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Major constraints faced by sugarcane growers in Bagaha- I block District West Champaran

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Abstract

The goal of the current study was to determine the barriers to better production and integrated insect-pest/disease management technology. 120 sugarcane growers from five distinct villages within the Tirupati sugar mill's command area in Bihar were specifically chosen through interviews. The limitations that were faced by The majority of respondents cited irregular or unseasonable heavy rainfall, followed by a lack of safe or biopesticides at the local market, erratic electricity supply, a lack of fertilisers in the market, a lack of labour in time for intercultural operations, etc. as reasons for adopting sugarcane production and protection technologies. Under technical constraints, the sugarcane growers' biggest challenges were identifying harmful insect pests and diseases, as well as their economic threshold level and economic injury level (90.83%), and their lack of knowledge about beneficial insects (97.50%), which was followed by improved IPM practices (95.00%). Under financial restrictions, the majority of respondents (95.83%) experienced issues with the high cost of insecticides, fungicides, and herbicides, which were followed by the high cost of farm equipment (93.33%), fertilisers (86.66%), agricultural labour (85.00%), and sugarcane seed setts (75.00%).

Keywords: Sugarcane growers, constraints, Integrated Pest Management (IPM), West Champaran

Introduction

Jointed sugarcane is a perennial grass that grows to a height of 2 to 6 meters. Although it was first cultivated on the Indian subcontinent around 327 BC, it spread throughout the world through trade routes that passed through the Middle East and other places. It eventually developed into a thriving enterprise. It was first grown to provide warmth to the Asian continent's tropical and subtropical areas. Sugarcane quickly expanded over the world as early civilisations realised how important it was. Through crossbreeding, this enhances the production of sugar. everywhere in the world. One of the major commercial crops is sugarcane. In addition to sugar, it is a significant source of ethanol and jiggery. Numerous nations use its byproducts as animal feed. The top ten countries that produce the most sugarcane are Brazil, India, China, Thailand, and Pakistan; the United States, Mexico, Russia, and Germany. After the cotton sector, it is India's second-largest agro-based enterprise. The crop occupies 50 lakh hectares, or 2.57 of the total planted area. About 5 lakh people work in sugar mills, and 50 million farmers plant sugarcane.

Based on decades of intensive research, current sugarcane technologies have the potential to increase sugarcane yield. Even though a number of practical technologies have been created, many of them have not yet reached the growers. New technology development is typically not a big issue; rather, the issue is with respondents' acceptance and spread of these methods. This could be one of the causes of the low average yield and recovery of sugarcane, or both. A variety of limitations that sugarcane farmers confront may be the cause of the low adoption of new technology. The high expense of mechanised equipment, a lack of community support, and difficulties with irrigation, pest control, and market price volatility are some of the main obstacles. The report emphasises that in order to promote broader adoption of advised practices, more funding, better infrastructure, and stronger instructional programs are required. Therefore, the study was conducted with the following particular goals in mind. to determine the obstacles sugarcane growers, have while using sugarcane production technology and to gather their recommendations for overcoming these obstacles.

Review of literature

Anuradha *et al.* (2013) The study is attempted to identify various constraints faced by the Sugarcane growers in Punjab. The findings revealed that unaware of new

technology, paucity of labor and high rate of wages, insufficient source of irrigation, and higher interest rate along with inadequate credit availability were major technological, socio-economics, infrastructure, financial and marketing problems constraints faced by the famers.%). This researcher shows his research in Punjab.

Chavhan *et al.* (2017) [7] In situational major constraints faced by the respondents that, majority of respondents had problem of high cost of fertilizers followed by. lack of knowledge, payment by factory through instalment, Inadequacy of irrigation water at proper time, Irregular supply of electricity, heavy winds in Oct/Nov lodges sugarcane, Transportation problem of Sugarcane sets, Delay in transportation of harvested cane by factory, high cost of pesticides, lack of knowledge about Sugarcane production technology, lack of knowledge about spraying of insecticide, high cost of sugarcane sets and Lack of finance to purchase Sugarcane sets, fertilizers and other inputs respectively.%). This researcher shows his research in Yavatmal district.

Methodology

The current investigation was carried out in a few chosen villages in Bihar's West Champaran region. Based on the vast area covered by sugarcane, the six villages—Chandraha, Bathuwaria, Pipra, Makri, Garibsahi, and Nawgawa—from the Tirupati sugar mill's command area in Bagaha, Bihar, were chosen at random for the study. There were tiny, marginal, and large sugarcane growers among the village's farmers. Twenty farmers who had been growing sugarcane for the previous three years were chosen at random from each hamlet. As a result, 120 respondents in total were chosen for the study. The challenges sugarcane growers encounter in achieving higher yields and sugar recovery were operationalised as constraints.

Under headings like situational, technological, and socioeconomic, the limitations were outlined. Additionally, an effort was made to find out what the sugarcane growers suggested doing to get around the restrictions. For the years 2024–2025, relevant data was gathered using a pre-tested organised timetable. Interviews were conducted with the respondents at their residences and, in certain situations, at a regular location within the hamlet. To determine the various limitations faced by sugarcane growers, frequencies and percentages were calculated.

Results and Discussion

Major constraints faced by the sugarcane growers regarding improved cultivation and integrated pest/disease management practices are given below.

Situational Constraints

Table 1 makes it clear that the respondents encountered 10 significant situational limits after being monitored under such conditions. Heavy rains from May to September (97.50%), irregular electricity supply (98.33%), lack of safe or biopesticides at the local market (95.83%), lack of fertilisers in the market (93.33%), lack of labour in time for intercultural operations (85.83%), lack of high-quality manure (84.16%), biassed treatment by factory officers when buying sugarcane (67.50%) and transportation issues with sugarcane setts (60.83%) Regional politics (58.33%) and inadequate irrigation water at the right time (59.16%) were among the major obstacles that sugarcane growers had to deal with, in that order.These findings are in line with those reported by Lahoti *et al.* (2010) [9], Roy *et al.* (2016) [11], Sachan *et al*. (2018) [12] and Kumar *er al*. (2020a) [7] and Kumar *et al*. (2020b) [8].

Table 1: Situational constraints faced by the sugarcane growers regarding adoption of improved cultivation and integrated pest/disease management practices N=120

Statements	Frequency	Percentage	Rank
Irregular supply of electricity	118	98.33	I
Unavailability of labor in time for intercultural Operation	103	85.83	V
Regional politics	70	58.33	X
Shortage of fertilizers in the market	112	93.33	IV
Inadequacy of irrigation water at proper time	71	59.16	IX
Transportation problem of sugarcane setts	73	60.83	VIII
Biased treatment from factory officers for sugarcane purchasing	81	67.50	VII
Non availability of good quality manure	101	84.16	VI
Unavailability of safe/biopesticides at local market	115	95.83	III
Heavy rain from May to September	117	97.50	II

Technical Constraints

Ten significant technological limitations that the sugarcane growers experienced were identified by the data in Table 2. Lack of knowledge about beneficial insects (97.50%), improved IPM practices (95.00%), identifying harmful insect pests and diseases and their economic threshold level and economic injury level (90.83%), spraying pesticides (83.33%), not using recommended seed rates, fertilisers, and pesticide technology (80.83%), not knowing the precise dosages and timing of fertiliser application (62.50%), not receiving training for modern agricultural technologies at the village level (48.33%), not knowing about the critical stage of irrigation (41.66%), not receiving timely information and technical guidance (38.33%), and not knowing about sugarcane production technology (34.16%) were important constraints faced by the sugarcane growers. These findings are inconformity with the findings of Singh et. al., 2009 [13], Lahoti *et al*., 2010[9], Augustin *et al.*, 2013 [2], Randhawa *et al.*, 2015 [10], Roy *et al*., 2016 [11], Sachan *et al.*, 2018 [12], Kumar *et al*., 2020a [7] and Kumar *et al.*, 2020b [8].

Table 2: Technical constraints faced by the sugarcane growers regarding adoption of improved cultivation and integrated pest/disease management practices N=120

Statements	Frequency	Percentage	Rank
Lack of knowledge about sugarcane production technology	41	34.16	X
Lack of training for modern agricultural Technologies at village level	58	48.33	VII
No use of recommended seed rates, fertilizers, Pesticides technology	97	80.83	V
Lack of timely information and technical guidance	46	38.33	IX
Lack of knowledge about identification of harmful Insect-pest and disease	109	90.83	III
Lack of knowledge about improved IPM practices	114	95.00	II
Lack of awareness of friendly insects	117	97.50	I
Lack of knowledge about exact doses and time of application of fertilizers	75	62.50	VI
Lack of knowledge about critical stage of irrigation	50	41.66	VIII
Lack of knowledge about spraying of pesticides	100	83.33	IV

Economic Constraints

Table 3 presents an evaluation of the ten main economic restrictions that sugarcane growers encounter. Table 3 lists a number of issues that the majority of respondents (95.83%) reported having to deal with. These issues included the high cost of insecticides, fungicides, and herbicides, followed by the high cost of farm equipment (93.33%), fertilisers (86.66%), agricultural labour (85.00%), sugarcane seed sets (75.00%), cultivation/new technology (71.66%), difficult loan application process and lack of loan facilities (78.33%), factory payment in instalments (58.33%), low factory prices (50.00%), and a lack of funds to buy sugarcane sets, fertilisers, and other inputs (35.00%).The similar results have been documented by Lahoti *et al*., 2010 [9], Augustin *et al*, 2013 [2], Roy *et al.*, 2016 [11], Sachan *et al*., 2018 [12], Kumar *et al*., 2020a [7] and Kumar *et al.*, 2020b [8].

Ideas for getting around the limitations

suggestions on how to boost the use of technologies for sugarcane production and protection were solicited from the sugarcane growers. We asked each respondent for suggestions on how to overcome the challenges associated with implementing technologies for sugarcane production. The suggestions were as follows. prompt local access to low-cost inputs. Fertilisers, fungicides, insecticides, and weedicides should all be easily accessible. Regular access to electricity is necessary for activities like irrigation. Training and demonstrations will be necessary for improved production techniques that use IPM/IDM/IWM. to arrange a visit in order to get acquainted with technology. to organise village-level activities including group talks, farmers' meetings, group discussion and agricultural exhibitions. Sugarcane should be priced higher. Loan options must be readily available and accessible when needed. The community must have easily accessible storage facilities for sugarcane byproducts. Following a suitable sugarcane harvesting schedule is crucial.

Table 3: Economical constraints faced by the sugarcane growers regarding adoption of improved cultivation and integrated pest/disease management practices N=120

Statements	Frequency	Percentage	Rank
High cost of fertilizers	104	86.66	III
Low price given by factory	60	50.00	IX
High cost of farm machinery	112	93.33	II
High cost of cultivation/new technology	86	71.66	VII
Tedious procedure for getting loan/lack of loan facilities	94	78.33	V
Payment by factory through installments, so it is not profitable	70	58.33	VIII
High cost of agricultural labour	102	85.00	IV
High cost of insecticides/fungicides/herbicides	115	95.83	I
High cost of sugarcane seed sets	90	75.00	VI
Lack of finance to purchase sugarcane sets, Fertilizers and other inputs	42	35.00	X

Conclusion

Among the different types of constraints *viz*. situational, technological and economical, the major constraints i.e., heavy rain fall from May to September were identified under situational constraints got rank 1" while, under technical constraints, the respondents faced more difficulties about knowledge and adoption of natural enemies/friendly insects for pest management got rank 1". The high cost of insecticides/fungicides/herbicides were identified ranked 1 "under the economical constraints. On the basis of the result, it can be said that the sugarcane growers have not proper information about the sugarcane production and protection technology, so there is need to educate through training, demonstrations and by other means. Everyone knows that the knowledge plays a vital role in the adoption of the new technology. Majority of the farmers were not aware about the IPM/IDM practices there were need to make them aware through the social media and all different type of communicating methods.

References

1. Agricultural Statistics at a Glance. Directorate of Economics and Statistics, Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation, New Delhi; 2020.
2. Augustin N, Nataraju MS, Gowda VG. Constraints perceived by rice farmers in the adoption of rice production practices in Southern Province of Republic of Rwanda. Indian J Ext Educ. 2013;49(1-2):60-1.
3. Chavhan MR, Bhaltilak KB, Bodake TA. Constraints

faced by the sugarcane growers in Yavatmal district. J Pharmacogn Phytochem. 2017;7(1):2606-10.
4. DES. Directorate of Economics and Statistics, Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation, New Delhi; 2018-19.
5. E&S. Economics and Statistics, Ministry of Agriculture, Government of India, New Delhi; 2020-21.
6. FAOSTAT. Food and Agriculture Organization of the United Nations. 2021. https://www.fao.org/faostat/en/#data/QCL
7. Kumar M, Singh HC, Rajbhar AK. Study on constraints faced by the sugarcane growers in western Uttar Pradesh, India. Plant Arch. 2020;20(1):1885-8.
8. Kumar S, Paswan A, Ranjan A, Panda CK. Constraints in adoption of improved sugarcane cultivation technology by sugarcane growers in East Champaran District of Bihar State. Int Arch Appl Sci Technol. 2020;11(3):5-10.
9. Lahoti SR, Chole RR, Rathi NR. Constraints in adoption of sugarcane production technology. Agric Sci Dig. 2010;30(4):270-2.
10. Randhawa AA, Mangan T, Rais MUN, Solangi AW. Constraints in adoption of biological control in sugarcane crop. J Biol Agric Healthcare. 2015;5(5):2224-3208.
11. Roy GS, Gurumurthi P, Rao PV. Adoption level and constraints in sugarcane production technologies in *Vizi*anagaram district. Int J Adv Agric Sci Technol. 2016;3(2):34-42.
12. Sachan D, Pandey P, Yadav SR, Maurya S. Major constraints during adoption of integrated pest management practices. Int J Home Sci. 2018;4(3):327-9.
13. Singh D, Kumar S, Kumar A. Assessment of knowledge levels and constraints of potato growers. Indian J Ext Educ. 2009;45(3-4):113-7.
14. Singh SN, Singh P, Rai RK, Pathak AD. Vegetables intercropping with autumn planted sugarcane: A step toward doubling farmers' income in Indian sub-tropics. Indian Farming. 2018;68(1):65-8.
15. Singh RP, Gangwar SK, Tiwari DK, Mishra PK, Singh AK. Constraints faced by sugarcane growers in West Champaran district of Bihar. Indian J Ext Educ. 2021;57(4):78-81.