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FACTORS AFFECTING THE ADOPTION OF RECOMMENDED SUGARCANE TECHNOLOGIES BY FARMERS

Sher Muhammad[1], Chris Garforth[2], Niaz Hussain Malik[1],
[1]Associate Professors, Division of Education & Extension, University of Agriculture, Faisalabad
[2]Professor, Department of Agricultural Extension & Rural Development, Univ. of Reading, UK.

The low per hectare yield of crops may be attributed to non-adoption of recommended agricultural technologies by farmers, which might be the result of so many factors. Considering the importance of sugarcane crop in the country and its low per hectare yield, an empirical study was conducted in Jaranwala tehsil of Faisalabad district. The data were collected from 191 sugarcane growers selected through stratified random sampling technique from 16 villages selected by using multistage sampling method. The data suggested that awareness and adoption of sugarcane production practices were very poor. Lack of awareness of recommendations appeared to be the major cause of non-adoption. Amongst the aware respondent, the major constraints related mainly to input supplies, irrigation, credit, labour and sugar mills.

Key words: adoption, farmers, low yield, sugarcane technologies

INTRODUCTION

During the year 1998-99, sugarcane was grown on an area of 1155 thousand hectares (5% of the total cropped area) with a total production of 55191 thousand tons and the average yieldlhectare remained 44780 tons (Anon., 1999 a). The average yield/hectare obtained in the country is not only lower than that obtained in most of the main sugarcane growing countries but also much less than the world average (Anon., 1999 b). It is a matter of great dissatisfaction that Pakistan ranks at 5th position out of more than 100 sugarcane growing countries of the world with regard to area under sugarcane crop and it ranks at 58th position with respect to its production (Anon., 2000). In order to meet sugar requirements of the country, we have to spend a sizeable amount of foreign exchange on the import of sugar. Under these circumstances it is highly thought provoking that the reasons for this pathetic situation may be explored. The low yield may mainly be attributed to the non-adoption of recommended sugarcane practices by farmers apart from other factors like shortage of irrigation water, non-availability of inputs (seed, fertilizer, pesticides) lack of credit as and when required, and marketing problems relating to sugar mills. According to Sofranko (1988) majority of farmers are not using modem information or inputs in countries like Pakistan. However, it is opined that the adoption of improved production practices can exploit 60 % of the total yield potential of the existing cane varieties (Nazir *et al.,* 1990). According to an FAO report (FAO, 1985) wide adoption of research results by majority of farmers remains quite limited in many developing countries. While reporting the situation in Pakistan, EI-Zoobi (1988) maintained that wide adoption of research recommendations by majority of farmers remained limited. Lack of awareness, lack of credit, lack of timely availability of inputs and insufficient irrigation water were reported to be the major constraints in the adoption process. However, Melkote (1988) argued that whenever the small farmers had access to knowledge and skills needed for the utilization of an innovation, they adopted it inspite of the lack of other factors of production. Considering the non-adoption of recommended sugarcane practices by farmers as a major bottleneck to increase per hectare yield, an effort has been made to assess the awareness and adoption status of farmers with regard to sugarcane technologies.

MATERIALS AND METHODS

The study was conducted in tehsil Jaranwala ofFaisalabad district. All the sugarcane growers covering both contact farmers (CF) and non-contact farmers (NCF) were considered to be the research population for the present study. Sixty three CF and 128 NCF were randomly selected from 16 villages selected at random through multi-stage sampling technique, thereby making a sample of 191 respondents. The data were collected personally by the first author by using interview and observation methods. The production practices included were categorised on the 'basis of the awareness and adoption status of the respondents with regard to these practices. The practices, which were not known to and adopted by anybody, have been placed in the first category. The second category comprised those, which were known to and adopted by up to 33 % of the respondents. The practises known to and adopted by 34-66 % of the respondents were grouped together in the third category and the last category covered the practices, which were known to and adopted by more than 66 % of the respondents.

RESULTS AND DISCUSSION

The data (Table 1) reveal that deep ploughing, considered very important especially for sugarcane crop as it has to remain in the field for two or three years, was known only to one-forth of the respondents. Planting techniques appeared to be another important area, which needed special attention by extension field staff (EFS). Awareness regarding the recommended doses/time of application of synthetic fertilizers and application of irrigation as and when required appeared to be very low. Blind hoeing, use of herbicides and insect/pests/diseases (IPD) and timely harvesting were the other practices, which were known to a few respondents. On the other hand, the practices like use of cultivator for land preparation, recommended sowing time, weeding by hoeing, dose/time of application of farmyard manure (FYM), and pests like rats were known to more than two-thirds of the respondents.

The data (Table 2) highlight that varieties like L-1l6, L-118 and CO-1148, and chemical control measures against IPD, except rat, were not adopted by any of the respondents. Other important practices which were adopted by a few respondents included deep ploughing, 'recommended planting techniques, blind hoeing, use of synthetic fertilizers and irrigation, earthing up, use of Gesapex Combi against weeds and zinc phosphide against rats, timely harvesting, and record keeping of various farm operations. The only practice, which was adopted by more than two-thirds of the respondents, was the timely application of FYM.

Table 1.Distribution of recommended sugarcane cultivation practices according to the level of awareness of the respondents

Known to	Recommendation
None of the respondents	Varieties like L-1l8and CO-1l48.
	IPD like root borer, mites and top rot,
	Chemical control measures against IPD except rats.
Up to 33% of the, respondents	Varieties like L-1l6 and BF-162.
	Deep ploughing for land preparation.
	Planting techniques.
	Dose/time of application of synthetic fertilizers.
	Irrigation as and when needed.
	Blind hoeing.
	Use o.f Gesapex Combi for weed-control,
	IPD like pyrilla, termite, stem borer, top borer, red rot and smut.
	Use of zinc phosphide against rats.
	Harvesting operations like different times for different varieties and topping at harvesting.
34-66% of the respondents	Land preparation practices like planking and levelling.
	Variety like Triton.
	Seed rate.
	Earthing-up.
	Pest like Gurdaspur borer.
	Fresh supply to sugar mills.
	Record keeping of various farm operations.
Above 66% of the respondents	Use of cultivator for land preparation.
	Variety like BL-4.
	Sowing time.
	Hoeings for weeding.
	" Dose/time of application of FYM.
	Pest like rats.

Table 2.Distribution of recommended sugartane cultivation practices according to the adoption level of the respondents

Adopted by	Recommendation
None of the respondents	Varieties like L-1l6, L-1l8 and CO-1148.
	Chemical control measures against IPD except rats.
Up to 33% of the respondents	Deep ploughing during land preparation.
	Varieties like Triton and BF-162.
	Planting techniques.
	Blind hoeing and subsequent hoeings.
	Dose/time of application of synthetic fertilizers.
	Irrization as and when needed.
	Earthing-up.
	Use of Gesapex Combi against weeds.
	Use of zinc phosphide against rats.
	Harvesting practices.
	Record keeping of various farm operations.

34-66% of the respondents	Land preparation practices like cultivating, planking and levelling.
	Varieties like BL-4.
	Sowing time.
	Seed rate.
	Dose of FYM.
Above 66% of the respondents	Time of application of FYM.

DISCUSSION

Lack of awareness appeared to be the nuijorfaetor responsible for non-adoption of recommended land preparation practices. The main reason for the adoption of non-recommended variety (an Indian variety) was its better ratooning ability than the recommended ones. Low adoption regarding recommended sowing time was mainly due to the constraints like small land holdings and timely non-availability of inputs like fertilizers. All the respondents, who were aware of recommended seed rate, adopted it. Thus it can be inferred that lack of awareness could be one of the major reason for non-adoption. A vast majority of the respondents did not adopt recommended planting techniques due to lack of awareness. Among the aware respondents, 14.2 % did not adopt because they were not fully convinced. Since a large majority of the respondents were unaware of the recommendations pertaining to fertilizer use, lack of awareness can be regarded as the major reason for non-adoption. Among the aware respondents, FYM was not adopted as recommended due to its shortage, shortage of irrigation water, and non-ownership of land. Major reasons for non-adopticn of chemical fertilizers were high costs, non-availability of quality fertilizers as and when required, and irrigation shortage. Non-adoption of recommended number ofhoeings may be mainly attributed to lack of awareness, lack of labour, and carelessness. Lack of awareness can be regarded as a major reason for non-adoption of recommendations regarding irrigation apart from irrigation shortage. Since awareness level regarding plant protection measures was very low, non-adoption of the same may mainly be attributed to lack of awareness. High costs of pesticides was the other main reason. Lack of awareness appeared to be the main reason for non-adoption of recommended harvesting practices apart from timely non-availability of permits from the sugar mills.

CONCLUSIONS

The awareness level of the respondents regarding recommended sugarcane production practices was very low and consequently the adoption of the recommendations was also very poor. However, in general, those who were aware of recommendations adopted the same, which implies that lack of information on the part of the farmers might be the major cause of non-adoption.Amongst the aware respondents, the nuijor constraints were timely non-availability of inputs, high costs of inputs, irrigation shortage, lack of credit facilities, labour shortage,and timely non-availability of permits from the sugar mills. Mostly the practices; which were more traditional or involved less finances, were more likely to have been adopted than those which were relatively innovative and expensive.

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