Adoption of Improved Sugarcane Cultivation Practices among the Farmers in Sitapur District of Uttar Pradesh, India

ABSTRACT

The success of sugarcane farming hinges on the intricate interplay of various the adoption of advanced technological practices.The study was conducted during the year 2022-2023in Machhrehta and Gondlamau blocksof Sitapur district of Uttar Pradesh to study the extent of adoption of Sugarcane growers on improved sugarcane cultivation practices. A sample size of 120 respondents was selected based on random sampling procedure. Personal interviews with the help of a structured schedule were taken for data collection. The study revealed that majority of the respondents (51.67%) had medium level of adoption of improved sugarcane cultivation practices followed by 19.17% high and 29.16% low level of adoption of Sugarcane cultivation practices by the respondents. The study analyzed that high adoption found in FieldPreparationSugarcane with 94.78 MPS and respondents had less adoption of seed treatment in Sugarcane crop with 34.89MPS.

Keywords: Adoption level; sugarcane growers; sugarcane cultivation practices, production practices.

1.Introduction

Sugarcane is one of the most important cash crop of India and plays a dominant role in the industrial and agricultural economy. The sugarcane is the Latin word *Saccharum* given by *Carolus Linnaeus* in 1753. Sugarcane (*Saccharum officinarum*) belongs to the Poaceae (Gramineae) family. Sugarcane is a widely grown crop in India. The Saccharum genus mainly comprises five species with three cultivated (*Saccharum officinarum, Saccharum barberi*, and *Saccharum sinenses*)and two wild species (*Saccharum spontaneum, Saccharum robustum*). The origin of sugarcane is New Guinea. It has a long and rich history, dating back thousands of years.India's Sugarcane industry plays a crucial role in the country's economy and agricultural sector.Sugarcane is India's second most important commercial crop, after sugarcane. It is also

used as a raw material in the manufacturing of alcohol, electricity, and bio fertilizers.The world's three largest sugarcane producers are Brazil, India, and Thailand. India's sugarcane production is expected to reach 399.83 million tonnes (mt) in 2020-21 (Source: www.atlsbig.com 2022)

India's largest producer of sugarcane in, the state is Maharashtra, which produced over 138 lakh tonnes with 40% of the overall production of sugarcane in 2022-23. During 2017-18 area under sugarcane was estimated at 50.00 lakh hectares.

Uttar Pradesh (UP), Madhya Pradesh, Bihar, Uttarakhand, Punjab, Haryana, and Jharkhand account for 57% of the total sugarcane area and 48% of the country's sugarcane production (GOI, 2016). Uttar Pradesh ranks second in the list of sugarcane-producing states in India. The area and production under sugarcane cultivation in UP are approximately 28.53 million hectares (mha) and 23.48 mt respectively, with productivity of 82.31 tons ha^{-1}. The state's total annual sugar production is 107.92 mt. (upcane.gov.in, 2023).The climatic conditions of the district are most suitable for cultivation of Sugercaane but the productivity of this crop is far below than desired level. This level can be achieved through timely adoption of improved Sugarcane cultivation technology by the farmers.

Keeping the above facts in view the present study was undertaken with the following specific objective:

Objective: To study the extent of adoption of recommended Sugarcane cultivation practices among the farmers in Sitapur district of Uttar Pradesh.

2. METHODOLOGY

The present study was purposively conducted in Sitapur district of Uttar Pradesh state on the basis of maximum production. Sitapur district has 19 community development blocks namely Behata, Biswan, Elia, Gondlamau, Hargonw, Kasanda, khairabad, Laherpur, Machhrehta, Mahamoodabad, Maholi, Mishrikh, Parsendi, Pahla, Pisanwa, Rampur Mathura, Reusa, Sakaran, Sidhouliout of these two block namely Machhrehta and Gondlamau have been selected for the study. Five villages from each identify block was selected randomly. Thus total ten villages was selected randomly for the study. Selection of respondents done by random sampling method and 12 respondents was selected from each identify village to make a total sample size of 120 respondents. Adoption of variable on improved agricultural technology for Sugarcane crop

cultivation was examined using the "Adoption Intensity Index." The protocol was followed, with yes being one (1) point and No being zero(0) points for adoption Extent. Individual respondents calculated the extent to which they have adopted improved Sugarcane growing practices for all practices. On the basis of the "Adoption Intensity Index," this technique was applied to all 120 respondents to determine their individual adoption extent. The classes were divided by using mean standard deviation and the data was analyzed by calculating frequency distributions and percentage.

3. RESULTS AND DISCUSSION

3.1 Extent of Adoption of Improved Sugarcane Cultivation Practices among the Farmers To get an overall view of adoption level, the respondents was divided into three groups viz., (i) low adoption (below 27), (ii) medium adoption group (28 to 29) and (iii) high adoption group (30 & above). The group was based on the calculated mean and standard deviation of the adoption scores obtained by the respondents. The results of the same are presented in Table 1.

Table -1Distribution of respondents on the basis of their practice wise adoption level about sugarcane production practices.

n=120

S. No.	**Adoption level**	**f**	**%**
1.	Low(below 27)	35	29.16
2.	Medium (28 to 29)	62	51.67
3.	High (30& above)	23	19.17
	Total	**120**	**100.00**

Mean =28.58, S.D. = 1.45

Table -2 Distribution of respondents on the basis of their practice wise adoption extent about sugarcane production practices.

S. No.	**Cultivation Practices**	**MPS**	**Rank**
1	Fieldpreparation	94.78	**I**
2	Season and Time of sowing	79.84	VI
3	Climate	54.89	XII
4	Varieties	63.67	X

5	Seed rate/hectare	71.38	VIII
6	Seed treatments	34.89	XIV
7	Method of sugarcane sowing	47.78	XIII
8	Fertilizerapplication	72.53	VII
9	Intercropping in sugarcane	34.64	XV
10	Water management	82.54	IV
11	Wrapping/ Earthing	80.67	IX
12	Weed management	64.69	V
13	Plant protection	57.53	XI
14	Harvesting	86.39	**III**
15	Ratooning	93.12	**II**

MPS= Mean per cent score

Table 1 Is indicated that respondents 51.67 per cent of sugarcane growers were found to be in medium adoption level, followed by high adoption level,(19.17 per cent) and low adoption level (29.16 per cent). It concluded that maximum respondents have medium adoption level about improved Sugarcane cultivation. Similar results was reported by Vishwakarma. et al [1], Chouhan et al. [2], Gurjaret al. [3], Kamatar. et al. (2020)[4]

It is obvious from the Table 2 that among all 15 agricultural practices of crop production, It reveals that 1st rank is given to the field preparation with MPS 94.78, followed by ratooning with MPS 93.12, Harvesting with MPS 86.39,Water management with MPS 82.54, Wrapping / Earthing with MPS 80.67, season and time of sowing with MPS 79.84, fertilizer application with MPS 72.53, seed rate / hectare with MPS 71.38,Weed management with MPS 64.69,Varieties with MPS 63.67, plant protection with MPS 57.53, Climate with MPS 54.89, Mothed of sowing with MPS 47.78, Seed treatment with MPS 34.89, Inter cropping in sugarcane with MPS 34.64, and were ranked II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV and XV respectively. It can be calculated that the knowledge about agriculture production practices seems to be satisfactory.

A considerable high adoption was found in field preparation, Season and Time of sowing, Water management, Weed management, Harvesting, Ratooningetc because of these practices do not

require much specialized skill by the farmers and may be due to the fact that these practices needs to be done before and after sowing the crop. As of this result maximum number of respondents has followed these practices in their field. It can be calculated that the adoption of agriculture production technology seems to be satisfactory [6,7].

4. CONCLUSION

Farmers are working tirelessly to accommodate their needs. Sugarcane is important cash crop in more than all countries. India is one of the major Sugarcane producers in the world. The study revealed that majority of respondents were found in medium adoption level, followed by low adoption level. A considerable high adoption were found in field preparation, Season and Time of sowing, Water management, Weed management, Harvesting, Ratooning etcbecause of these practices do not require much specialized skill by the farmers and may be due to the fact that these practices needs to be done before and after sowing the crop.

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