishment of regulated market, direct procurement from farmers and price fixation in terms of quantity by weight basis/setting up of association for point scale fixation is the need of hour.

Conclusion:

It is estimated that currently 3.3 million tones of Cassava is being used in human consumption sector, 1.5 million tones of Cassava in industrial sector and 0.9 million tones in animal feed sector. The demand and supply

projections indicate that by 2020 A. D, the potential demand for Cassava will exceed the potential supply by 3.047 and 2.758 million tones (Status of Cassava in India-2006) This gap can be bridged by expanding the Cassava area in non-traditional areas and productivity improvement through the adoption of improved cultivation practices especially in the industrial zones of Tamil Nadu.

Authors' affiliations

P.P. MURUGAN, Tapioca and Castor Research Station,
Yethapur, SALEM (T.N.) INDIA

REFERENCES

Anonymous (2006). Horticulture Statistical Report of Salem District in Tamil Nadu. The Directorate of Horticulture, Tamil Nadu.

Edison, S., Anand, M. and Srinivas, T. (2006). Status of Cassava in India. An overall view—published by CTCRI, Thiruvananthapuram (Kerala).

Lakshmi, K.R., Anantharaman, M. and Ramanathan, S. (1992). Problems and prospects of cassava in India. *Agricultural Situation in India*, **47** (6) : 527-530.

Lakshmi, K.R. and Pal, T.K. (1986). Trend of area, production and productivity of cassava in India. *Agricultural Situation in India*, **41** (8) : 609-614.

