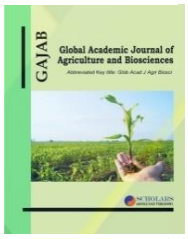
Global Academic Journal of Agriculture and Bio sciences

Avilable online at https://www.gajrc.com

OPEN ACCESS



ISSN:2706-8978 (P)
ISSN: 2707-2568 (O)

Research Article

Analysis of Sugarcane Cultivation Constraints with Special Focus on Production, Protection, Marketing and Role of Extension Worker

Hafiz Ali Raza[1*], Mubashir Mulazim[2], Muhammad Bilal[2], Hamza Bin Sajid[3], Muhammad Talha Shafique[4], Muhammad Irfan[5], Usma Saleem[6], Muhammad Sohail Qadir[2], Adil Murtaza[7] and Maryam Mahmood [8]

[1]Institute of Agricultural Extension, Education and Rural Development, UAF, Pakistan
[2]Department of Entomology, UAF, Pakistan
[3]Plant Breeding and Genetics, UAF, Pakistan
[4]Department of Seed Science and Technology, UAF, Pakistan
[5]Department of food Engineering, UAF, Pakistan
[6]Department of zoology, Government collage university Faisalabad, Pakistan
[7]Agronomy Department, UAF, Pakistan
[8]National Institute of Food Science and Technology, UAF, Pakistan

***Corresponding Author**
Hafiz Ali Raza

Article History
Received: 28.09.2020
Accepted: 21.10.2020
Published: 30.10.2020

Abstract: The present study aimed at identifying the different constraints faced by the sugarcane growers in the study area. The study was conducted in one district Rahim yar khan, Punjab. Sample size of 120 sugarcane registered farmers were selected randomly from each selected tehsil. The findings of the study revealed that lack of technical knowledge regarding the production and protection constraints, marketing related challenges, lack of awareness about sugarcane pest and diseases management**,** irrigation problems, lack of information from the extension worker regarding constraints and economic threats were the major constraints faced by the sugarcane farmers in the study area. These results can improve the current understanding of current protection constraints and contribute to development of policies for improving sugarcane yield. The farmers suggested to adopt the management strategies to cope with the sugarcane pests and diseases.

Keywords: Production, Marketing, Extension Worker, Constraints, Sugarcane Pests and Diseases.

INTRODUCTION

Agriculture is an important source and backbone of Pakistan's economy. Pakistan is basically known as an agricultural state and its economy is mainly dependent on agriculture. Agriculture is responsible for supporting the lifestyle of different people and provides food to them all over the globe. Share of agriculture contributes about 19.3 percent to the gross domestic product in Pakistan and it is responsible for employing 38.5 percent of the total labor force [1]. There are five major crops of Pakistan and sugarcane is one of the most important cash crops among them. Sugarcane is actually a perennial grass that is naturally tall and belongs to genus Saccharum. It is estimated that almost 80% of the sugar produced worldwide depends on sugarcane cane. This is why sugarcane becomes so important. It is also one of the most important cash crops grown in Pakistan. The total cultivated area of sugarcane is 1.217 million hectares while total production is 73.401 million tons in Pakistan. Similarly, total sugar production in Pakistan is almost 5.1 million tons out of it 3.87 million tons of sugar produced in Punjab [2]. It generates income for Pakistani farmers and is also an important

source of employment for farmers [3]. It adds value to the economy and supplies raw materials needed for industries such as sugar, paper, and cardboard [4, 5]. Soil types ranging from well-drained soils to very fertile soils are suitable for growing sugarcane. Despite the significant growth of sugarcane expansion and research in the sugar industry, the national average cane production is 620 pounds per acre, which is very low as its potential [6, 2]. Sugarcane production currently facing different constraints. These constraints are directly affected its production. The main constraints of low production could be due to traditional farming practices adopted by sugarcane growers. The other constraints could be higher input costs, lack of proper knowledge [6], related to cultivation practices [7], and high input costs that have a severe impact upon the sugarcane production [8]. Constraints are those hinders that come in the way of the adoption of the latest production technology. Therefore, if these constraints are recognized then it will be easy to bridge the gap between awareness and adoption of the recommended production technology adopted by sugarcane growers [9-12]. So, there is a dire need to recognize various obstacles faced by the sugarcane growers in the study area. Keeping in view, the current study was conducted to explore the sugarcane production constraints faced by the sugarcane growers in District Rahim Yar Khan, Punjab.

MATERIALS AND METHODS

District Rahim Yar Khan, Punjab was selected purposively due to leading in sugarcane cultivation as compare to other districts of Punjab. Two tehsils namely Saidiqabad and Khanpur were selected randomly from district Rahim yar khan. The mixed method research design was selected for the present study. In the First stage the list of the registered sugarcane growers of the district Rahim Yar Khan were taken as a population. In the second stage the list of registered sugarcane growers from the selected tehsils (1st list of sugarcane registered growers of tehsil Kanpur and 2nd list of the sugarcane registered growers of tehsil Saidabad) were taken as a sample size. Out of each selected list, 60 registered sugarcane farmers were selected randomly and thus making a total sample size 120 growers. The data were collected through structured questionnaire. The retesting was done on a sample of 20 sugarcane farmers to understand various impediments faced by the cane growers in the study area. Their response regarding various constraints was recorded in the full, partial and never by assigning scores of 3, 2 and 1 respectively. The responses were further converted into means, standard deviation, weighted score and rank order to ascertain the severity of the constraints faced by the sugarcane growers in the study area.

RESULTS AND DISCUSSION

Various constraints faced by the sugarcane farmers have been presented in the results and discussion.

Table-1: Perceived production and protection constraints faced by the growers in the study are

Production and protection constraints	Mean ± SD	Rank order
lack of awareness about protection measure (sugarcane pests and diseases)	4.25±0.488	1
lack of efficient information about resistant varieties, adulteration in pesticides	4.19±0.352	2
Lack of awareness about integrated pest management	4.17±0.512	3
lack of awareness and of proper cultural practices	3.98±0.458	4
Inappropriate use of fertilizer, poor public extension system	3.77±0.259	5

Production and protection constraints

Table 1 represents the different constraints faced by the growers in sugarcane production. The various production and protection constraints faced by the sugarcane growers and identified five major constraints in the study area which are presented in table 1. The first constraint was lack of awareness about production and protection measures (sugarcane pest and diseases) with a mean score (4.25) and standard deviation score (.488) was ranked 1 in the study area. It means the attack of sugarcane pests and diseases were adversely impact sugarcane yield. Sugarcane pest and disease both were considered important constraints for reducing the yield in the study area. Therefore, awareness and adoption measures for mitigation of sugarcane pest and diseases is important to increase the income of the small farmers and sugarcane production. Whereas lack of efficient information about resistant varieties, adulteration in pesticides was ranked 2nd with mean and standard deviation .352 and 543 respectively. It means that the awareness level of the farmers about recommended approved varieties and selected pesticides were very low due to the lack of ineffective role of the public and private sector in the dissemination of information. Lack of awareness about integrated pest management (mean 3.98±=.458) was ranked 3rd. It means that the

awareness and adoption level of IPM was very low among the respondents. While inappropriate use of fertilizer (mean3.77±=.259) was ranked 4th position. It means that growers were not properly adopted the recommended fertilizer for improving their crop productivity and sustainability of the soil fertility. Therefore, they faced problems in their high cane yield and soil fertility for sustaining its structure.

Table-2: Perceived sugarcane irrigation related problems faced by the growers in the study are

Irrigation related problems	Mean	Rank order
Shortage of water during sowing and summer	4.24±0.488	1
Shortage of ground irrigation	4.19±0.516	2
Conventional method of irrigation	4.00±0.415	3

Irrigation related constraints

The various irrigation constraints faced by the sugarcane growers and three major constraints identified in the study area. The response of respondents regarding irrigation constraints is presented in Table 2. The first constraint was a shortage of water during sowing and summer with a mean and standard deviation score (4.24±.488) which was ranked a1st position in the study area. It means that most farmers depend on tube well for irrigating their land and other sources of irrigation were very low in the study area. Therefore, farmers were facing problems of shortage of irrigation. Whereas shortage of ground irrigation (mean 4.24±.488) was ranked 2nd with a weighted score of 545. The conventional method of irrigation with a mean and standard deviation score (mean .4±.415) was ranked 3rd with a weighted score of 521.

Table-3: Perceived marketing constraints faced by the growers in the study are

Marketing Constraints	Mean	Rank order
Fluctuation support price	4.44±0.512	1
Unfair distribution of payment	4.11±0.415	2
Dominant role of the middle man	4.45±0.512	3
Monopoly from the sugar mills	4.21±0.351	4
High transportation charges and worse road condition	3.93±0.414	5
Late payment by sugar mills	3.77±0.456	6
Lack of access to market and storage facility	3.64±0.508	7

Marketing constraints

Seven major marketing constraints were identified in the study. The response of respondents regarding marketing constraints is presented in Table 3. The more prominent constraints in the study area were fluctuation in support price (mean 4.44±.512), unfair distribution of payment (mean 4.11±.415), late payment by sugar mills (mean 3.77±.456), lack of access to market and storage facility (mean 3.64±.508), dominant role of the middle man (mean 4.45±.512), monopoly from the sugar mills (mean 4.24±.488). Whereas shortage of ground irrigation (mean 4.21±.351) and High transportation charges and worse road conditions (mean 3.93±.414) were ranked 1st ,2nd ,3rd,4th,5th,6th, and 7th.

Table-3: Perceived Ineffective role of extension workers constraints faced by the growers in the study are

Ineffective role of extension workers	Mean	Rank order
Poor response by the department	4.13±0.258	1
Favoritism to large farmers	4.06±0.351	2
Less frequent visit by the extension agent	4.05±0.352	3
Lack of technical knowledge	4.02±0.414	4
Lack of information about protection measures	4.13±0.258	5
Lack of demonstration about new cultivation practices	3.97±0.457	6
Lack of information about integrated pest management	3.91±0.351	7
Lack of information about cultural, physical and biological control	3.71±0.258	8
Poor trust to extension workers	2.83±0.458	9

Ineffective role of extension workers

The more prominent constraints were poor response by the department (4.13±.258), favoritism to large farmers (4.06±.351), lack of technical knowledge (4.02±.414), lack of demonstration about new cultivation practices (3.97±.457), poor trust in extension workers (2.83±.458), lack of information about cultural, physical and biological control (3.71±.258). Whereas lack of information about protection measures (4.13±.258), less frequent visits by the extension agent (4.06±.351) and Less

frequent visits by the extension agent (4.06±.351) were ranked 1,2nd,3rd,4th,5th,6th,7th,8th, and 9th.

CONCLUSION

Pakistan is facing a challenge to energy crises in recent times. So, for this purpose sugarcane will prove a better source to overcome the energy crisis. Therefore, improvement is only possible when combated with sugarcane hampering production threats with proper mitigation strategies. Results of this study indicated that the majority of the respondents were facing protection threats especially related to sugarcane pests and diseases. Whereas the shortage of water during sowing and summer was a prominent one among the irrigation constraints while fluctuation in support price was dominant among the marketing constraints and poor response by the extension department was also highlighted as a major one constraint in the study area. Therefore, this study will analyze the different threats with respect to sugarcane production, protection, marketing, and the ineffective role of extension workers to combat these threats. In addition, the study will be helpful in preparing new policy related strategies for mitigating these threats in Punjab.

REFERENCES

1. Government of Pakistan. (2020). Economics survey of Pakistan, Finance Divisions Economic Advisor's Wing, Islamabad. Available online athttp://www.finance.gov.pk/survey/ chapters_19/2-Agriculture.pdf. Accessed online on: 10/8/2020.
2. Chatta, M.U., Khan, I., & Hussain, M.U. (2018). Sugarcane production. Faisalabad, Pakistan: Office of the university books and magazines (1stEd), University of Agriculture Faisalabad, Pakistan. University Press.
3. Raza, H. A., Amir, R. M., Idrees, M. A., Yasin, M., Yar, G., Farah, N., & Younus, M. N. (2019). Residual Impact of Pesticides on Environment and Health of Sugarcane Farmers In Punjab With Special Reference To Integrated Pest Management. *Journal Global Innovation Agriculture Social Science*, *7*(2), 79-84.
4. Pakistan Sugar Mills Association (PSMA). (2018). Pakistan Sugar Mills Association, Annual report. Available online at https://fp.brecorder.com/2018/11/20181129427148/. Accessed online on: 26-02-2020.
5. Prasara-A, J., & Gheewala, S. H. (2016). Sustainability of sugarcane cultivation: case study of selected sites in north-eastern Thailand. *Journal of Cleaner Production*, *134*, 613-622.
6. Abbas, M., Muhammad, S., Nabi, I., & Kashif, M. (2003). Farmers' information sources, their awareness and adoption of recommended sugarcane production technologies in the central Punjab. *Pakistan Journal of Agricultural Sciences*, *40*, 202-206.
7. Ahmad, M., Akram, M., Rauf, R., Khan, I. A., & Pervez, U. (2007). Interaction of extension worker with farmers and role of radio and television as sources of information in technology transfer: a case study of four villages of district Peshawar and Charsadda. *Sarhad Journal of Agriculture*, *23*(2), 515.
8. Nazir, A., Jariko, G. A., & Junejo, M. A. (2013). Factors affecting sugarcane production in Pakistan.
9. Rathod, Y. C. (2014). *U.S. Patent No. 8,856,075*. Washington, DC: U.S. Patent and Trademark Office.
10. Farooq, A., & Khan, M. Z. (2019). Knowledge Gap of Improved Management Practices of Sugarcane Growers in Khyber Pakhtunkhwa, Pakistan. *Sarhad Journal of Agriculture*, *35*(2).
11. Gurjar, R. S., Kuswaha, S., Singh, M., Singh, S., & Kaurav, K. (2017). Determine the level of knowledge and adoption of sugarcane production technology among the trained farmers and untrained farmers. *Int. J. Pure App. Bio. Sci*, *5*(4), 199-203.
12. Gilbert, R. A., Morris, D. R., Rainbolt, C. R., McCray, J. M., Perdomo, R. E., Eiland, B., ... & Montes, G. (2008). Sugarcane response to mill mud, fertilizer, and soybean nutrient sources on a sandy soil. *Agronomy Journal*, *100*(3), 845-854.