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Constraints experienced by the chickpea growers for adaptation to climate change and obtain the suggestions from them to minimize the constraints

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Abstract

Climate change is the global phenomenon of climate transformation characterized by the changes in the usual climate of the planet regarding temperature, rainfall and wind) that are especially caused by human activities. Various detrimental effects have been recorded due to changes in weather patterns. The research identifies the constraints experienced by the chickpea growers for adaptation to climate change and obtain the suggestions from them to minimize the constraints. The study reveals that (99.17%) of chickpea growers expressed lack of climate resilient chickpea varieties as the major constraint followed by the lack of technical know-how on climate change (95.83%) and lack of training based on climate change (90.00%). The data pertaining on obtains the suggestions from chickpea growers to minimize the constraints depicted on table show that (96.67%) climate-resilient chickpea varieties should be provided to the chickpea growers followed by improving the knowledge level of farmers through various communication networks (93.33%).

Keywords: Chickpea growers, climate change, constraints, suggestions

Introduction

The long-term weather pattern in a specific location is known as its climate. "The average weather for a specific area and time period, typically spanning over 30 years, is another definition of it." According to the National Geographic Survey, it is indeed the typical weather pattern for that area. In addition to the natural climate variability seen over a similar time span, human activity that modifies the composition of the global atmosphere can be directly or indirectly blamed for climate change. The United Nations Framework Convention on Climate Change is known as UNFCCC.

Today, climate change has been recognized globally as the most pressing critical issue affecting the mankind survival in the 21st century.

Pulses in India have long been considered as the poor man's only source of protein as they are a low cost substitute for vegetables in periods of high prices of vegetables. India is the largest producer and consumer of pulses in the world.

Globally, chickpea (*Cicer arietinum*) is the second most important legume crop after dry beans. India ranks first in the world, contributing 68 per cent of the global chickpea production. It is the most important pulse crop of India. In India (2021), as per the latest statistics, chickpea is grown in an area of 99.96 lakh hac with a production of 119.11 lakh ton and productivity 1192 kg/ha. (Directorate of Pulses

Development, Bhopal) In Chhattisgarh (2021) area, production and productivity of chickpea are 3.02 lakh ha, 2.68 lakh ton and 887 kg/ha respectively. (Chhattisgarh Agriculture Statistics, Directorate of Agricultural, Raipur). The Bemetara district of Chhattisgarh is one of the most important chickpeas growing areas, and the increasing area under chickpea crop in the Bemetara district has changed the farmer's socio-economic status. The area under chickpea crop in the district is 67936 ha while the production is 59335 MT. (DAA office report 2021-22)

Various detrimental effects have been recorded due to alteration in temperatures, like minimum and maximum temperature by 0.86 and 2.46°C along with decrease in rainfall by 268mm in a study on impact of climate change on productivity and adoption strategy for pulses. (Dubey et al. 2011)^[10].

Therefore the present study was undertaken with the following specific

Objective

To identify the constraints experienced by the chickpea growers for adaptation to climate change and obtain the suggestions from them to minimize the constraints.

Methodology

The present study was conducted in Bemetara district which

was purposively selected for the study out of the 33 districts of Chhattisgarh. Although the area has historically produced the most chickpeas, the region has seen a decrease in chickpea production in recent years. The 2 blocks, Saja and Bemetara, were specifically chosen since they produced the most chickpeas out of the 4 blocks. Six villages were chosen at random from every block. With the aid of RAEs, a list of chickpea growers from particular localities was created, and 10 growers were chosen at random from each village to create a sample size of 120. Identify the constraints experienced by the chickpea growers for adaptation to climate change at time of investigation. A constraint index was developed to measure constraints of respondents which they experienced by the chickpea growers for adaptation to climate change. Appropriate statistical tools were used for data analysis. Responses were tabulated separately by using

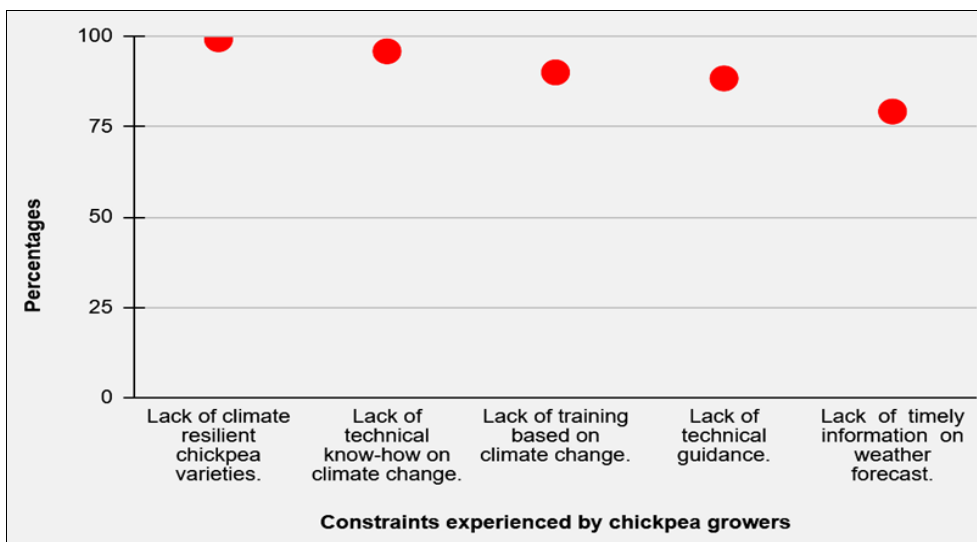
frequency and percentage and based on this the problems were ranked the basis of frequency shown in Table 1 and Table 2.

Results

The data pertaining on constraints experienced by chickpea growers for adaptation to climate change depicted on Table 1 show that (99.17%) of chickpea growers expressed lack of climate resilient chickpea varieties as the major constraint followed by the lack of technical know-how on climate change (95.83%) and lack of training based on climate change (90.00%). About (88.33%) of chickpea growers revealed that lack of technical guidance followed by lack of timely information on weather forecasts (79.17%). The present finding gets support from research reported by Dhanraj (2019)^[9] and Govindbhai (2023)^[11].

Table 1: Constraints experienced by chickpea growers for adaptation to climate change

S. No.	Constraints	Frequency	Percentage	Rank
1.	Lack of climate resilient chickpea varieties.	119	99.17	I
2.	Lack of technical know-how on climate change.	115	95.83	II
3.	Lack of training based on climate change.	108	90.00	III
4.	Lack of technical guidance.	106	88.33	IV
5.	Lack of timely information on weather forecast.	95	79.17	V



The data pertaining on obtains the suggestions from chickpea growers to minimize the constraints depicted on Table 2 show that (96.67%) climate-resilient chickpea varieties should be provided to the chickpea growers followed by improving knowledge level of farmers through various communication networks (93.33%) and the government should formulate agricultural policies on climate change, focusing more on chickpea farmers (92.50%). About (90.83%) of the chickpea growers' next suggestion as extension agents should be given scientific knowledge for chickpea cultivation according to climatic variations and (85.00%) weather forecast should be more timely.

The present finding gets support from research reported by Shrivastava (2018)^[18] and Govindbhai (2023)^[11].

References

1. Anonymous. Chhattisgarh agriculture statistics. Raipur

(India): Directorate of Agriculture, Government of Chhattisgarh; 2022. p. 64.
 2. Anonymous. Annual report 2021-2022. Bhopal (India): Directorate of Pulses Development; 2022. 40 p.
 3. Anand S, Prakash S, Yedida S, Singh AK. Constraints faced by farmers in access and use of information and communication technologies (ICTs) in Bihar. M.Sc. (Ag.) Research Journal. Central Agricultural University, Pusa, Bihar; 2020.
 4. Ansari MA, Joshi S, Raghuvanshi R. Understanding farmers’ perceptions about climate change: a study in a North Indian state. Adv Agr Environ Sci. 2018;1(2):85-9.
 5. Barman, Lotha. Farmers’ perception on climate variability and their coping strategies - an assessment in Assam, India. Indian Res J Ext Edu. 2016;16(3).
 6. Chadachal RI. A study on perceived impacts of climate change and coping mechanisms by rice farmers in

- Raichur district of Karnataka State [M.Sc. thesis]. Hyderabad (India): Professor Jayashankar Telangana State Agricultural University; 2017.
7. Chandrashekhar KP. Farmers' perception about climate change in Marathwada district of Maharashtra State [M.Sc. thesis]. Parbhani (India): Vasantao Naik Marathwada Krushi Vidyapeeth; 2019.
 8. Dhaka BL, Chayal K, Poonia MK. Analysis of farmers' perception and adaptation strategies to climate change. *Libyan Agric Res Cent J Int.* 2010;1(6):388-90.
 9. Dhanraj MS. Farmer's perception about climate change in Marathwada region [M.Sc. thesis]. Parbhani (India): Vasantao Naik Marathwada Krishi Vidyapeeth; 2019.
 10. Dubey SK, Sah U, Singh SK. Impact of climate change on pulse productivity and adaptation strategies as practiced by the pulse growers of Bundelkhand region of Uttar Pradesh. *J Food Legumes.* 2011;24(3):230-4.
 11. Govindbhai RS. A study on impact of climatic change on cropping pattern under rainfed area in Shahpura block of Jabalpur district (M.P.) [Ph.D. thesis]. Sardarkrushinagar (India): Sardarkrushinagar Dantiwada Agricultural University; 2023.
 12. Intergovernmental Panel on Climate Change (IPCC). Climate change 2001: synthesis report. Geneva: IPCC; 2001. Available from: https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_TAR_full_report.pdf
 13. Intergovernmental Panel on Climate Change (IPCC). Climate change 2007: synthesis report. Cambridge (UK): Cambridge University Press; 2007. Available from: <http://www.ipcc.ch/>
 14. Intergovernmental Panel on Climate Change (IPCC). Climate change 2011: synthesis report. Geneva: IPCC; 2011.
 15. Jamvati. Farmers' perception towards climate change on productivity of chickpea in Tikamgarh district of Madhya Pradesh [M.Sc. thesis]. Jabalpur (India): JNKVV; 2017.
 16. Joshi S. Farmers' perception about climate change and strategies to cope up with climate change in Uttar Pradesh [M.Sc. thesis]. Pantnagar (India): G.B. Pant University of Agriculture and Technology; 2016.
 17. Maddison D. The perception of and adaptation to climate change in Africa. Policy Research Working Paper. Pretoria (South Africa): The World Bank, Sustainable Rural and Urban Development Team; 2007.
 18. Shrivastava V. Farmers' perception towards climate vulnerability and adaptation in Jabalpur district, Madhya Pradesh [Ph.D. thesis]. Jabalpur (India): JNKVV; 2018.
 19. Uttam BM. Farmers' perception about climate change in Marathwada region [M.Sc. thesis]. Parbhani (India): Vasantao Naik Marathwada Krishi Vidyapeeth; 2019.
 20. Yadav SK. Farmers' perception about climate change in Udaipur district of Rajasthan [M.Sc. thesis]. Udaipur (India): Maharana Pratap University of Agriculture and Technology; 2021.