

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 7; June 2026; Page No. 40-44

Received: 07-03-2026
Accepted: 11-04-2026

Indexed Journal
Peer Reviewed Journal

Barriers to farm mechanization: Eliciting farmer constraints and policy suggestions of Madhya Pradesh

¹Chetna Pathak, ²Abhijeet Kuderiya, ³Vinay Prakash Sahu, ⁴Priyanka Patel, ⁵Surya Dev Verma and ⁶Atul Kumar Yadav

¹Ph.D. Research Scholar, Department of Extension Education, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur, Madhya Pradesh, India

²Ph.D. Research Scholar, Department of Extension Education, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur, Madhya Pradesh, India

³M.Sc. (Ag), Department of Extension Education, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur, Madhya Pradesh, India

⁴Ph.D. Research Scholar, Department of Food Science and Technology, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India

⁵Senior Research Fellow. ICAR - Agricultural Extension Division, New Delhi, India

⁶M.Sc. (Ag), Department of Agricultural extension, Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya Chitrakoot Satna Madhya Pradesh, India

DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i7a.3828>

Corresponding Author: Abhijeet Kuderiya

Abstract

Agriculture has developed over the past few decades into a very diversified and complex global economy. In the present study farmers' perception on subsidy-based scheme launched by state government named as Kisan Yantra Anudan Yojana was evaluated. The study was conducted in Jabalpur district of Madhya Pradesh. Jabalpur district comprises of seven blocks out of which two blocks were selected i.e. Majhouli and kundam were selected because farmer block has highest number of beneficiaries under the scheme and later has one of the smaller number of beneficiaries and has higher number of tribal populations respectively. A list of the farmers who benefited from the chosen blocks under the Kisan Yantra Anudan Yojana, and 100% of these farmers were used as a study sample. The ex-post-facto research design was adopted for this study, using a structured interview schedule. The study revealed that majority of farmers felt financial constraint to avail the scheme, 58.47% of farmers ranked second the constraint which is there is condition of time duration in which farmer can take limited implements only and rest 53.38% of farmers ranked third the constraint that farmers had less knowledge about the scheme. The statement that training places were in distant places from their villages was ranked forth by farmers. Regarding the recommendations made by the farmers include raising the subsidy share to buy the machinery, improving the current tools, expanding the number of units covered by the subsidy, and holding trainings to increase knowledge related to scheme.

Keywords: Kisan yantra anudan yojana, global economy, agricultural mechanization, farm power availability, development

Introduction

Agriculture and its allied sector are the heart of social development of India since it provides livelihood and employment for majority of Indian population and plays a vital role in national income. (Sayana et al., 2022) [15]. Promoting an agricultural mechanization program is a critical step to strengthen Madhya Pradesh's economy. As a result, the state's farm power availability increased from 0.85 KW per hectare in 2007-08 to 2.33 KW in 2019-20, which is greater than India's average of 2.08 KW per hectare. Through a variety of initiatives, such as the agricultural equipment promotion action plan, which includes demonstrations of sowing, weeding, threshing, and harvesting equipment, and the skill development and training program, the state hopes to further increase farm power availability to 3.25 KW per hectare in the next four

years. Additionally, the program will train unemployed youth in rural areas to improve their skills in repairing and maintaining agricultural machinery and equipment. (MP Economic Survey 2022- 23)

The Madhya Pradesh government launched the Kisan Yantra Anudan Yojana for farmers in the state in order to achieve the SMAM mission objectives regarding the reach of farm mechanization in low mechanized regions. Prior to its introduction (in 2017-18) as a part of SMAM (Sub Mission on Agricultural Mechanization) at the state level, this program operated primarily offline. The Kisan Yantra Anudan Yojana offers subsidies for farm implements through direct benefit transfers to the bank account number provided by farmers during registration, following the completion of the transaction between listed dealers, i.e., on the website. Farmers who applied for machines on the

website can obtain the machinery listed on the website by the *Agriculture* Engineering department, and the deal receipt must be uploaded on the website for authentication. A computer lottery is used to create the list of farmers by #M.Sc. (Ag).

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript. District farmers are given agricultural tools based on this. MP farmers receive grants from the government ranging from 30 percent to 50 percent under this program. Additionally, the farmers received subsidies between Rs. 40,000 and Rs. 60,000. More accommodations are made for women who work as farmers. In the above context study was focussed on farm implements /machinery provided under scheme Kisan Yantra Anudan Yojana.

The government would be able to strengthen the services provided by the Kisan Yantra Anudan Yojana and implement the necessary reforms.

Statement of the problem

The primary concern is that the scheme's top-down policy frameworks are not in line with the socioeconomic, organizational, and individual reality of the local farmers. Empirically, farmers are hampered by a lack of technical expertise and specialized training, severe operating time constraints that prevent the purchase of a variety of tools, and insufficient financial capacity to meet the non-subsidy costs of machinery. Small, marginal, and tribal farmers are further isolated by logistical gaps like far training locations and a lack of official information on subsidy payments.

Materials and methods

The study was conducted in Jabalpur district of Madhya Pradesh. The district is located in the Mahakoshal region of

State. Jabalpur district comprises of seven blocks out of which two blocks were selected *i.e.* Majhouli and kundam were selected because former block has highest number of beneficiaries under the scheme and later has one of the smaller number of beneficiaries and has higher number of tribal populations respectively.

Table 1: Name of the blocks and number of beneficiaries

Block	Jabalpur	Kundam	Panagar	Patan	Shahpura	Sihora	Majhouli	Total
No. of beneficiaries	24	34	59	76	43	35	84	355

(Source: dbt.mpdage.gov.2020-21)

The Department of *Agriculture* Engineering and *Agriculture* & Farmers Welfare provided a list of the farmers who benefited from the chosen blocks under the Kisan Yantra Anudan Yojana, and 100% of these farmers were used as a study sample. The ex-post-facto research design was adopted for this study, since the phenomenon has already occurred and is continuing. And the primary data were collected using a well-structured interview schedule, while secondary data were obtained from various sources such as books, magazines, journals, and other published and unpublished materials. The constraints faced by the targeted beneficiaries in perception of farmers regarding Kisan Yantra Anudan Yojana were identified.

Results

1. Constraints perceived by the farmers regarding KYAY

Constraints are nothing but what are the problems the beneficiaries faced while adopting the KYAY. The beneficiaries reported various constraints perceived in KYAY, which were listed in table 1.

Table 2: Distribution of respondents on the basis of their constraints perceived by them

S.No.	Constraints	Frequency	Percentage	Rank
Socio-economic constraints				
1	Lack of proper infrastructural facilities like any particular place/station.	48	40.67	VI
2	Financial support provided by the government is insufficient	70	59.32	I
3	There is condition of time duration in which farmer can take limited implements only	69	58.47	II
Personal constraints				
3	Lack of contact with extension personnel	55	46.61	V
4	Less knowledge about scheme	63	53.38	III
Organizational constraints				
5	Need-based trainings were not enough for farmers	25	21.18	IX
6	Training programmes length was insufficient for learning new skills	32	27.11	VIII
7	Training places were in distant places from their villages.	61	51.69	IV
8.	There is no facility for offline application for the scheme.	20	16.94	X
9	There is lack of proper authorized information about subsidy provided under scheme	35	29.66	VII

The data in the Table 2 shows the constraints based on the responses given by the respondents in that, statement financial support provided by government under scheme is insufficient in that area ranks in 1st position (59.32%), followed by condition of time duration in which farmer can take limited implements only 2nd position (58.47%) and in 3rd position (53.38%) less knowledge about scheme.

Whereas constraints like lack of proper infrastructural facilities (40.67%), Need-based trainings were insufficient (21.18%) and Lack of contact with extension personnel (46.61%) were ranked 6th, 9th, 5th position respectively based on their frequency and percentage. While constraints like there is lack of proper authorized information about subsidy provided under scheme (29.66%) ranked 7th,

training programmes duration was not sufficient to learn new skills (27.11%) ranked 8th, there is no facility for offline application for the scheme (16.94%) ranked 10th on

the basis of their percentage. (Madhukar *et al.*, 2021 & Kisku and Singh. 2022. & Rao *et al.* 2023) [7].

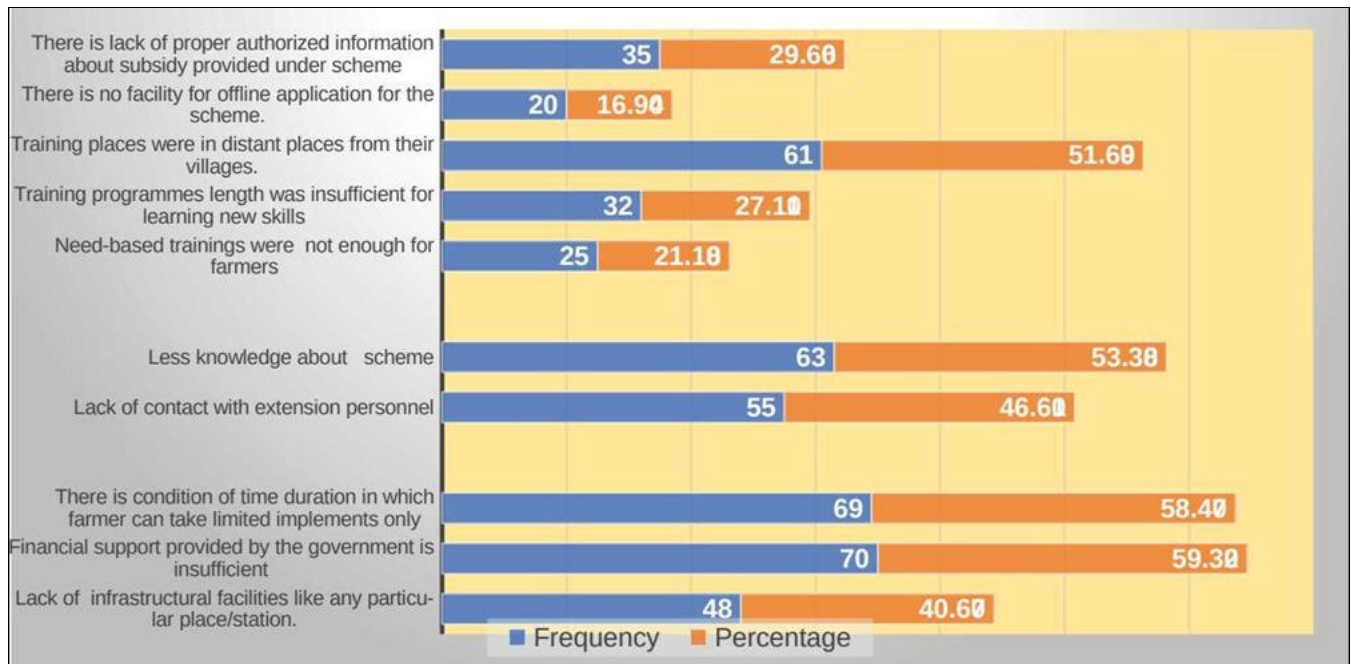


Fig 1: Distribution of respondents based on the constraints perceived by them

1. Suggestions to overcome the constraints faced by respondents

In Table 2 some of the suggestions were given by respondents to overcome constraints were presented.

Table 3: Distribution of respondents on the basis of the suggestions given by them

S. No.	Suggestions	Frequency	Percentage	Rank
1	Need to improve various infrastructural facilities.	48	40.67	VII
2	There is a need for more financial support provided by the government	70	59.32	I
3	The condition of time duration to reapply is need to be more flexible in terms of the number of implements given to each farmers	69	58.47	II
4	There is need to increase contact by extension personnel and do more publicity of the scheme	55	46.61	VI
5	There is a need to increase the number of beneficiaries under KYAY	63	53.38	III
6	There is a need to increase the number of training programmes and duration of training programmes.	61	51.69	IV
7	There is need to conduct trainings nearby small villages so that it becomes accessible to everyone.	58	49.15	V

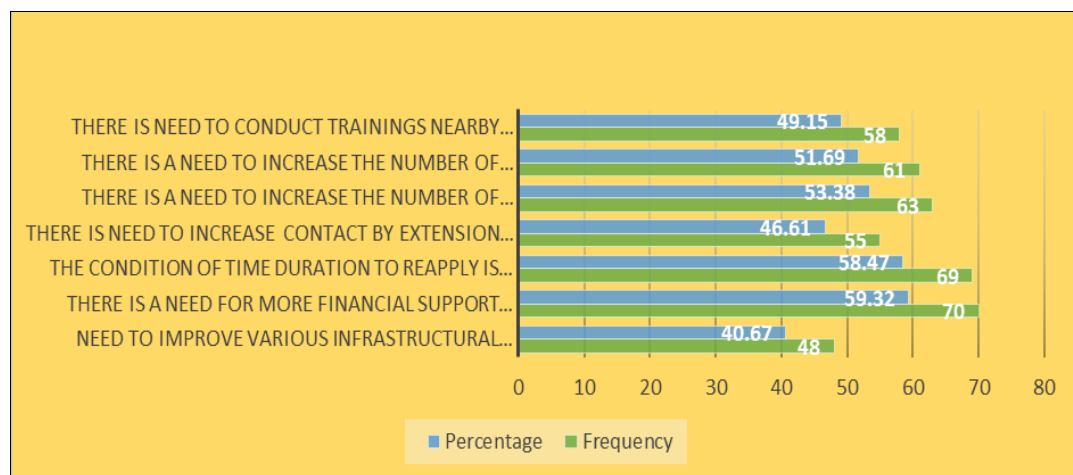


Fig 2: Distribution of respondents on the basis of the suggestions given by them

The data in the above table 2 shows the suggestions given by respondents to overcome constraints. On the basis of frequency and percentage statements such as there is need for more financial support provided by the government (59.32%), the condition of time duration to reapply is need to be more flexible in terms of the number of implements given to each farmers (58.47%), there is a need to increase the number of beneficiaries under KYAY (53.38%), ranked 1st, 2nd, 3rd respectively. Whereas there is need to increase the number of training programmes and duration of training programmes, need to conduct trainings nearby small villages so that it becomes accessible to everyone, need to increase contact by extension personnel and do more publicity of the scheme and need to improve various infrastructural facilities ranked from 4th to 7th respectively on basis of frequency and percentage. Supportive study of (Madhukar *et al.* 2021; & Kisku and Singh 2022) [7, 13].

Conclusion

Current study reveals that majority of farmers highlighted they face financial constraints to avail the scheme as subsidy was not sufficient for farmers, also constraints regarding policy framework which is not according to need of farmers and farmers were not competent enough to avail benefits of new technology hence they feel lack of proper training. Therefore, the study concludes that large-scale-agricultural farm mechanisation for sustainable food production in the area must be anchored on a coherent strategy based on the actual needs and priorities of the farmers. Organize frequent awareness campaigns and demonstrations at the village level regarding the advantages of the scheme and the use of farm equipment. Increase communication between extension staff and farmers by conducting regular field visits and providing advice services. To increase farmers' technical expertise, set up need-based training programs in neighbouring areas.

To acquaint farmers with new farm technologies and to impart required skill for its usage is primitive but yet useful and very effective method for better adoption of mechanization. Farmers are extended with financial assistance under the scheme in the form of subsidy for the purchase of agricultural equipment but policy framework should have the discretion to select the quality and different machinery to be purchased with subsidy rather than it being predecided norms. Expand the scheme's beneficiaries and boost subsidy support. Give the qualifying requirements and time frame for obtaining farm implements more flexibility. To ensure more accessibility, enhance the distribution of genuine information and streamline the application process. Encourage the purchase of specialized farm equipment that is appropriate for small and marginal farmers. To promote the use of farm machinery in the farming practices there is a need to develop customized farm machines and equipment with special focus on providing subsidy according to need of small and marginal land holders.

Disclaimer (artificial Intelligence)

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

References

1. Brown B, Paudel GP, Krupnik TJ. Visualising adoption processes through a stepwise framework: A case study of mechanisation on the Nepal Terai. *Agricultural Systems*. 2021;192:103200. <https://doi.org/10.1016/j.agry.2021.103200>
2. Farmer Welfare and Agriculture Development Department. Title of the specific webpage/scheme used. Government of Madhya Pradesh; 2023. <https://mp.gov.in/farmer-welfare-and-agriculture-department>
3. Government of Madhya Pradesh. State profile: Madhya Pradesh. Indore: MSME Development and Facilitation Office; 2023. <https://www.msmeindore.nic.in/State%20Profile-%20Madhya%20Pradesh.pdf>
4. Huo Y, Ye S, Wu Z, Zhang F, Mi G. Barriers to the development of agricultural mechanization in the North and Northeast China Plains: A farmer survey. *Agriculture*. 2022;12(2):287. <https://doi.org/10.3390/agriculture12020287>
5. Khan FU, Nouman M, Negrut L, Abban J, Cismas LM, Siddiqi MF. Constraints to agricultural finance in underdeveloped and developing countries: a systematic literature review. *International Journal of Agricultural Sustainability*. 2024;22. <https://doi.org/10.1080/14735903.2024.2329388>
6. Liu F, Shahzad MA, Feng Z, Wang L, He J. An analysis of the effect of agriculture subsidies on technical efficiency: Evidence from rapeseed production in China. *Heliyon*. 2024;10(13):e33819. <https://doi.org/10.1016/j.heliyon.2024.e33819>
7. Madhukar B, Reddy PBH, Lakshmi T, Ramu YR. Constraints in adoption of farm mechanization and suggestions to overcome the constraints. *The Pharma Innovation Journal*. 2021;10(6):376-379.
8. Melaku BS, Sefereh EY, Emunu MH, Wassie DY. Application of communication strategies in the diffusion of agricultural innovations and technologies: The case of Amhara Regional Agricultural Research Institute, Ethiopia. *Cogent Social Sciences*. 2024;10(1):2306704. <https://doi.org/10.1080/23311886.2024.2306704>
9. Ministry of Agriculture & Farmers Welfare. Agricultural statistics at a glance 2021. Directorate of Economics and Statistics, Government of India; 2022.
10. Madhya Pradesh State Policy and Planning Commission. Madhya Pradesh economic survey 2022-23. Government of Madhya Pradesh; 2023. <https://mpplanningcommission.gov.in/MPES%2022-23\ English.pdf>
11. Onwude DI, Abdulstter R, Gomes C, Hashim N. Mechanisation of large-scale agricultural fields in developing countries – a review. *Journal of the Science of Food and Agriculture*. 2016;96(12):3969-3976. <https://doi.org/10.1002/jsfa.7699>
12. Kisku U. Perception of farmers regarding custom hiring services in Jabalpur district [Unpublished master's

- thesis]. Jawaharlal Nehru Krishi Vishwavidyalaya; 2020.
13. **13.** [Kisku U, Singh AK. A review on custom hiring services under Indian conditions: Farmer's perception, associated factors, constraints, and suggestions. Asian Journal of Agricultural Extension, Economics & Sociology. 2022;40\(11\):8-27.
<https://doi.org/10.9734/AJAEES/2022/v40i111680>](#)
 14. **14.** Rao PV, Neelaveni S, Chitti Babu G. Opportunities and threats of custom hiring centre in farm mechanization. Journal of Krishi Vigyan. 2023;11(2):252-255.<https://doi.org/10.5958/2349-4433.2023.00047.8>
 15. **15.** [Sayana SS, Sreenivasulu M, Naik VR, Ranjitha PS, Madhu Babu K, Shankaraiah M. Constraints perceived by the rural youth in adoption of ARYA Project \(Attracting and Retaining Youth in Agriculture\) interventions in Telangana State, India. International Journal of Environment and Climate Change. 2022;12\(12\):1321-1327.
<https://doi.org/10.9734/IJECC/2022/v12i121570>](#)
 16. **16.** Saini S, Kishore A, Alvi M. Regressing forward: Agriculture mechanization subsidy modalities in Bihar and Odisha. International Food Policy Research Institute; 2020.<https://doi.org/10.2499/p15738coll2.133606>
 17. **17.** Singh AK, Paul KS, Burman RR, Paul S, Som S, Kumar A, Deka BC, Tripathi AK, Prasad YG. Farmers' experience with subsidy scheme on power tillers to enhance farm mechanization in India. The Indian Journal of Agricultural Sciences. 2020;90(1):146-151.<https://doi.org/10.56093/ijas.v90i1.98596>
 18. **18.** Sims B, Kienzle J. Sustainable agricultural mechanization for smallholders: What is it and how can we implement it? Agriculture. 2017;7(6):50.<https://doi.org/10.3390/agriculture7060050>
 19. **19.** Tilahun S, Kuma B, Bedemo A. Determinant of adoption of agricultural machine renting in West Gojjam zone, Ethiopia. Cogent Food & Agriculture. 2024;10(1):2380123.<https://doi.org/10.1080/23311932.2024.2380123>
 20. **20.** Tummala NS. Perception of tribal farmers towards Pradhan Mantri Van Dhan Vikas Yojana in East Godavari district of Andhra Pradesh [Unpublished master's thesis]. Jawaharlal Nehru Krishi Vishwa Vidyalaya; 2022.