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Assessing Differential Knowledge Level Apropos Improved Sugarcane Cultivation Practices in Madhya Pradesh

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ABSTRACT

Knowledge is the essential component for enhancing the production and income of farmers. This research study was conducted in Burhanpur districts of Madhya Pradesh during 2011-12, with the sample size of 120 respondents. The *ex-post facto* research design was used for the study. The findings revealed that, around 76.66 per cent respondents possessed medium knowledge level. A negligible percentage of the respondents i.e. 15.84 per cent and 7.50 per cent had low and high knowledge level, respectively. The maximum proportions of the respondents (52.5%) were having middle level of annual income (₹ 2.01 -5.00 lakh) followed by 34.16 per cent low income (< ₹ 2 lakh) and 13.34 per cent high annual income (> ₹ 5.01 lakh).The results indicated a need for greater extension effort to provide know-how of the improved sugarcane production technologies to the respondents. The role of extension agents are to remove the barrier by providing information and insight into the problem for enhancing the sugarcane productivity vis-à-vis income of the sugarcane growers .

Key words : Knowledge, adoption, Sugar cane

INTRODUCTION

Sugarcane (*Saccharum officinarum L.*) is an important commercial crop of the world and is cultivated in about 75 countries, the leading countries being India, Brazil, Cuba, Mexico and Thailand. The sugar industry plays an important role in the agricultural economy of India. Sugarcane cultivation and sugar industry stand as supporting pillars of Indian economy.

India occupies the second rank in production of sugarcane in the world. The area under sugarcane in India is 5.03 million ha. during the year 2011-12 and cane production of 342.20 million tonnes and productivity is 68.09 tonnes/ha. Sugar production is estimated to be around 24.2 to 24.5 million tonnes. India's annual consumption of sugar is around 22 to 23 million tonnes (DAC, 2011-12).

Technological knowledge is essential for increasing the level of use of production inputs, particularly those contribute towards high yield and income. Prevention to protection needs to be emphasized in order to develop financial position of the farmers. Some farmers lack adequate knowledge and insight to recognize their problems, to think of a possible solution, or to select the most appropriate solution to achieve their goals. Their knowledge also may be not be based on the recent technological facts because of limited source of information, resource and cultural factors. Hence strategy could be worked out for regular updation of knowledge of the farming community through various trainings and capacity-building programmes by Krishi Vigyan Kendra (KVK) and other organizations working in the area.

METHODOLOGY

This study was conducted in Burhanpur districts of Madhya Pradesh during 2011-12, with the sample size of 120 respondents. The district comprises two blocks-namely Burhanpur and Khaknar. The *ex-post facto* research design was used for the study. Relevant variables were selected after extensive review of literature and in consultation with the extension experts. Data were collected by interviewing the farmers with the help of an interview-schedule. Collected data were tabulated and analysed by using mean, frequency, percentage.

Knowledge about improved sugarcane cultivation in the present study has been operationalized as the level of information and understanding about scientific sugarcane cultivation practices possessed by the farmer. To measure the knowledge level of sugarcane growers, a 'knowledge index' was prepared taking 18 dimensions, namely soil selection, soil preparation, soil testing, seed selection, seed treatment, spacing, irrigation management, earthing up, green manuring, farmyard manure application, fertilizer application, bio fertilizer application, weed management, integrated pest management, disease management and ratoon management. These dimensions were identified after a thorough review of literature and discussions held with scientists and other experts in the field. The components of each selected practices were made comprehensively with the help of concerned

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agricultural scientists. The responses were recorded on three point continuum as complete, partial and no knowledge and were given 2,1 and 0 scores, respectively. Thus, the total knowledge score could range from 1 to 36. The total score of knowledge for each respondent was computed by adding up the scores of eighteen dimensions. On the basis of ranges of scores, the respondents were categorized into low, medium and high groups of knowledge level.

RESULTS AND DISCUSSION

Profile of the respondents

In order to know the background and socio-economic status of the respondents, it is important to study these characteristics. In all, 10 socio-economic variables were studied using appropriate tools. The analysed data showed that majority (50.83%) of the respondents were from middle age group (36-55 years). The finding has confirmation with Naik (2005) and Shivanand (2007). The considerable proportions of the respondents (28.33%) were educated middle up to 8th class, whereas 22.5 per cent were upto 12th class, 18.33 per cent were up to 5th class, 15.84 per cent were up to 10th class, 9.16 per cent were undergraduate and above and only 5.84 per cent were illiterate. Majority (46.66%) of the sugarcane growers were operating in large land holding (above 10 acres) and followed by 25.83 per cent were medium land holding (5.01-10 acres), 23.33 per cent were small land holding (2.51-5.00 acres) and only 4.18 per cent were marginal land holding (up to 2.5 acres). Our finding confirm with the results of Kanavi (2000). Majority of the respondents (65.00%) had medium level of farming experiences, supported by the findings of Marradi (2006). Majority of the respondents (52.5%) had middle level of annual income (₹ 2.01-5.00 lakh) followed by 34.16 per cent low income (< ₹ 2 lakh) and 13.34 per cent high annual income (> ₹ 5.01 lakh). About (91.00%) of the improved sugarcane cultivation practices (ISCP) respondents had joint family and only 9.00 per cent of the respondents had nuclear family. Regarding extension participation, majority (60.84%) of the respondents had medium level of extension participation. In case of scientific orientation, majority of the respondents (67.5%) had medium level of scientific orientation and followed by 17.50 per cent had high level and 15.00 per cent had low level of scientific orientation. This finding was supported by the work of Nagaraja (2002). Majority of the respondent (90.00%) did not participate in training and only 10.00 per cent had participated training. The findings were supported by the results of Naik (2005).

Table 1: Distribution of the respondents on the basis of their profile

n=120

Variables	Sugarcane growers Frequency	Percentage	Mean	S.D
Age			46.13	12.64
Young (<35 years)	31	25.83		
Middle (36-55 years)	61	50.83		
Old (>56 years)	28	23.83		
Education			8.6	3.85
Illiterate level	7	5.84		
Primary level	22	18.33		
Middle level	34	28.33		
High school level	19	15.84		
Higher secondary level	27	22.5		
College level	11	9.16		
Land holding			14.4	12.54
Marginal land holding (up to 2.50 acres)	5	4.18		
Small land holding (2.51 to 5 acres)	28	23.33		
Medium land holding (5.01 to 10 acres)	31	25.83		
Large land holding (above 10 acres)	56	46.66		
Farming experience			21.52	10.82
Less	27	22.5		
Medium	78	65.00		
High	15	12.5		
Annual income (₹)			3.63	2.21
Low (Up to 2 lakh)	41	34.16		
Medium (2.01 to 5 lakh)	63	52.5		
High (Above 5.01 lakh)	16	13.34		
Extension participation			5.20	3.53
Less	21	17.5		
Medium	73	60.84		
High	26	21.66		
Scientific orientation			10.42	1.05
Less	18	15.00		
Medium	81	67.5		
High	21	17.5		

Technology-wise extent of knowledge

Knowledge level about improved sugarcane cultivation practices (ISCP) was studied in terms of 18 recommended practices. The data collected were analysed and are presented in Table 2. Respondents were categorized into three levels of knowledge, *i.e.* full (score 3), partial (2 score) and nil adoption (0 score).

Overall extent of knowledge level of improved sugarcane cultivation practices (ISCP)

The extent of knowledge in respect of improved sugarcane production technologies was studied by adding individual scores received on different practices, on the basis of the total score, they were categorized and the results have been presented in Table 3. The data showed that majority of the respondents (76.66%) had medium knowledge of ISP. A negligible percentage of the respondents *i.e.* 15.84 per cent and 7.50 per cent had low and high knowledge, respectively. The results indicated a need for greater extension effort to provide know-how of the improved sugarcane production technologies to the respondents, so that their knowledge is enhanced. Moreover, it was observed that farmers having more economic resource and extension agents contact were able to adopt more production technologies than others.

Table 2: Knowledge level of sugarcane growers according to improved sugarcane cultivation practices

n=120

Particulars	Level of knowledge					
	Full Freq.	%	Partial Freq	%	No Freq.	%
Field selection	112	93.33	08	6.67	0	0
Field preparation	97	80.83	23	19.17	0	0
Soil testing	14	11.66	10	8.33	96	80.00
Improved varieties	21	17.50	86	71.66	15.00	12.5
Seed selection	44	36.66	70	58.33	6	5.00
Seed treatment	13	10.84	23	19.16	84	70.00
Seed rate	74	61.67	46	38.33	0	0
Spacing	70	58.33	50	41.66	0	0
Fertilizer application	12	10.00	101	84.16	7	5.83
Organic manure application	32	26.66	84	70.00	4	3.34
Bio-fertilizer application	5	4.17	20	16.66	95	79.16
Green manure application	5	4.17	13	10.83	102	85.00
Irrigation management	39	32.50	80	76.66	1	0.8
Weed management	10	8.33	110	91.66	10	8.33
Earthing up	42	35.00	78	65.00		
Disease management	10	8.33	53	44.16	57	47.50
Integrated pest management	15	12.50	90	75.00	15	12.50
Ratoon management	26	21.66	86	71.66	8	6.6

Table 3: Distribution of sugarcane growers according to their knowledge level

Categories	Frequency	Percentage
Low	9	7.50
Medium	92	76.66
High	19	15.84
Total	120	100

CONCLUSION

Thus it could be concluded that majority of the growers having medium level of knowledge which gives a signal to all development agencies as well as KVKs to make suitable strategy for enhancing knowledge of the sugarcane growers for better understanding and acceptability of the sugarcane technology. This higher adoption of the improved technology would translate into high yield and income of the sugarcane growers in the district. This study gives an indication to the planner and policy-makers for a serious attention on the knowledge component of the farmers along with the technology transfer and input supply.

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