

**RESEARCH ARTICLE**

## **GROWERS' PERCEPTION OF CONSTRAINTS IN SUGARCANE CULTIVATION - A CASE STUDY**

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### **Abstract**

A study was conducted during 2012-13 in the cane area of M/s Amaravathi Cooperative Sugar Mills, Udumalpet block, Tirupur district, Tamil Nadu state, known for moderate area and production of sugarcane in the state, to assess the constraints faced by the growers in the adoption of recommended technologies. The constraints experienced by 150 registered cane grower respondents in the cultivation of sugarcane have been analyzed in terms of communication, economics, managerial, crop management and infrastructural components. Inability to update technical knowledge on sugarcane technologies, high cost of labour, poor turnout by labourers, occurrence of heavy weed growth and lack of adequate machineries emerged as the major constraints.

**Key words:** Sugarcane, technology adoption, constraint analysis

### **Introduction**

Sugarcane occupies a prominent position on the agricultural map of India covering about 5 M ha in both subtropics and tropics (Anonymous 2015). Cultivated by about six million growers, it serves as the raw material for the second largest agro-processing industry. Besides, the industry also provides employment to half a million people in the rural sector. In 2014-15, about 550 sugar mills were in operation in the country which contributed a sugar production of about 26 Mt. Sugarcane cultivation in the country is dependent on natural resources, socio-economic factors, national and international market factors leading to wide fluctuations in cane area and production. Due to alternating weather conditions, sugarcane and sugar production reach a high level and subsequently come down with a typical surplus and deficit cycle (Nagendran 2009; Ameena 2011).

Sugarcane cultivation is subject to several crop management and socio-economic constraints some of which have been analyzed in previous studies. For example, Wasnik (2003) identified pest and diseases as two of the major constraints experienced by sugarcane cultivation. Balamurugan (2006) indicated that lack of transport facilities is the common cause for the poor loading of sugarcane in tractors or wagons and delayed reach of sugarcane to the sugar factory. Poswal et al. (2005) studied the adoption of practices in sugarcane cultivation and observed that all the farmers experienced the constraint of lack of technical guidance followed by lack of conviction. Punitha (2005) indicated that nearly half of the sugarcane farmers had medium level of adoption of pesticides and majority of the sugarcane farmers adopted pre-emergence herbicide.

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Though Tamil Nadu state ranks first in cane productivity, sugarcane farmers in the state face certain constraints in realizing increased cane productivity. In the light of these observations, the present study was undertaken with the main objective of assessing the constraints faced by the registered sugarcane farmers in adopting scientific technologies.

### Materials and methods

The present study was carried out during 2012-13 in the area confined to the jurisdiction of M/s Amaravathi Cooperative Sugar Mills, Krishnapuram village of Udumalpet block, Tirupur district, Tamil Nadu. The average cane productivity of the mill is 92.50 t/ha (Anonymous, 2014) compared to 110 t/ha in the state. Multistage sampling technique involving, divisions, sections and villages in the sugar mill area was adopted for selecting the sampling units at various levels. The study was conducted with 150 registered cane growers selected from the divisions of Neikaranpatti, Kaniyur and Mill site to analyze the constraints in the adoption levels of recommended technologies.

The data collected from the respondents on the constraints experienced by them in sugarcane cultivation have been analyzed and divided into five

categories, namely communication, economic, managerial, crop management and infrastructural constraints.

## Results and discussion

### Communication constraints

Communication plays an important role in the transfer and adoption of technologies by the growers. Constraints can occur at different stages in this process thereby affecting the adoption of technologies and farm output. An analysis of the communication constraints experienced by the respondents in sugarcane cultivation (Table 1) indicated that of the five communication constraints, 'inability to update technical knowledge' occupied the top rank among the registered cane growers. This might be due to performance of multiple roles by the farmers leaving behind no time to seek more knowledge or attend any formal or informal meetings. In case of the registered cane growers, 'not informed about the technologies at the time of actual adoption secured second rank. 'Unable to contact the extension agencies at the time of application of technologies' occupied the third rank among the registered cane growers. The fourth major constraint expressed by the registered cane growers was 'distortion of technical information'.

**Table 1. Communication constraints experienced by the respondents**

S.No.	Nature of constraint	Registered cane growers*(n=150)		
		No	%	Rank
1.	Unable to contact the extension agencies at the time of application of technologies	25	16.7	III
2.	Inability to update technical knowledge	64	42.7	I
3.	Distortion of technical information	23	15.3	IV
4.	Unable to get precise information from sugar factory	6	4.0	V
5.	Not reminded of the technologies at the time of actual adoption	32	21.3	II

\* Multiple response

**Table 2. Economic constraints experienced by the respondents**

S.No.	Nature of constraint	Registered cane growers*(n=150)		
		No	%	Rank
1.	High cost of inputs	138	92.0	II
2.	High rate of interest for credit	51	34.0	IV
3.	High cost of labour	150	100.0	I
4.	Delay in sanction of crop loan by banks	59	39.3	III
5.	Delay in getting crop insurance money	44	29.3	V

\* Multiple response

### Economic constraints

Besides the communication constraints, economic factors play an important role in the adoption of regular farm operations and improved technologies. An analysis of the economic constraints experienced by the respondents in sugarcane cultivation (Table 2) revealed that ‘high cost of labour’ occupied the first rank among the registered cane growers as the farm needs substantial labour to carry out agricultural operations and hence considered as the major constraint by cane growers. The constraint ‘high cost of inputs’ occupied second rank apparently due to the escalating cost of agricultural inputs by the year. High cost of inputs was reported as the major constraint among sugarcane farmers in the subtropics too (Poswal et al. 2005). In this study,

‘delay in sanction of crop loan in banks’ occupied the third rank and ‘high rate of interest for credit’ occupied the fourth position among the registered cane growers. ‘Delay in getting crop insurance money’ occupied the fifth rank among the registered cane growers which could be due to the fact that insurance is linked to the crop loan lent by banks and, hence, receiving crop insurance money in the event of crop failure is not a difficult process.

### Managerial constraints

Results of the analysis on managerial constraints experienced by the respondents in sugarcane cultivation (Table 3) indicated that ‘poor turnout by labourers’ was considered the major constraint by the registered cane growers. It is also observed that

**Table 3. Managerial constraints experienced by the respondents**

S.No.	Nature of constraint	Registered cane growers*(n=150)		
		No	%	Rank
1.	Poor turnout by labourers	98	65.3	I
2.	Non-cooperation of neighbouring farmers in irrigation, drainage and application of pesticides	45	30.0	III
3.	Delayed cutting orders	42	28.0	IV
4.	Non-availability of labourers	81	54.0	II

\* Multiple response

'non-availability of labourers' occupied the second rank by registered cane growers as labourers could get better wages in other non-agricultural operations. The registered cane growers awarded third rank to the constraint 'non-cooperation of neighbouring farmers in irrigation, drainage and application of pesticides'. 'Delayed cutting orders' occupied the fourth rank for registered cane growers as the cane registered is within the crushing capacity of the sugar mill and labourers are imported by the sugar factory personnel and regulated to the cane fields according to seniority.

### Crop management constraints

Results of the analysis on the crop management constraints experienced by the respondents in sugarcane cultivation presented in Table 4 indicated that 'occurrence of heavy weed growth' was the major constraint by registered cane growers. 'Drought problem' occupied the second rank by registered cane growers as rains failed and water was not available in sufficient quantity for cane irrigation. It was observed that 'pests and diseases problems' was one of the major constraints by the registered cane growers as was also expressed by Wasnik (2003) in his findings. 'Crop lodging' secured fourth rank among the registered cane growers as

luxurious cane growth, heavy tillering, lack of detrashing and propping up and clay loam soil, created compaction which might be responsible for the crop lodging. The constraint 'saline and alkaline problem soils' secured the fifth rank which indicated that this is a minor problem in the area and was not frequently experienced by registered cane growers as the soil in these areas have more or less neutral pH.

### Infrastructural constraints

The analysis of infrastructural constraints experienced by the respondents in sugarcane cultivation (Table 5) indicated that 'lack of adequate machineries' was accorded the first rank and 'poor maintenance of irrigation channels' was given the second rank by registered cane growers. The constraints 'lack of transport facility for transfer of inputs or harvested produce' and 'poor maintenance of roads' were given ranks three and four, respectively by the registered cane growers. 'Lack of road facilities' occupied the fifth rank as the condition of the roads to the mill crushing area is fairly good and the mill has easy accessibility.

In a similar study conducted by Rama Rao (2012), the cane farmers in Andhra Pradesh state were

**Table 4. Crop management constraints experienced by the respondents**

S.No.	Nature of constraint	Registered cane growers*(n=150)		
		No	%	Rank
1.	Occurrence of heavy weed growth	97	64.7	I
2.	Drought problem	63	42.0	II
3.	Pests and diseases problems	37	24.7	III
4.	Crop lodging	33	22.0	IV
5.	Saline and alkaline problem soils	2	1.33	V

\* Multiple response

**Table 5. Infrastructural constraints experienced by the respondents**

S.No.	Nature of constraint	Registered cane growers*(n=150)		
		No	%	Rank
1.	Lack of transport facilities for transfer of inputs/ harvested produce	42	28.0	III
2.	Poor maintenance of roads	27	18.0	IV
3.	Lack of road facilities	22	14.7	V
4.	Poor maintenance of irrigation channels	59	39.3	II
5.	Lack of adequate machineries	92	61.3	I

\* Multiple response

asked to list five prioritized major constraints they were facing in sugarcane cultivation. On the analysis of repetitiveness, six major constraints were identified. By considering the total responses, it was concluded that 'remunerative price' was the major constraint. Maximum responses in respective priorities were enumerated and a Responses Priority Index (RPI) was constructed by taking into consideration maximum responses and their respective priorities. The highest value of RPI was for 'labour shortage' which indicated that difficulty in engaging labour during the period of important operations was the most important constraint in sugarcane cultivation in the North Coastal Zone of the state. The other constraints were shortage of irrigation water, inadequate remunerative prices, high cost of machines, difficulty in procuring good quality seed material and infestation by pests and diseases.

The study revealed that the major constraints experienced in sugarcane cultivation by the registered cane growers of the target factory area were: inability to update technical knowledge, high cost of labour, poor turn out by labourers, occurrence of heavy weed growth and lack of adequate machineries.

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