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Constraints Faced by Pearl millet Variety AHB-1200 Adopter and Non-adopter in Chhatrapati Sambhaji Nagar District of Marathwada Region

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ABSTRACT: Pearl millet [*Pennisetum glaucum* (L.) R.Br.] or commonly known as bajra (2n = 14) belonging to the family Poaceae. It is the sixth major cereal in terms of area and production and has the highest drought tolerance potential among all millets. Pearl millet constitute an important source of food and fodder for millions of resource-poor farmers and play a vital role in ecological and economic security of India. Study has been taken up to analyse the constraints from the farmers perspective because there were some problems faced by farmers while Pearl millet production. various factors affects while production like shortage of labour, high labour cost, high cost of input, weed infestation and yield loss due to climate change etc. The study was conducted in Chhatrapati Sambhaji Nagar district of Maharashtra state. For this study, an interview schedule was prepared. The study was conducted in two blocks of Chhatrapati Sambhaji Nagar district of Maharashtra. A total of 120 respondents were selected for the study i.e., 60 adopter and 60 non-adopters. Garrett Ranking Technique was used to analyze constraints faced by AHB-1200 adopter and non-adopter. The result showed that shortage of labour, high labour cost, weed infestation, yield loss due to climate change, high cost of input, were major constraints noted by adopters. In addition to this, lack of knowledge on improved varieties, lack of education, high cost of input, were major constraints noted by non-adopters.

Keywords: Constraints, adopter, non-adopter, Garrett ranking.

INTRODUCTION

Millets are one of the traditional grains that have been used for food, animal feed and fodder. They are also popularly known as “Nutri-Cereals” because of their abundant nutritional content. The word millet comes from the French word “Mille” which means "thousand", meaning that a handful of millet can hold up to a thousand grains. (Dayakar Rao *et al*., 2022). They can be grown in arid and semi-arid tropics in the world.

Pearl millet (*Pennisetum glaucum*), also known as Bajra, is a cereal crop grown in tropical semi-arid regions of the world primarily in Africa and Asia. It is well adapted to production systems characterized by low rainfall (200-600 mm), low soil fertility and high temperature, and thus can be grown in areas where other cereal crops, such as Wheat or Maize, would not survive. It has various names such as Pearl millet, cattail or spiked millet in English. It is known as ‘kumbu’ in Tamilnadu, ‘Dukhen’ in Arabic and ‘Mahangu’ in Africa (Gupta *et al*., 2022).

Pearl millet is the sixth most important cereal crop after Rice, Maize, Barley, and Sorghum in the world. According to FAOSTAT (2021), the global millet production in 2019-20 was 84.17 million metric tonnes from an area of 70.75 million hectares, of which 20.50 per cent is produced in India. In 2022, the global area under millets stood at 71.70 million Hectares, with negligible change compared to 71.88 million Hectares area under millets in the year 2012. The global production of millets stood at 90.65 million metric tonnes in 2022, growing at a decadal (2012-2022) CAGR of 0.3 per cent from 88.31 million metric tonnes in 2012. India was the highest millets producing country in the year 2022 with 17.60 million metric tonnes production, contributing to 19 per cent of the global production.

India is the largest producer of millets in the world. The total area under Pearl millet cultivation 7.55 million hectares. The production of Pearl millet is 9.22 million tones which stands the fourth after rice, wheat, maize and barley and productivity of 1374 kg/ha. Maharashtra state is the third largest in area and second in respect of production under Pearl millet. The area under Pearl millet cultivation in Maharashtra is 666.72 thousand ha, production 618.58 thousand tonnes and productivity

927.80 kg/ ha in the year of 2021-22. In productivity Maharashtra stands seventh rank and shares 15.3 per cent of growing in India. In Chhatrapati Sambhaji Nagar District, the area under Pearl millet crop is 1145.13(hundred) hectares, with production of 758.22 (hundred) tonnes and productivity of 662.12kg per hectare in 2021-2022.

National Agricultural Research Project under Vasantrao Naik Marathwada Agricultural University, Parbhani, All India Coordinated Millet Improvement Project, Jodhpur and ICRISAT, Hyderabad, developed biorich hybrid varieties AHB-1200 FE of high iron and zinc millet at national level. It has significant characteristics of higher iron (88 mg/kg) and zinc (39 mg/kg) than regular Pearl millet. AHB-1200 variety is resistant to Gosavi and Kharpa disease.

Objective: To examine constraints faced by AHB-1200 adopter and non-adopter

METHODOLOGY

The sample comprised 120 respondents from six different villages of the Chhatrapati Sambhaji Nagar district of Maharashtra state. Data were collected through a personal interview schedule for research. The constraints in adoption of AHB-1200 variety. Garret ranking technique was applied to study preference, change of orders of constraints and advantages into numerical scores. The prime advantages of this technique over simple frequency distribution are that the constraints are arranged based on their severity from the point of view of respondent.

Per cent position $\frac{100\ X\ Rij-0.5}{Nj}$

Where,

Rij = Rank given for the ith variable by jth respondants

Nj = Number of variables ranked by jth respondants

RESULTS AND DISCUSSIONS

A. Constraints faced by AHB-1200 Adopter

The results presented in the Table 1 highlight that the shortage of labour which is main factor in production found to be the first major problem with the mean score of 71.3among all the 9 constraints by adopter. The next important constraint was high labour cost ranked second by adopter with mean score 66.95. And also, with Dawud *et al.* (2017) showed major constraints of production is high labour cost. The above results were in conformity with the results obtained by Shwetha *et al.* (2022) reported high cost of chemical inputs and labour scarcity and high labour charges as the major problems during the cultivation. The next constraints reported by respondents was weed infestation which ranked third by adopter with mean score 59.65, similar findings were also corroborating with Dawud *et al.* (2017). Yield loss due to climate change also reported by respondents which ranked fourth by adopter with Garretts score (56.5) similar finding by Pushpa and Kumar (2023) showed that yield loss due to uncertainty of rainfall. The next constraints were high cost of input ranked fifth by adopter with Garretts score 44.3. Similar findings by Krishna (2018) and Lack of knowledge about market information ranked sixth by adopter with mean score 41.15. The next constraint was low market price ranked seventh by adopter with mean score 39.48. Lack of knowledge on improved varieties ranked eight with Garretts score 18.6 and ranked first by non-adopter, Similar findings by Pushpa and Kumar (2023). Showed that lack of knowledge on improved varieties major constraints faced by farmers. Lack of education was ninth constraints ranked by adopter with mean Score 17.07.

Table 1: Constraints faced by AHB-1200 adopters and non-adopters.

Sr. No.	Constraints	Adopter		Non-adopter	
		Mean Score	Rank	Mean Score	Rank
1.	Shortage of labour	**71.3**	I	**48.25**	IV
2.	High Cost of input	**44.3**	V	**55.58**	III
3.	High Labour cost	**66.95**	II	**40.25**	VI
4.	Lack of knowledge on improved varieties	**18.6**	VIII	**70.5**	I
5.	Lack of Education	**17.07**	IX	**63.62**	II
6.	Low Market prices	**39.48**	VII	**39.43**	VII
7.	Weed infestation	**59.65**	III	**28.22**	VIII
8.	Lack of Knowledge about Market information	**41.15**	VI	**46.22**	V
9.	Yield loss due to Climate Change	**56.5**	IV	**22.88**	IX

B. Constraints faced by AHB-1200 non-adopter

The results related to the constraints faced by the non-adopter are reproduced in the Table 1. It can be noticed that lack of knowledge on improved varieties was ranked as top most constraint with the mean score of 70.5. Similar findings by Pushpa and Kumar (2023). lack of education ranked second with the mean score of 63.62. High cost of input was ranked as third major problem with the mean score of 55.58. among all listed constraints shortage of labour ranked fourth by non-adopter with mean score 48.25. Lack of knowledge about market ranked fifth by non-adopter, with mean score 46.22. Next important constraint was high ranked sixth by non-adopter with mean score 40.25. Remaining constraints like low market price, weed infestation, yield loss due to climate change ranked 7th,8th and 9th with mean score 39.43, 28.22, 22.88 respectively. Lack of knowledge on improved varieties and lack of education were the most important constraints for adoption of new variety which are expresses by non-adopter. And shortage of labour and high labour cost were the major problems faced while production.

CONCLUSIONS

Constraints were reported by the adopter and non-adopter farmers, in which shortage of labour, high

labour cost, weed infestation, yield loss due to climate change, high cost of input, were major constraints noted by adopters. In addition to this, lack of knowledge on improved varieties, lack of education, high cost of input, were major constraints noted by non-adopters. Shortage of labour and high labour cost was found the major constraints faced by farmers. Governments should provide subsidies or incentives to farmers for invest in machinery, promote the use of advanced farming techniques like precision agriculture, and support research into labour-saving innovations.

FUTURE SCOPE

As we all know that we are celebrating 2023 as international year of millets. Millets play vital role in ecological and economic security of India. It is necessary to know all about millet production, and importance of millets in our life. An analysis of the constraints faced in the farmers perspective would be highly useful to know the present status, constrains, inadequacies, requirements, and in turn would help to work out a viable strategy for remunerative Pearl millet production. The study would also give necessary feed back to the Pearl millet researchers. Further the researcher would be benefited by this study in the sense that the research would bring out.

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Conflict of Interest. None.

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