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Constraints faced by the sugarcane growers in Yavatmal district

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Abstract

Sugarcane (*Saccharum officinarum* L.) Is an important commercial crop of India. Sugarcane and sugar beet are used for large scale production of sugar in the world. The present investigation was carried out in Umarkhed and Pusad tahsil. of Yavatmal districts (MH) with sample size 120 respondents. Data were collected on personal, socio-economic, communicational and psychological characteristics of respondents, training need regarding sugarcane production technology and constraints faced by them maximum production per unit area. The results of study revealed that the half of respondents were found in middle age group. Majority of respondents were educated upto higher secondary school. One third of respondents were belonged to medium holding. Majority of the respondents had medium level of experience in sugarcane growing. More than half of the respondents had medium annual income. The large proportion of respondents was having medium level of extension contacts. Majority of respondents had medium social participation.

In situational major constraints faced by the respondents that, majority of respondents had problem of high cost of fertilizers followed by. lack of knowledge, payment by factory through installment, Inadequacy of irrigation water at proper time, Irregular supply of electricity, heavy winds in Oct/Nov lodges sugarcane, Transportation problem of sugarcane sets, Delay in transportation of harvested cane by factory, high cost of pesticides, lack of knowledge about sugarcane production technology, lack of knowledge about spraying of insecticide, high cost of sugarcane sets and Lack of finance to purchase sugarcane sets, fertilizers and other inputs respectively.

Keywords: sugarcane growers, constraints, socio-economic characteristics

Introduction

Sugarcane (*Saccharum officinarum* L.) is an important commercial crop of India. Sugarcane and sugar beet are used for large scale production of sugar in the world.

During 2013-2014 cultivation of sugarcane in Yavatmal District area under sugarcane crop were 6500 ha, total production were 490700 tonnes and productivity was 75.00 tonnes per ha. (www.mahaagri.gov.in)

In 2015-2016 area under cultivation of sugarcane crop in Pusad and Umerkhed tahsils is 758.53 ha and 643.57 ha respectively. (www.mahaagri.gov.in) The main product of Sugarcane is sugar, however, there are many byproducts of sugarcane industry are bagasse, molasses, pressmud and green top, which are used by various industries like Bagasse based industries mainly produce pulp, paper, particle boards using bagasse as a fuel, cattle feed, medium for cultivation of edible mushroom, production of furfural etc., Molasses based industries mainly produce potable alcohol for Distillery, Acetic Acid, Fuel Alcohol, Cattle feed and many Pharmaceutical products etc. Press mud based industries mainly produce fertilizer and the wax and compost industries, as animal feed.

The sugar recovery in sugarcane varies from state to state average sugar recovery in the country is 10.25 per cent.

The present study focused on the training needs and the constraints faced by the sugarcane growers in uses of fertilizers, pesticides, insecticides etc. and sometime the research provide to consultancy to sugarcane growers. Unless and until the farmers use the new sugarcane production technology, Indian agriculture cannot be boosted. Training of sugarcane production technology affects the behavior of sugarcane growers regarding a use of new technology and hence, ultimately contributes to increase of agricultural share in Indian economy. The findings of study should useful to agricultural planners, educators and administrators alike to plan and execute the large scale sugarcane training programmes.

The finding of the present study would be immense helpful to extension personnel engaged in the task of promoting sugarcane production of sugarcane growers through formulation of appropriate training programmes in the light of perceived training needs of sugarcane growers.

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Materials and Methods

Research methodology deals with the description of research method and procedures used in the present study. The study was conducted in Umarkhed and Pusad tahsil of Yavatmal district in the year 2014-15. The number of villages in these two tahsil collectively was 12. Equally 6 villages from each tahsil were selected and from each village 10 sugarcane grower was randomly selected for the present study. The data were collected in a face to face situation by contacting personally to the selected sugarcane growers.

Following statistical techniques were used in the present study for analysis of data.

1. Arithmetic mean (X)
2. Standard deviation (SD)

1. Arithmetic Mean (\bar{x})

Arithmetic mean was calculated by summing of all individual score and dividing it by total number of cases.

The formula is,

$$\bar{x} = \frac{\sum X}{n}$$

Where,

- \bar{x} = Arithmetic mean
 $\sum x$ = Sum of respondents.
 N = Number of respondents.

2. Standard Deviation

It is the most stable index of variability which was employed in research studies. It is the measure of variability calculated around mean.

Standard deviation usually denoted by Greek word (σ) that is sigma and the formula can be denoted as follows:

$$\sigma = \frac{\sqrt{\sum (x_i - \bar{x})^2}}{n}$$

Where,

- σ = Standard deviation
 X_i = Score of each respondent
 \bar{x} = Mean
 n = Number of respondents.

Results and Discussion

The data collected from the sample sugar growing farmers were analyzed as per the methodology outlined and the result of the analysis are under following heads.

1. Distribution of respondents
2. Constraints faced by respondents

1. Distribution of respondents

The distributions of selected respondents according to their personal, socio-cultural, situational and psychological characteristics have been presented in this section.

1. Distribution of respondents according to their independent variables

The study the selected characteristics was made with reference to age, education, land holding, farming experience, annual income, extension contacts, social participation, innovativeness, economic motivation, risk orientation, knowledge and irrigation availability. The results pertaining

to the characteristics have been presented under following subheads.

1. Age

Table 1: Distribution of the respondents according to their level of age

S. No	Category (yrs)	Respondents (n=120)	
		Frequency	Percentage
1	Young age(Upto 35 years)	22	18.33
2	Middle age(35 to 50 years)	61	50.84
3	Old age(Above 50 years)	37	30.83
	Total	120	100.00

It is observed from Table 1.that the half of respondents (50.84%) were found in middle age group (35 to 50 years), followed by 30.83 per cent had old age group (above 50 years) and 18.33 per cent of respondents had young age group (upto 35 years).

2. Education

Table 2: Distribution of the respondents according to their education.

Sr. No.	Education	Respondents (n=120)	
		Frequency	Percentage
1	Illiterate	00	0.00
2	Primary school	11	09.16
3	Middle school	24	20.00
4	High school	36	30.00
5	Higher secondary school	39	32.50
6	College	10	08.34
	Total	120	100.00

It is worthwhile to note from table 2. that majority of respondents (32.50%) were educated upto higher secondary school, followed by 30.00 per cent had educated high school, 20.00 per cent of respondents had middle school and whereas, 09.16 and 08.34 per cent had educate upto primary school and college, respectively. None were illiterate.

3. Family land holding

Table 3: Distribution of the respondents according to their family land holding

Sr. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1	Marginal (Upto 1.00 ha.)	10	8.33
2	Small (1.01 to 2.00 ha.)	30	25.00
3	Semi-medium (2.01 to 4.00 ha.)	26	21.67
4	Medium (4.01 to 10.00 ha.)	40	33.33
5	Big/Large (Above 10.00 ha.)	14	11.67
	Total	120	100.00
Mean=4.22			

In case of land holding, it was evident from Table 3 that one third (33.33%) of respondents were belonged to medium holding category (4.01 to 10.00 ha.), followed by 25.00 per cent had belonged to small land holding category (1.01 to 2.00 ha.). The 21.67 per cent of respondents were in semi-medium land holding category (2.01 to 4.00 ha.) and 11.33 per cent of respondents were in large/big of land holding category (above 10.00 ha.) and 08.33 per cent respondents were marginal land holding category (upto 1.00 ha.) respectively.

4. Farming experience

Table 4: Distribution of respondents according to their level of farming experience.

Sr. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1	Low (Upto 10.79)	17	14.17
2	Medium (10.80 to 28.17)	83	69.17
3	High (Above 28.17)	20	16.66
Total		120	100.00

It was observed that from Table 4 found that majority of the respondents (69.17%) had medium experience (10.80 to 28.17) in sugarcane growing, followed by 16.67 per cent of the respondents had high experience (above 28.17) in about sugarcane growing. Only 14.17 per cent of the respondents had low experience (upto 10.79) in about sugarcane growing.

5 Annual income

Table 5: Distribution of the respondents according to their annual income.

Sr. No.	Annual income (Rs.)	Respondents (n=120)	
		Frequency	Percentage
1	Low (Upto Rs. 75000/-)	00	0.00
2	Low-Medium (Rs 75001-150000/-)	10	08.33
3	Medium (Rs 150001-225000/-)	68	56.67
4	Medium-High (Rs 225001-300000/-)	21	17.50
5	High (Above 300000/-)	21	17.50
Total		120	100.00
Mean=379916.66			

It was evident from Table 5 that more than half of respondents were (56.67%) Medium (Rs 150001-225000/-) annual income, followed by both 17.50 per cent had medium-high (Rs 225001-300000/-) and high annual income (above 300000/-), respectively. The 08.33 per cent respondents had low-medium annual income (Rs 75001-150000/-).

6. Extension contact

Table 6: Distribution of respondents according to their extension contact

Sr. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	08	06.67
2.	Medium	100	83.33
3.	Large	12	10.00
Total		120	100.00
Mean = 4.06			

It was observed from Table 6 that majority of respondents (83.33%) were having medium level of extension contacts, followed by 10.00 per cent of respondents were large level of extension contacts and the 06.67 per cent of respondents had low level of extension contacts.

7. Social participation

Table 7: Distribution of respondents according to their social participation

Sr. No.	Categories	Respondents (n=120)		
		Frequency	Percentage	
1.	1.	Low	50	41.67
2.	2.	Medium	58	48.33
3.	3.	High	12	10.00
Total		120	100.00	
Mean = 4.59				

It was found from the Table 7 that, nearly half of the respondents (48.33%) possessed medium social participation followed by low (41.67%) and (10.00%) social participation, respectively.

8. Innovativeness

Table 8: Distribution of respondents according to their innovativeness

Sr. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1	Low	18	15.00
2	Medium	86	71.67
3	High	16	13.33
Total		120	100.00
Mean = 15.60			

It is clear from the Table.8 that majority (71.67%) of the respondents was belonged to medium level of innovativeness, followed by 15.00 per cent of the respondents who had occupied in low level of innovativeness. The least of the respondents (13.33%) were belonged to high level of innovativeness.

9. Economic motivation

Table 9: Distribution of the respondents according to their level of economic motivation

Sr. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1	Low	13	10.83
2	Medium	87	72.50
3	High	20	16.67
Total		120	100.00
Mean = 22.24			

Apparently it is observed from the Table 9 that majority 72.50 per cent of the respondents were belonged to medium level of economic motivation, followed by 16.67 per cent of the respondents who had occupied in high level of economic motivation. The least of the respondents (10.83 %) were belonged to low level of achievement motivation.

10. Risk orientation

Table 10: Distribution of the respondents according to their level of risk orientation

Sr. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1	Low	28	23.33
2	Medium	78	65.00
3	High	14	11.67
Total		120	100.00
Mean = 14.68			

Apparently it is observed from the Table 10 that majority 65.00 per cent of the respondents were belonged to medium level of risk orientation, followed by 23.33 per cent of the respondents who had occupied in low level of risk orientation. The least of the respondents (11.67 %) were belonged to low level of risk orientation.

11. Knowledge

Table 11: Distribution of the respondents according to their level of knowledge.

Sr. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1	Low	11	09.17
2	Medium	83	69.17
3	High	26	21.66
	Total	120	100.00
Mean = 13.57			

It was observed from Table 11 that majority of the respondents (69.17%) had possessed medium level knowledge, followed by 21.66 per cent possessed high level of knowledge and 09.17 per cent of the respondents had low knowledge.

12. Irrigation availability

Table 12: Distribution of the respondents according to their Irrigation availability

Sr. No	Irrigation Sources	Frequency	Percentage
1	No source	00	0.00
2	River	23	19.16
3	Canal	67	55.83
4	Tube well	12	10.00
5	Wells	113	94.16
6	Others (lakes, farm ponds, tanks)	20	16.67

The result shown in the Table 12 revealed that, majority of respondents (94.16%) were using wells for cultivation of

Table 2.1: Situational constraints faced by the sugarcane growers.

Sr. No.	Situational constraints	Frequency	Percentage
1	Non availability of labour for intercultural operation	66	55.00
2	Shortage of fertilizers in the market	88	73.33
3	Inadequacy of irrigation water at proper time	106	88.33
4	Non availability of good quality manure	82	68.33
5	Non availability of quality sugarcane sets	98	81.67
6	Non availability of equipment at village Level	62	51.67
7	Irregular supply of electricity	106	88.33
8	Heavy winds in Oct/Nov lodges sugarcane	99	82.50
9	Delay in transportation of harvested cane by factory	96	80.00
10	Non available of contact office near to village	76	63.33
11	Regional politics	60	50.00
12	Biased treatment from factory officers for harvesting and crushing	91	75.83

From Table 2.1 the data regarding situational constraints presented in Table 6 indicated that there were 12 important situational constraints faced by the respondents. Irregular supply of electricity (88.33%), Inadequacy of irrigation water at proper time (88.33%), Heavy winds in Oct/Nov lodges sugarcane (82.50%), Transportation problem of sugarcane sets (81.67%), Delay in transportation of harvested cane by factory (80.00%), Biased treatment from factory officers for harvesting and crushing (75.83%), Shortage of Fertilizers in the market (73.33%), Non availability of good quality manure

sugarcane followed by 55.83 per cent of respondents had canal as a source of irrigation, 19.16 per cent of respondent had river as a sources of irrigation, 16.67 per cent of respondents had others (lakes, farm ponds, tanks) as a source of irrigation and 10.00 per cent respondent had tube well respectively.

Table 13: Distribution of the respondents according to their level of Irrigation availability

Sr. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1	Low	14	11.67
2	Medium	97	80.83
3	High	09	07.50
	Total	120	100.00
Mean = 5.1			

It was observed from Table 13 that, majority of the respondents (80.83%) possessed medium Irrigation availability while, about 11.67 per cent possessed low Irrigation availability and 07.50 per cent of the respondents had high Irrigation availability.

4. Constraints faced by the sugarcane growers

The data related to constraints faced by the sugarcane growers are as following.

2.1 Situational Constraints faced by the sugarcane growers

(68.33%), Non available of contact office near to village (63.33%), Non availability of labour for intercultural operation (55.00%), Non availability of equipment at village Level (51.67%) and Regional politics(50%) were among the constraints faced by the sugarcane grower in that order. The findings are in line with those reported by Lahoti *et al.* (2010).

2.2 Financial constraints faced by the sugarcane growers

Table 2.2: Financial constraints faced by the sugarcane growers

Sr. No.	Financial constraints	Frequency	Percentage
1	Lack of finance to purchase sugarcane sets, fertilizers and other inputs	80	66.67
2	High cost of sugarcane sets	84	70.00
3	High cost of fertilizers	116	96.66
4	High cost of pesticides	105	87.50
5	Time consuming procedure for getting the loan	67	55.83
6	Payment by factory through installments so it is not profitable	108	90.00
7	Non remunerative price given by factory for sugarcane	65	54.17

From Table 2.2 revealed that there were seven important financial constraints as faced by the sugarcane growers among them, high cost of fertilizers (96.66%), payment by factory through instalment (90.00%), high cost of pesticides (87.50 %), high cost of sugarcane sets (70.00 %), Lack of finance to purchase sugarcane sets, fertilizers and other inputs (66.67%),

tedious procedure for getting loan (55.83%) and Low price given by factory (54.17%) were some of the important financial constraints faced by the sugarcane growers.

3. Technological constraints faced by the sugarcane growers

Table 3.1: Technological constraints faced by the sugarcane growers

Sr. No.	Technological constraints	Frequency	Percentage
1	Lack of knowledge about Sugarcane production technology	90	75.00
2	Lack of knowledge about use of water at critical stages of application	109	90.83
3	Lack of knowledge about spraying of insecticides	89	74.17
4	Non availability of technical guidance	68	56.67
5	Non availability of training at village level	62	51.67

From above the Table 3.1 revealed that, the five important technological constraints faced by the sugarcane growers were about lack of knowledge about the use of irrigation water and its critical stage application (90.83%), lack of knowledge about sugarcane production technology (75.00%), lack of knowledge about spraying of insecticide (74.17%), lack of technical guidance (56.67%) and lack of farmers training at village level (51.67%), respectively.

Conclusions

From the present study it was concluded that, half of respondents (50.83%) were found in middle age group (35 to 50 years), followed by Majority of respondents (32.50%) were educated upto higher secondary school, one third (33.33%) of respondents were belonged to medium holding category (4.01 to 10.00 ha.), about 69.17 per cent of the respondents had medium experience (10.80 to 28.17) in sugarcane growing, half of respondents were (56.67%) medium (Rs 150001-225000/-) annual income. The situational constraints faced by the respondents was observed prominent in Irregular supply of electricity (88.33%), The financial constraints as faced by the sugarcane growers was high cost of fertilizers (96.66%) and the technological constraints faced by the sugarcane growers were about lack of knowledge about the use of irrigation water and its critical stage application (90.83%).

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