A study on the yield gap and constraints in sugarcane cultivation

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ABSTRACT

The present study was undertaken to assess the yield gap and constraints experienced by the sugarcane growers in Cuddalore district of Tamil Nadu state. One hundred twenty respondents were selected based on the proportionate random sampling. A well-structured and pre-tested interview schedule was used for the collection of data. The results revealed that majority of the sugarcane growers (60.00%) had medium level of yield gap. More than 80 per cent of the respondents reported that irregular power supply, high cost of inputs, red rot disease, high cost of labour, weed problems, delay of cutting order and scarcity of labour were their major problems. More than 70 per cent of the respondents reported rodent problem, non-availability of inputs, lodging of cane and inter-node borer their constraints. Insufficient credit facilities and lack of technical guidance were the problems expressed by 66.00 and 40.00 per cent of the respondents respectively.

Keywords: Potential yield; actual yield; yield gap; constraint; sugarcane

INTRODUCTION

India is the largest consumer of sugar in the world and the Indian sugar industry is the second largest agro-based industry located in rural India. The industry contributes significantly to the socio-economic development of rural population. It supports 50 million farmers and their families and provides direct employment to over 0.5 million skilled and semi-skilled persons in sugar mills and integrated industries (Solomon 2011).

There are 526 operating sugar mills in different parts of the country having a crushing capacity of 4125 tons per day (Datta 2015). The Indian sugar industry has been a focal point for socio-economic development in the rural areas by mobilising rural resources, generating employment and higher income, transport and communication facilities.

Sugarcane is a long duration, high water (750-1200 mm range rainfall required) and high nutrient demanding crop. Sugarcane production has been more or less static (around 350 MT) in India during the past 10 years. During the year 2014-15 the total production was a record 362.33 MT. Uttar Pradesh is the largest producer of sugarcane as it produces an estimated 145.39 MT of sugarcane which is 41.28 per cent of the all-India production. Tamil Nadu is the fourth largest producer of sugarcane with an estimated production of 26.50 MT which roughly amounts to 7.5 per cent of country's production (https://www. mapsofindia.com/answers/india/state-biggest-sugarcane-producer).

Recurring surpluses and deficits in the production of sugarcane and mass consumption have become serious concerns of Indian sugar industry. It is important that the productivity of sugarcane is to be increased for meeting the increasing requirement of sugar consumption in the country. Thus the study was attempted to estimate the yield gap in sugarcane and identify the constraints experienced by the sugarcane growers in the crop cultivation in the study area.

METHODOLOGY

Yield gap was considered as the difference between the potential farm yield and actual farm yield obtained by the respondents and expressed in percentage. Potential yield was the highest yield

recorded in the village and actual yield was the yield actually obtained by the farmers. Based on the yield gap the respondents were classified into categories such as low, medium and high using cumulative frequency method.

The study was undertaken in Cuddalore district of Tamil Nadu since it was one of the potential district for sugarcane cultivation. Based on the maximum area under sugarcane six villages namely Poongramam, Chithirachavadi and Kanisapakkam of Annagramam block and Kandanpalayam, Siruvathir and Eripallayam of Panruti block were selected.

From these six villages 120 sugarcane growers were selected as a sample size by proportionate random sampling. The data were collected from the respondents with the help of a well-structured and pre-tested interview schedule.

RESULTS and DISCUSSION

Yield gap

Table 1. The distribution of respondents according to the yield gap (n= 120)

Category	Respondents	
	Number	Percentage
Low	28	13.50
Medium	72	60.00
High	20	26.50
Total	120	100.00

It can be seen from the Table 1 that majority of the respondents (60.00%) had medium level of yield gap followed by high (26.50%) and low (13.50%). The reason for the medium level of yield gap could be due to medium level of adoption of recommended technologies and various constraints experienced by the growers.

Constraints faced by growers in sugarcane cultivation

In order to understand the reasons for the yield gap, constraints analysis was taken up and the results are presented in Table 2.

Table 2. Constraints in sugarcane cultivation (n= 120)

Constraint	Respondents	
	Number	Percentage
High cost of inputs	110	92.00
Non-availability of inputs	90	75.00
High cost of labour	104	87.00
Scarcity of labour	97	81.00
Insufficient credit facilities	80	66.00
Delay of cutting order	98	82.00
Irregular power supply	112	93.00
Lodging of cane	88	73.00
Red rot disease problem	108	90.00
Inter-node borer problem	84	70.00
Weed problem	102	85.00
Rodent problem	95	79.00
Lack of technical guidance	48	40.00

Irregular power supply was the constraint reported by majority (93.00%) of the respondents. The constraint might be due to inadequate supply of power. It was closely followed by high cost of inputs experienced by 92.00 per cent of the respondents. Red rot disease was a constraint reported by 90.00 per cent of the respondents. The disease has been prevalent in the study area because of cultivation of susceptible or moderately resistant varieties of sugarcane.

High cost of labour was the constraint reported by 87.00 per cent of the respondents. Due to scarcity of labour during peak season the agricultural labourers demanded higher wages irrespective of the nature of work. Weed incidence was a constraint reported by 85.00 per cent of the respondents. This may be due to lack of interest and delayed application of herbicides. Inter-node borer was a constraint reported by 84.00 per cent of the respondents. The sugarcane crop is usually affected by inter-node borer. As a result the aerial growth is affected and unproductive shoots are produced. These factors reduce the productivity. Delay due to cutting order was reported by 82.00 per cent of the respondents. This might be due to the lack of frequent consultation by farmers with the sugar mill authorities. Scarcity of labour was the major constraint reported by 81.00 per cent of the respondents. This may be due to emigration of manpower out of villages. Moreover the labourers preferred to go for industrial work rather than for agricultural work.

Rodent problem was a constraint reported by 79.00 per cent of the respondents. The mature cane was affected by rats which reduced the plant population. High cost of inputs had deterred them from adopting the new technologies. Non-availability of inputs in time was expressed a constraint by 75.00 per cent of the respondents. The constraint may be due to procedural formalities and poor estimation of demand for inputs for the next season. Lodging of cane was a constraint reported by 73.00 per cent of the respondents which was a varietal character. In some cases it might be due to over application of nitrogen. This finding is in conformity with the work of Lahoti et al (2010).

Insufficient credit facilities was a constraint encountered by 66.00 per cent of the respondents. The credits given by money lending agencies were not enough to purchase critical inputs. Lack of technical guidance was a constraint reported by least number of of the respondents (40.00%). Workers of sugar mills would have not given proper technical guidance on some of the technologies.

CONCLUSION

Majority of the sugarcane growers had medium level of yield gap. The major constraints experienced by the respondents of sugarcane cultivation were high cost of inputs, non-availability of inputs, high cost of labour, scarcity of labour, insufficient credit facilities, delay of cutting order, irregular power supply, lodging of cane, red rot disease problem, inter-node borer problem, weed problem, rodent problem and lack of technical guidance.

REFERENCES

Datta S 2015. Economics of sugarcane as a competitive crop for rainfed paddy in transitional belts of Dharwad Taluk, Karnataka. MSc Thesis, University of Agricultural Sciences, Dharwad, Karnataka, India.

https://www.mapsofindia.com/answers/india/state-biggest-sugarcane-producer

Lahoti SR, Chole RR and Rathi NR 2010. Constraints in adoption of sugarcane production technology. Agricultural Science Digest **30(4):** 270-272.

Solomon S 2011. The Indian sugar industry: an overview. Sugar Tech **13(4):** 255-265.