



Knowledge and Adoption Extent of Farmers Towards Scientific Production Practices of Sugarcane in Bareilly District of Uttar Pradesh, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The present study was conducted out in Bareilly district of Uttar Pradesh, India. The study was planned to investigate the knowledge and adoption levels of improved cultivation practices by sugarcane growers. The district Bareilly was selected purposely for the study. There are 15 blocks in the in selected district then one block was selected based on maximum production of sugarcane. From the selected block 10 villages were selected based on maximum production of sugarcane.

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From each selected villages, 10 respondents were randomly selected by using simple random sampling method without replacement. Thus, total 100 respondents were selected. From the study it was found that the majority of respondents 66 per cent were found to have medium level of knowledge, with 69 per cent adoption level towards improved cultivation practices of sugarcane. In may be concluded that there is favourable result obtain from the study but there is a scope for the respondents who have belongs to low level of knowledge and adoption towards improved practices of production of sugarcane so they improve their socio-economic condition.

Keywords: Knowledge; adoption; improved cultivation practices; sugarcane.

1. 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 provides the raw material for production of white sugar, jaggery (gur) and khandsari [1]. 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 socioeconomic 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 dependencies with a large number of agricultural labours are also involved in sugarcane cultivation, harvesting and post-harvest activities [2]. There are an account for nine States in India where sugarcane is grown in a large extent of area and production [3]. There are significant number of varieties which are grown in all over India depending on the suitability in agroclimatic situation. The area and production of sugarcane are subjected to fluctuate with respect to policies and programme of the government. Taking these into consideration, this paper presents a detailed discussion on the knowledge and their adoption of improved cultivation practices. Knowledge is facts, awareness, skills, information that acquired through the experience or education and the theoretical and practical understanding of a subject [4]. Adoption is mental process in which individual continually use the recommended practice at large scale in their farm [5].

1.1 Statement of the Problem

Uttar Pradesh is the leading state with respect to area and production in India. The knowledge,

perception and adoption level of improved practices of sugarcane cultivation influences the overall area and production. Hence it is essential to bring an overview towards their knowledge and adoption.

1.2 Objective

To find out the knowledge and adoption level of the respondents about scientific sugarcane production practices.

1.3 Scope of the Study

This study will be helpful to various government organizations, planners, policy makers, extension workers, private companies, organization and researcher also. This paper will help to know the level of up-to-date scientific and technological knowledge with their adoption by the sugarcane growers and has been also well recognized by the extension education system. Therefore, this study will provide the present scenario of knowledge regarding sugarcane cultivation.

1.4 Limitations of the Study

Though the study has practical relevance, it has the following limitations.

1. The findings were based on the honesty of the respondent in providing their response.
2. The study was conducted in particular conditions and with limited sample size.

2. LITERATURE REVIEW

Sasane et al. [6] reported that the complete adoption about planting season (38.33 per cent), seed rate (58.33 per cent), inter culturing (92.50), improved varieties (67.50 per cent), and plant protection (48.33 per cent). All the respondents faced constraints like load shading of electricity. A large majority (76.67 per cent) of respondents faced the constraints of non-availability of improved varieties and non-availability of fertilizer

(72.50 per cent). 70.00% of farmers faced the constraint of lack of quantity of water supply for irrigation and 70.00% faced the constraint of lack of technical knowledge about proper use of micronutrients.

Shivnandan et al. [7] reported that Majority of the respondents participated in integrated nutrient management (75.33%), sugarcane production technology (72.00%), integrated pest management (68.00%) and biocontrol agents (45.33%) trainings. Similarly, 64.00 per cent, 55.33 per cent, 66.00 per cent, 84.00 per cent and 88.00 per cent of respondents participated in krishimela, demonstrations, exposure visits, field days and exhibitions, respectively.

Kumar et al. (2018) revealed that majority (69.16%) respondents having medium level of knowledge about improved sugarcane production practices whereas 14.17 per cent and 16.67 per cent respondents have high and low level of knowledge.

Swetha et al. [8] the result indicated that, 42.50 per cent of the sugarcane drip farmers fell under the category of medium knowledge followed by low level of knowledge (30.00%) and high level of knowledge (27.50%) towards drip Irrigation System.

Chouhan et al. [9] found that majority of the respondents (74.16 %) had medium level of adoption of improved sugarcane cultivation practices. A negligible per centage of the respondents i.e., 13.34 per cent and 12.50 per cent had low and high adoption level respectively.

3. METHODOLOGY

The study was carried out at Bareilly district of (U.P.) in India during the year of 2016-17. There are 15 total blocks in the Bareilly district. Out of which, 1 block were purposely selected with the recommendation of advisory committee of researcher. From selected block, total 10 villages

were selected on the basis of maximum production of sugarcane. From each selected villages, 10 respondents were selected by using simple random sampling method without replacement [9]. Thus, total 100 respondents randomly selected. The researcher personally gathered the data by using a structured interview schedule [10]. The structured schedule was developed by using Likert scale construction techniques. For analysis of the data percentages, frequency and mean were used.

4. RESULTS AND DISCUSSION

4.1 Extent of Knowledge Level of Respondents Towards Scientific Sugarcane Production Practices

The knowledge is the information, facts, and skills acquired through experience or education and training towards understanding of a something.

From the Table 1, it was clear that majority of respondents 66 per cent were possessing medium level of knowledge [3] the probable reason may be that followed by 21 per cent had high and 13 per cent had low level of knowledge. The mean score was found to be 80.50 with standard deviation 6.80. The possible reason for medium to high level of knowledge may be that most of farmer have medium age group so that they have very enthusiasm to gain scientific knowledge by attending various seminar, workshops, trainings etc organised by KVK, formal institution, state agricultural universities, their formal and informal extension contact are also improved as compared to old age groups. Regarding the low level of knowledge of respondents due to they have less formal education mark up to as high school so their personal efforts towards gain of scientific knowledge are less optimistic there is a need to encourage them to attend the training, study tour, lectures etc. organised by KVK, ATMA, agricultural universities or other formal institutions.

Table 1. Distribution of respondents on the basis of extent of knowledge towards improved sugarcane cultivation practices

(N=100)			
S. No.	Category	Frequency	Percentage
1.	Low (up to 74)	13	13.00
2.	Medium (75 – 88)	66	66.00
3.	High (89 & above)	21	21.00

Mean=80.50, S.D.=6.80

4.1.1 Practise wise extent of Knowledge level of sugarcane farmer towards scientific sugarcane production practices

From Table 2, it was reveal that the statement has highest percentage as field preparation (100%) ranked first, followed by that ratooning (99%) ranked second, about the seed rate (98.5%) ranked third, weed management (95.33%) ranked fourth, climatic condition (94.5%) ranked fifth, water management (93.40%) ranked sixth, varieties of sugarcane (90.44%) ranked seventh, methods of sugarcane sowing (88%) ranked eighth, harvesting and transporting (87.99) ranked ninth, fertilizer application (82.88%) ranked tenth, season and time of sowing sugarcane (81.66) ranked eleventh, intercropping in sugarcane crop (77.64%) ranked twelfth, sugarcane product (69.87%) ranked thirteenth,

sugarcane crushing and supply (68.07%) ranked fourteenth, seed treatment (67.75%) ranked fifteenth, pant protection (62.62%) ranked sixteenth, wrapping and ear thing (55.66%) ranked seventeen and production/yield (52%) ranked eighteenth respectively. The overall 81.40% of knowledge extent by the respondents [6].

4.2 Adoption Level of Scientific Sugarcane Production Practices by The Respondents

Adoption is a decision to make full use of a recommended practices by the respondents as the best course of action available in order to improve their farm management practices and improve overall production [9].

Table 2. Distribution of respondents on the basis of practice wise knowledge extent of sugarcane crop

S. N.	Particulars	Percentage	Rank
1.	Field preparation	100.00	I
2.	Climate	94.50	V
3.	Season and Time of sowing sugarcane	81.66	XI
4.	Varieties of sugarcane crop	90.44	VII
5.	Seed rate/hectare	98.50	III
6.	Seed treatments	67.75	XV
7.	Methods of sugarcane sowing	88.00	VIII
8.	Fertilizer application	82.88	X
9.	Inter cropping in sugarcane crop	77.64	XII
10.	Water management	93.40	VI
11.	Weed management	95.33	IV
12.	Wrapping / Ear thing	55.66	XVII
13.	Plant protection	62.62	XVI
14.	Harvesting and transporting	87.99	IX
15.	Sugarcane crushing and supply	68.07	XIV
16.	Ratooning	99.00	II
17.	Production (average yield)	52.00	XVIII
18.	Sugarcane product	69.87	XIII
	Average	81.40	

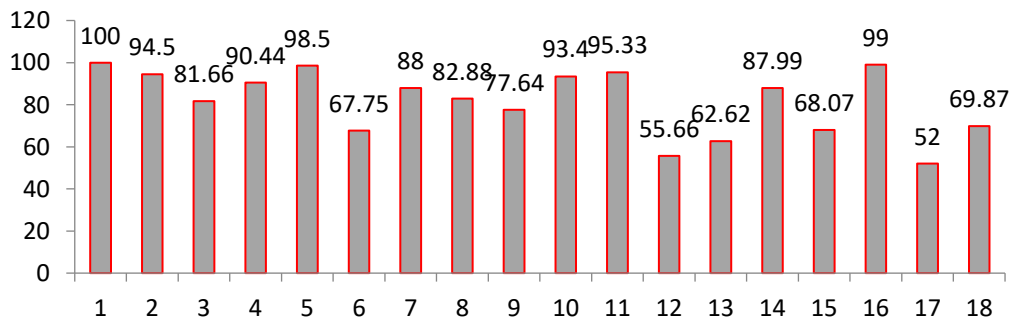


Fig. 1. Statement wise knowledge of scientific sugarcane production practices by the respondents

From Table 3, it was revealed that majority of the respondents 69 per cent were found medium level of adoption [11] followed by 17 per cent had low level and 14 per cent of respondents had high level of adoption [10]. The mean score was found to be 72.93.

Table 3. Distribution of respondents on the basis of overall adoption extent level

S. No.	category	frequency	Percentage
1.	Low (up to 64)	17	17.00
2.	Medium (65 – 81)	69	69.00
3.	High (82 & above)	14	14.00

Mean=72.93, S.D.=8.29

Table 4. Distribution of respondents on the basis of practice wise adoption extent of scientific sugarcane production. (n=100)

S.N.	Particulars	Percentage	Rank
1.	Field preparation	87.10	III
2.	Climate	74.00	VII
3.	Season and Time of sowing sugarcane	40.00	XVII
4.	Varieties of sugarcane crop	41.59	XIV
5.	Seed rate/hectare	86.00	IV
6.	Seed treatments	59.00	XII
7.	Methods of sugarcane sowing	40.66	XVI
8.	Equipment used for sowing	71.50	IX
9.	Fertilizer application	79.60	V
10.	Inter cropping in sugarcane crop	41.00	XV
11.	Water management	89.00	II
12.	Weed management	63.50	XI
13.	Wrapping/Ear thing	65.00	X
14.	Plant protection	54.25	XIII
15.	Harvesting and transporting	76.24	VI
16.	Sugarcane crushing and supply	73.50	VIII
17.	Ratooning	92.00	I
	Average	66.29	

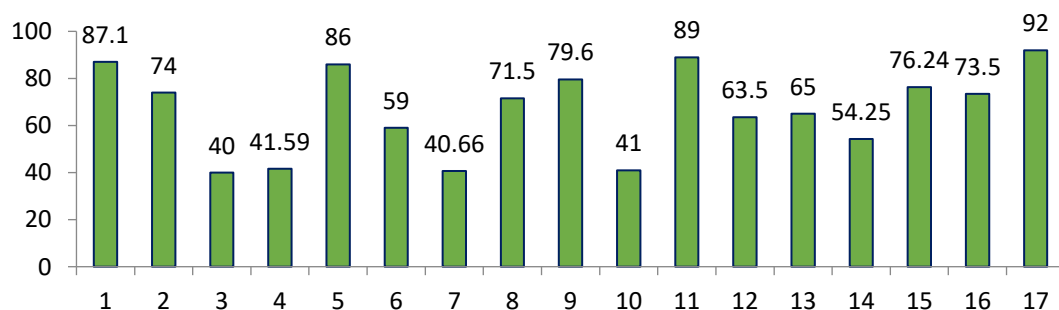


Fig. 2. Statement wise adoption of scientific sugarcane production practices sugarcane crop

4.2.1 Practice wise adoption of scientific sugarcane production practices by the respondents

It is clear from Table 4, that highest adoption of ratooning (92%) got ranked first, followed by

water management (89%) ranked second, field preparation (87.10%) ranked third, about seed rate/hectare (86%) ranked fourth, fertilizer application (79.60%) ranked fifth, harvesting and transporting (76.24%) ranked sixth, climatic conditions (74%) ranked seventh, sugarcane

crushing and supply (73.50%) ranked eighth, equipment used for sowing (71.50%) ranked ninth, wrapping and ear thing (65%) ranked tenth, weed management (63.5) ranked eleventh, seed treatment (59%) ranked twelfth, plant protection (54.25%) ranked thirteenth, varieties of sugarcane (41.59%) ranked fourteenth, intercropping in sugarcane crop (41%) ranked fifteenth and methods of sugarcane sowing (40.66%) ranked sixteenth and season and time of sowing sugarcane rank seventeen (40.00%) respectively. The overall 66.29% of adoption extent by the respondents [12-16].

5. CONCLUSIONS

It was concluded that the majority of respondents have medium level of knowledge and adoption of scientific production cultivation practices of sugarcane crop. From the above results, it may be suggested that the State Department of Agriculture, State Agricultural Universities provide knowledge about improved sugarcane cultivation practices by organizing training programmes for the sugarcane growers which will assists them to update their knowledge and encourage to adopt such practices by which result they may be gain maximum sugarcane production. The extension workers must direct their efforts to educate the farmers regarding the self-diagnosis of problem and their site-specific available solution and also arrange the study tour of farmer to the research stations, agricultural universities to provide first-hand information on sugarcane crop.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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