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Knowledge and adoption of improved cultivation practices by sugarcane growers

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Abstract
The present study was carried out in Umarkhed taluka of Yavatmal district in Vidarbha region of Maharashtra state, the study was planned to investigate the knowledge and adoption levels of improved cultivation practices by sugarcane growers. From the study it was found that majority of the respondents had high level of knowledge but medium level adoption regarding improved cultivation practices of sugarcane. The correlation analysis revealed that independent variables, namely education, land holding, area under sugarcane, annual income, farming experience, extension contact, social-participation, Innovativeness, risk orientation, economic motivation had positive and significant relationship with knowledge and adoption while source of irrigation shows negatively significant relationship with knowledge and adoption and age had negatively non-significant relationship with knowledge and adoption of improved cultivation practices of sugarcane growers.

Keywords: Knowledge, adoption, improved cultivation practice and sugarcane growers

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. Amongst the sugar producing plants, sugarcane is responsible for about 60.00 percent of world's sugar production. Sugarcane is cultivated mainly in the tropics, though in India it is also grown in sub-tropical areas.

Sugarcane is the main source of sugar in Asia and Europe. Sugarcane is grown primarily in the tropical and sub-tropical zones of the southern hemisphere. Sugarcane is the raw material for the production of white sugar, jaggery (gur) and khandsari. It is also used for chewing and extraction of juice for beverage purpose.

The sugarcane cultivation and sugar industry in India plays a vital role towards socio-economic development in the rural areas by mobilizing rural resources and generating higher income and employment opportunities. About 7.5 percent of the rural population, covering about 45 million sugarcane farmers, their dependents and a large number of agricultural labour are involved in sugarcane cultivation, harvesting and ancillary activities.

There are about nine States in India where sugarcane is grown on a large extent of area. There are number of varieties that are grown in India depending on the suitability of the soil. The area, output and yield and sugarcane cultivation is subjected to fluctuate in response to policies of the government and also conditions of cultivation. Taking these into consideration, this chapter presents a detailed discussion on the status of sugarcane, growth of area, output and yield.

India was the 2nd largest producer of sugar in the world after Brazil in 2015-16. India's share in the world production of sugar was 15 percent in 2015-16.

Methodology
The study was purposively conducted in Umarkhed taluka of Yavatmal district in Vidarbha region of Maharashtra state. Exploratory research design was used for this study. A sample of 120 sugarcane growers was down from 10 sugarcane growing villages using random sampling method. The data were collected by personal interview with the help of pretested and well-structured interview schedule subjected to appropriate statistical analysis.

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Results and discussion

Distribution of sugarcane growers according to personal, socio-economic, psychological and communicational characteristics

Half of the respondents (50.83%) were found in the middle age group (36 to 50) years. one fourth of the respondents (24.16%) were educated up to high school level (8th-10th), majority of the respondents (37.50%) possessed land holding between 2.01 to 4.00 ha., three fourth of the respondent (75.00%) possessed actual area under sugarcane cultivation, maximum percentage of the respondents (37.50%) were found in annual income range of Rs. 4,00,001 to 6,00,000 /-, maximum percentage of the respondents (70.00%) were belonged to medium category of farming experience, majority of the respondents (64.16%) had medium level of extension contact, majority of the respondents (60.84%) had medium level of social-participation and source of irrigation, more than half of the respondent (63.33%) and (66.66%) had medium level of innovativeness and risk orientation respectively. Maximum percentage of the respondents (70.84%) had medium level of economic motivation.

Knowledge level of sugarcane growers about their improved cultivation practices.

The knowledge level of the sugarcane growers about their improved cultivation practices was measured with the help of knowledge test development for the study. The respondents were categorized into three groups based on equal interval method as presented in Table 1.

Table 1: Distribution of the respondents according to their overall knowledge level about improved cultivation practices of sugarcane

Sl. No.	Knowledge Index Level	Respondents(n=120)	
		Frequency	Percentage
1	Low	13	10.83
2	Medium	37	30.83
3	High	70	58.34
	Total	120	100.00

Table 1 reveals that majority (*58.34%) of the sugarcane growers were having high level of knowledge about improved cultivation practices followed by medium (30.83%) and low (10.83%) knowledge level about improved cultivation practices of sugarcane.

Adoption level of sugarcane growers about their improved cultivation practices.

The adoption level of the sugarcane growers about their improved cultivation practices was measured with the help of adoption test development for the study. The respondents were categorized into three groups based on equal interval method as presented in Table 2.

Table 2: Distribution of respondents according to their overall adoption level about improved cultivation practices of sugarcane

Sl. No.	Adoption Index Level	Respondents(n=120)	
		Frequency	Percentage
1	Low	08	06.66
2	Medium	64	53.34
3	High	48	40.00
	Total	120	100.00

Table 2 revealed that majority (*53.34%) of the sugarcane growers were having medium level of adoption of improved cultivation practices followed by high (40.00%) and low (06.66%) adoption level about improved cultivation practices of sugarcane

Table 3: Relationship between selected independent variables with knowledge and adoption level of improved cultivation practices by sugarcane growers

Sl. No.	Independent Variables	Knowledge Correlation coefficients ('r' value)	Adoption Correlation coefficients ('r' value)
1	Age	-0.134 NS	-0.012 NS
2	Education	0.792**	0.334**
3	Land holding	0.200*	0.181*
4	Area under sugarcane	0.220*	0.179*
5	Annual income	0.246**	0.204*
6	Farming experience	0.369**	0.238**
7	Extension contact	0.586**	0.230*
8	Social-participation	0.340**	0.188*
9	Sources of irrigation	-0.307**	-0.205*
10	Innovativeness	0.312**	0.192*
11	Risk orientation	0.347**	0.195*
12	Economic motivation	0.455**	0.194*

**= Significant at 0.01 percent level of probability
*= Significant at 0.05 percent level of probability
NS= Non significant

From Table 3 correlation analysis revealed that independent variables, namely education, land holding, area under sugarcane, annual income, farming experience, extension contact, social-participation, Innovativeness, risk orientation, economic motivation had positive and significant relationship with knowledge and adoption while source of irrigation shows negatively significant relationship with knowledge and adoption and age had negatively non-significant relationship with knowledge and adoption of improved cultivation practices of sugarcane growers.

Conclusion

It is concluded from results, the State Agricultural Universities, State Department of Agriculture provide knowledge about improved sugarcane cultivation practices by organizing training programmers possibly at their own villages to the sugarcane growers which will help them to update their knowledge and increase their level of adoption which will result in higher sugarcane production.

Sugarcane being long duration crop, the farmers are taking it as sole crop, they are not aware of intercrops in sugarcane. The extension workers must direct their efforts to educate the farmers regarding the intercrops that can be taken up in sugarcane and also he can arrange for study tour to research stations to provide firsthand information on intercropping in sugarcane.

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