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Farmers' Perception Regarding Custom Hiring Services in Jabalpur District of Madhya Pradesh

Upali Kisku[1]*, Kamini Bisht[2], Amit Kumar Singh[3] and Seema Naberia[4]

[1]Ph.D. Research Scholar, Dairy Extension Section, ICAR-National Dairy Research Institute, Eastern Regional Station, Kalyani-741235, West Bengal, India
[2,4]Assistant Professor, Department of Extension Education, JNKVV, Jabalpur-482004, Madhya Pradesh, India
[3]Subject Matter Specialist (Animal Husbandry), ICAR-Krishi Vigyan Kendra (Amihit, Jaunpur 2), ANDUA&T, Ayodhya-224229, Uttar Pradesh, India
*Corresponding author email id: upalikisku84@gmail.com

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ABSTRACT

Indian agriculture has witnessed a labour crisis and a dearth of farm mechanization resulting in inadequate production and productivity in various parts of the country. The study was undertaken in Jabalpur district of Madhya Pradesh in 2020, to analyse farmers' perception of Custom Hiring Services (CHS). Patan block was selected purposively by involving 80 respondents spread over ten villages using proportionate random sampling technique. Farmers actively engaged in agricultural operations and availing the services of the Custom Hiring Centres (CHCs) were selected purposively. The majority (75%) of the farmers had moderate perception towards CHS. The independent variables such as age, annual income, cropping pattern, information processing behavior, information sharing behavior and extent of utilization of CHS were found to be significant and positively related with the perception of farmers regarding CHS. Proper measures must be taken for the provision of enhancing mainly small and marginal farmers' understanding of mechanization as well as ensuring quality and timely services by the CHCs in order to realize its sustainable adoption.

INTRODUCTION

Agriculture is majorly dependent on the availability of land, labour and capital in which agriculture labour may be considered as one of the most important input in farm operations. One of the biggest issues that Indian farmers in rural areas experience is a lack of agricultural labour (Kadaraiah et al., 2022). The rise in the labour cost has created new challenges for the farmers in gaining decent returns from their produce. The maintenance cost of draft animal has also been increasing which has resulted into shifting of dependence of human from animals towards mechanical power in agriculture sector (Sukhpal & Kingra, 2013). Agriculture mechanization has a significant role in improving agriculture output by minimizing input cost, drudgery reduction and realizing growth in agricultural productivity with timely completion of farm operations. Systematically, mechanization is mostly observed in farmers possessing large operational holdings while it is still beyond the reach of many small and marginal farmers across the country. Poor availability of farm machinery especially among marginal and small farmers has been considered as one of the major hindrance to agricultural outputs (Anonymous, 2015a & b). Prior to the implementation of the scheme, SMAM (Sub Mission on Agricultural Mechanization), the average Farm Power Availability (FPA) in India was found to be 1.84 kW/ha. To achieve the required intensity of productivity and cropping average, farm power of 2.5 kW/ha by 2022 and 4.00 kW/ha by 2030 is considered crucial (Final Report on M&E SMAM, 2018).

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However, a bulk of the farmers in the country cannot afford expensive machinery for their farm operations, they may look for custom hiring of machines through cooperatives or other agencies (Kamboj et al., 2012; Kisku & Bisht, 2022). Custom hiring services (CHS) is a well-known method of acquiring short-term control of farm machinery among the farmers not owning them. Additionally, farmers have less responsibility for maintenance and working of machines, they are relieved from long-term capital investment, this eases farm planning and budgeting and therefore provides with further spare time to accomplish other activities. Over the past decades, Madhya Pradesh has emerged as the state with the highest agricultural growth rate, with agricultural GDP growing at 7.5 per cent per annum from 2005–06 to 2018–19 (MoSPI, 2019). The state originally launched the scheme in 2012–2013 under the Rashtriya Krishi Vikas Yojna (RKVY), to encourage young entrepreneurs in establishing CHCs. And more than 1000 CHCs have been established with its popularity increasing since then.

Farmers' perception is a major factor in the adoption and influences their decision to use new agricultural technologies. Although previous research has belaboured impact in terms of economic viability, implications of CHCs and observable farmers' characteristics influencing their adoption, scanty research has been conducted to identify how farmers perceive particular technologies/ services in terms of the benefits they provide. Therefore analysing their perception is a subject of research interest for sustainable adoption of any intervention.

METHODOLOGY

The study was carried out in the Jabalpur district of Madhya Pradesh. Patan block was selected purposively with the highest number of custom hiring centres out of the seven blocks. Ten villages were selected randomly out of the twenty villages where the custom hiring centres were available. Proportionate random sampling technique was followed and only 8 per cent of the households were taken from each village and further from each household one member who was actively engaged in agricultural operations was selected as respondent. Thus, a sample size of 80 farmers was selected for the purpose of the study who were availing the services of custom hiring centres. Primary data was collected using a well-structured and pre-tested interview schedule that included both open-ended and close-ended questions. For the research study, Ex-post facto research design was confined. The data were analysed by following several parametric and non-parametric tools like frequency, percentage, mean, standard deviation, mean scale value, correlation co-efficient. In the present study, thirteen independent variables viz. age, education, occupation, family size, land holding, annual income, farm power/implements, farming experience, social participation, communication behaviour, economic motivation, and extent of utilization of CHS whereas perception of farmers regarding custom hiring services as dependent variable were taken.

To measure the perception of farmers regarding custom hiring services an index was developed. Perception statements were constructed with the help of available literature reviews and by consulting the experts/scientists from the relevant fields. The index consisted of 26 final statements which were selected after conducting a relevancy test for the statements by administrating it to the experts from agriculture extension, agriculture engineering and other concerned departments. The final perception index was used in the interview schedule to identify the perception of farmers regarding CHS. The respondents were asked to rate each of the statements on a three point continuum i.e., 'agree', 'undecided' and 'disagree' and the numerical values of 3, 2 and 1 was assigned to the positive statements whereas 1, 2 and 3 was assigned to the negative statement. Further by analysing the scores, the respondents were divided into three categories viz. farmers with poor perception, moderate perception and good perception regarding CHS on the basis of calculated mean and standard deviation. Mean scale value (MSV) score was calculated for all the statements and ranking of statements was done on its basis. MSV is the total sum of the intended scores obtained by multiplying the frequency with the category's given scores and dividing the results by the total number of respondents. It has been used to convert each preference's frequency into a comparative level. The following formula was used to determine the mean scale value:

$$\text{Mean scale value} = \frac{P_1 \times 3 + P_2 \times 2 + P_3 \times 1}{N}$$

Where, P1= Frequency of respondents indicating first preference, P2= Frequency of respondents indicating second preference, P3= Frequency of respondents indicating third preference, N= Total number of respondents

A statistical tool of Karl Pearson's simple correlation coefficient (r) was followed to estimate the nature of relationship between the selected variables leading to a comprehensive understanding of the farmer's perception regarding CHS.

RESULTS AND DISCUSSION

Perception of the farmers regarding custom hiring services was assessed and the data on Table 1 represents the overall perception of farmers regarding CHS. It is observed that maximum numbers of respondents (75.00%) were having moderate perception regarding CHS followed by good perception (13.25%), whereas 11.25 per cent respondents had poor perception about CHS. The finding is supported with the work of Anonymous (2012); Singh et al., (2014); Gudadur & Jahanara (2017); Shobha et al., (2018) & Kadaraiah et al., (2022). The reason for this might be due to the fact that the farm mechanization is slowly increasing in the region of the study area and farmers still had not much understanding of the improved agricultural implements used in the cultivation of various crops. However, they were eager to learn about the technology of farm mechanization and ways to opt for their implementation.

A perusal of Table 2 reveals that the perception statement "farmers need not buy costly machines as the machines provided

Table 1. Distribution of respondents according to their overall perception regarding CHS

Category	Percentage
Poor perception (Up to 55 score)	11.25
Moderate perception (56 to 64 score)	75.00
Good perception (Above 64 score)	13.75

Table 2. Perception of farmers regarding Custom Hiring Services

S. No.	Perception Statement	MSV Score	Rank
1.	We do not need to buy costly machines as the machines provided by the custom hiring centres are cost-saving and time-saving.	3.00	I
2.	Custom hiring services has reduced the drudgery and workload.	3.00	II
3.	Custom hiring has facilitated crop residue recycling and prevents burning of residues.	2.80	III
4.	Custom hiring has enabled on-time completion of activities especially sowing and intercultural operations which are important for healthy crop stand and sustained agricultural yield.	2.80	IV
5.	During the peak season the machine hirers increases the cost with the increased demand due to which the rate of hiring the machineries increases.	2.76	V
6.	Farmers make inappropriate selection of machineries in the absence of proper guidance, resulting in loss in monetary terms.	2.70	VI
7.	The quality of the custom hiring services are not up to the mark.	2.68	VII
8.	We generally face problems while availing services from the custom hiring centres.	2.66	VIII
9.	Custom hiring services of farm machineries has enable us to get the benefits of mechanization & are helpful to us to increase the production, productivity and income.	2.6	IX
10.	We are able to make decisions regarding farm operations that can be mechanized in order to achieve better profits and to carry out operations efficiently.	2.49	X
11.	Custom hiring has helped in adoption of new technology and easy access to high value and technical agricultural equipment at our doorsteps.	2.43	XI
12.	Custom hiring has enabled the use of efficient machines which has improved the utilization efficiency of inputs like fertilizers and agrochemicals which has reduced the negative impact on the environment.	2.43	XII
13.	Custom hiring has been a special support to small farmers in their scientific farming.	2.43	XIII
14.	Use of machineries instead of traditional method of farming has improved the safety condition for farmers.	2.35	XIV
15.	Custom hiring centres has provided work opportunities to skilled labour and artisans.	2.34	XV
16.	Custom hiring has reduced the burden of owning and operating the machines, eliminating long-term capital commitments, eased farm budget planning and given us more time to focus on other activities.	2.18	XVI
17.	The cost of custom hiring services are high and the procedure in getting the services is quite complicated.	2.14	XVII
18.	Custom hiring has significantly facilitated diversification in agriculture specifically from wheat and paddy to other crops and has also increased the cropping intensity.	2.08	XVIII
19.	Before Custom hiring, mechanization was enjoyed by only large and medium farmers but now it has also benefitted small land holding farmers.	2.04	XIX
20.	Custom hiring has helped the farmers in adopting climate resilient practices.	1.99	XX
21.	Small and marginal farmers face economic burden as they take loans from other sources to hire machineries at the time of need.	1.98	XXI
22.	We are not fully aware about the services provided by the custom hiring centres.	1.73	XXII
23.	There was a delay in carrying out the operations due to insufficient number of machines available.	1.70	XXIII
24.	Hiring of machineries are not much of use for the marginal and small land holding farmers.	1.68	XXIV
25.	Custom hiring could be a way out to achieve doubling farmer's income through practicing hi-tech agriculture.	1.61	XXV
26.	The heavy machineries working on the land has degraded the quality of soil over the time.	1.55	XXVI

(MSV= Mean Scale Value)

by the custom hiring centres were cost-saving and time-saving" was ranked first according to the mean scale value calculated on the basis of the level of perception on each statement by the respondents whereas "Custom hiring services has reduced their drudgery and workload" and "Custom hiring has facilitated crop residue recycling and prevents burning of residues" were ranked second and third respectively. Furthermore, the statements "Custom hiring could be a way out to achieve doubling farmer's income through practicing hi-tech agriculture" and "The heavy machineries working on the land has degraded the quality of soil over the time" were ranked as twenty-fifth and twenty-sixth respectively. CHS has provided several benefits to the farmers over their traditional non-mechanized method of farming especially to the small and marginal farmers. Ownership of farm machineries is not possible for all farmers and CHS are a way of reaching those farmers at affordable costs.

Karl Pearson's Correlation coefficient (r) was calculated to find out the relationship about perception of farmers regarding CHS with the socio-personal, economic, communication and psychological profile of farmers by considering perception of farmers. The results depicted in the table 3 revealed that the value of the correlation coefficient of the independent variables namely age (r=0.285*), annual income (r=0.234*), cropping pattern (r=0.243*), information sharing behaviour (r=0.245*) and extent of utilization of CHS (r=0.295*) were positive and significantly related with perception of farmers regarding CHS at 0.01 per cent. Similar finding were reported by Kalagi (2018); Naik (2019) & Mishra et al., (2020); Singh et al., (2020). It reflects that age, cropping pattern, information sharing behaviour and extent of utilization of CHS were the important factors for increasing the level of perception of the farmers regarding CHS. It may be due to reason that with the understanding, knowledge and decision taking ability of an individual is enhanced. Farmers growing diverse crops in different seasons realize the importance of the requirement of machineries for timely farm operations. Sharing of information among others could be a responsible factor improving their own

Table 3. Relationship of profile characteristics with perception of farmers regarding CHS

S.No.	Independent Variables	Correlation coefficient value 'r'
1.	Age	0.285*
2.	Education	-0.231^{NS}
3.	Occupation	-0.169^{NS}
4.	Family Size	0.014^{NS}
5.	Land Holding	0.031^{NS}
6.	Annual Income	0.243*
7.	Cropping Pattern	0.243*
8.	Farm Power/ Implements	0.077^{NS}
9.	Farming Experience	0.027^{NS}
10.	Social Participation	0.218^{NS}
11.	Communication Behaviour	
	a) Extension agency contact	0.056^{NS}
	b) Information seeking behaviour	0.208^{NS}
	c) Information processing behaviour	0.345**
	d) Information sharing behaviour	0.245*
12.	Economic Motivation	0.093^{NS}
13.	Extent of utilization of CHS	0.295*

(* Significant at the 0.05 level of probability, ** Significant at the 0.01 level of probability, NS- non-significant)

perception towards things. Those farmers who are regular in utilizing the services of CHCs are likely to have moderate or good perception towards it. Similarly, information processing behaviour (r=0.345**) was positive and significantly related with the perception of farmers regarding CHS at 0.01 per cent levels of significance. Retaining the information about any phenomena helps in acquiring understanding and a clear idea about it. Farmers having a medium to high information processing behaviour are likely to have moderate to good perception regarding the CHS. Whereas, the variables education, occupation, family size, land holding, farm power/ implements, farming experience, social participation, extension agency contact, information seeking behaviour and economic motivation did not reveal any significant relationship with perception regarding CHS.

CONCLUSION

This research revealed that more than half of the respondents had a moderate perception regarding the services rendered by the CHCs. Farm mechanization is increasing, but still, many farmers are unfamiliar with the improved agricultural implements. However, they are always eager to know and opt for their implementation. CHCs provide a good opportunity for improvement in farming conditions but due to insufficient knowledge of farm implements and improved technology, many farmers experience inadequate utilization of CHS. Efforts must be made to create ability among the farmers through guidance and training for gaining acquaintance with the implements and services. The Government should pay keen interest in regulating proper hiring prices for different farm machinery in varied regions of the country to ensure its affordability for all farmers. Proper measures must be taken for quality and timely services by the CHCs to realize its sustainable adoption.

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