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KNOWLEDGE RELATED TO CUSTOM HIRING SERVICE CENTRES IN NORTH-EASTERN AND THE SOUTH-WESTERN AGRO-CLIMATIC ZONES OF HARYANA INDIA: AN OWNER-CENTRIC STUDY

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ABSTRACT

Custom Hiring Centres have emerged as a crucial intervention to democratize access to farm machinery for small and marginal farmers in India, particularly in states like Haryana where agricultural mechanization is essential for sustainable farming practices. A comprehensive survey was conducted with a sample size of 240 owners of Custom Hiring Centres of the North-Eastern and the South-Western agro-climatic zones of Haryana, utilizing a structured interview scheduled to capture information on dependent and independent variables namely socio-economic variables and knowledge of Custom Hiring Centres. The researchers also investigated the association between socio-economic variables and knowledge of Custom Hiring Centres. The data were systematically analysed through descriptive statistics, reliability analysis, chi-square tests and cross-tabulations to identify patterns and relationships. The present study aims to assess the knowledge of owners of Custom Hiring Centres related schemes, operational procedures and management practices. The findings of the study indicate that one-third of the owners (33.00%) exhibited a high level of knowledge concerning the objectives, benefits and guidelines of Custom Hiring Centres, whereas 42.00 per cent demonstrated moderate operational awareness regarding the use, maintenance and rental processes of farm machinery. Socio-economic variables such as age, education, type of family, land holdings, income generated from CHCs, annual family income, social participation, mass media exposure, extension contacts, and overall socio-economic status showed a statistically significant association with knowledge among the owners. Conversely, caste, family size and subsidiary occupation of the owners were found to have no significant influence on knowledge of Custom Hiring Centres. The study highlights the critical need for enhanced training, targeted capacity-building programmes and effective information dissemination strategies to strengthen the knowledge base and operational capabilities of owners. Such efforts would ultimately lead to better service delivery, improved agricultural productivity and increased adoption of mechanization practices among smallholder farmers.
Keywords: Custom Hiring Centres, owners, knowledge, association.

Introduction

In rural India, farmers face increasing challenges due to agricultural labour shortages, a situation worsened by the declining number of draft animals owing to their high maintenance costs. Consequently, farm mechanization has become essential to ensure timely agricultural operations, particularly as labour expenses contribute to more than 40.00% of the variable production costs for major crops (Laxmi *et al*., 2014). Farm mechanization involves the use of mechanical tools, equipment, and advanced technologies in agriculture to improve the efficiency and effectiveness of farming operations. It covers a broad spectrum of machinery, ranging from basic hand tools to sophisticated automated systems, all aimed at performing tasks that were traditionally done by human or animal labour. A key goal of farm mechanization is to enhance the timeliness and accuracy of various agricultural activities (Anil *et al*., 2024).

Custom Hiring Centres (CHCs) are collections of farm equipment, implements and machinery made available for farmers to rent as needed. In India, the practice of hiring specific agricultural implements is not new; the concept of offering farm machinery on a rental basis date back to as early as 1912 (Chandel *et al*., 2017). The Government of India initiated the farm mechanization scheme to promote the use of modern agricultural equipment. Power tillers, in particular, have played a key role under the Sub-Mission on Agricultural Mechanization (SMAM) program, as they are better suited than tractors for small farms, aiding in seedbed preparation and transportation. Recognizing the challenges posed by small landholdings and the high cost of machinery ownership, SMAM placed strong emphasis on the promotion of Custom Hiring Centres (CHCs).

To strengthen this focus, the scheme was revised in 2019. Additionally, to financially support rural communities, the government is establishing agricultural machinery banks and specialized hiring centres across the country (Singh *et al*., 2020). Farm mechanization significantly contributes to overcoming socio-economic challenges and promoting knowledge transfer in rural regions. By minimizing the physical burden of manual labour and creating avenues for skill development in machinery operation and maintenance, mechanization improves the livelihoods of rural populations. Furthermore, it encourages rural entrepreneurship by supporting the creation of Custom Hiring Centres, thereby generating additional income and employment opportunities (Anil *et al*., 2024). The Haryana government provides a 50% subsidy to individual Custom Hiring Centres and an 80% subsidy to cooperatives, Farmer Producer Organizations (FPOs), and panchayats. Due to the serious environmental concerns arising from paddy straw burning in the region, the government also extends a 50% grant for specialized custom hiring facilities, along with up to 80% financial assistance under the Crop Residue Management Scheme to promote Agricultural Mechanization for In-situ Crop Residue Management (MoA & FW., 2021). Keeping in view, the comprehensive study was conducted with specific objective namely "to assessing the knowledge of Custom Hiring Centres (CHCs) owner about CHC and factors affecting the knowledge of CHC owner".

Materials and Methods

The research was carried out on rural owners of Custom Hiring Centres in two agro-climatic zones of Haryana state namely, North-eastern zone and South-western zone in 2024. Two District were selected randomly from each agro-climatic zone. The district of Kaithal and Karnal from the North-astern zone and Fatehabad and Sirsa from South-western zone were selected for research work. Two blocks randomly selected from each district. Indri and Nilokheri from Karnal, Kalayat and Kaithal from Kaithal, Tohana and Bhuna from Fatehabad and Sirsa and Nathushri chopta from Sirsa district were selected randomly. Sixty CHC owners were selected randomly from each district. On the whole 240 CHC owners were surveyed with the help of well-structured interview scheduled. The interview schedule was prepared with reference to a diverse range of sources, including books, official statements, periodicals, bulletins, and government publications. To assess the CHC owners' profile, twelve variables were selected: age, caste, education, family type, family size, landholding, annual income, subsidiary occupation, mass media exposure, socio-economic status, social participation, and extension contacts. Each of these independent variables was categorized and scored across four levels: 1st, 2nd, 3rd,4th and 5th. Upon finalizing the interview schedule, data collection was carried out among CHC owners of Haryana. Using appropriate statistical tools, the researcher systematically coded, tabulated, analysed and interpreted the data in alignment with the study's objectives. To draw meaningful inferences, descriptive statistical methods such as frequency, percentage, weighted mean score, mean score and ranking were employed. To determine several specific objectives, the field data acquired in the end were observed and analysed.

Results and Discussion

Table 1 reveal that CHC owners exhibited the highest knowledge in the area of innovative changes or modifications in agricultural implements (Rank I, MS = 3.60), showing strong practical understanding. However, their knowledge of technical advancements and emerging technologies was moderate (Rank XI, MS = 2.98), reflecting limited awareness of modern tools. The lowest knowledge was observed in sustainable and climate-resilient farming practices (Rank XIII, MS = 2.57), highlighting a major gap that needs attention for promoting environmentally sustainable agriculture. These results align with Barman *et al*. (2019) in Assam revealed that younger farmers with higher education levels were more inclined to adopt mechanization, highlighting the role of education in enhancing knowledge and adoption rates. In the domain of financial and business management, CHC owners demonstrated moderate knowledge regarding financial management, marketing, and customer relations (Rank IX, MS = 3.04), suggesting an average understanding of business

operations. Awareness and usage of digital platforms and analytics were slightly lower (Rank XII, MS = 2.99), indicating limited adoption of modern digital tools. Participation in workshops and continuous learning also showed a moderate trend (Rank X, MS = 2.98), reflecting that while some owners engage in skill enhancement activities, a significant proportion still lacks regular exposure to updated business practices. A study by Asha *et al*. (2024) in Andhra Pradesh reported that 60.00 per cent of rice farmers had medium knowledge levels about mechanization, with only 20.83 per cent exhibiting high knowledge.

Table 1: Knowledge of owners about CHCs

Knowledge	Fully know-ledge (5)	Moderate know-ledge (4)	Partial know-ledge (3)	Somewhat know-ledge (2)	No know-ledge (1)	WMS	MS	Rank
Technical knowledge and emerging technology								
In-depth understanding of emerging technologies, precision farming tools, and sustainable machinery	50 (20.83)	40 (16.66)	50 (20.83)	55 (22.92)	45 (18.75)	47.66	2.98	XI
Knowledge of sustainable and climate-resilient farming practices	48 (20.00)	55 (22.92)	48 (20.00)	24 (10.00)	55 (22.92)	41.13	2.57	XIII
Innovative changes or modification in agricultural implement	110 (45.83)	35 (14.58	30 (12.50)	20 (8.33)	45 (18.75)	57.67	3.60	I
Financial and business management								
Knowledge of financial management, marketing, and customer relations	55 (22.92)	48 (20.00)	45 (18.75)	37 (15.42)	55 (22.92)	48.73	3.04	IX
Use of digital platforms and analytics for business management	60 (25.00)	40 (16.66)	35 (14.58	45 (18.75)	60 (25.00)	47.68	2.99	XII
Participation in workshops and continuous learning	40 (16.66)	58 (24.16)	55 (22.92)	32 (13.33)	55 (22.92)	47.73	2.98	X
Agricultural and environmental awareness								
Insight into the specific agricultural needs and issues faced by local farmers	65 (27.08)	66 (27.50)	48 (20.00)	13 (5.42)	48 (20.00)	53.8	3.36	II
Understanding of local crops, soil, and climate conditions	60 (25.00)	55 (22.92)	45 (18.75)	37 (15.41)	43 (17.92)	51.46	3.21	III
Knowledge of global agricultural trends and market forces	55 (22.92)	45 (18.75)	58 (24.16)	44 (18.33)	38 (15.83)	50.33	3.14	V
Policy and regulatory frame work								
Proficient understanding of agricultural policies, subsidies, and legal frameworks	67 (27.92)	45 (18.75)	35 (14.58)	48 (20.00)	45 (18.75)	50.73	3.17	IV
Awareness of the ethical implications of machinery use, labour practices, and environmental impact	58 (24.16)	40 (16.66)	45 (18.75)	51 (21.50)	46 (19.16)	48.86	3.05	VIII
Practical implementation and mediation								
Mediating between technical knowledge and practical farming needs	68 (28.33)	35 (14.58	45 (18.75)	37 (15.42)	55 (22.92)	49.6	3.10	VI
Acts as a bridge between formal agricultural knowledge and local farming practices	55 (22.92)	50 (20.83)	45 (18.75)	35 (14.58)	55 (22.92)	49	3.06	VII

Figures in parenthesis denote percentage Multiple responses

In the area of agricultural and environmental awareness, CHC owners showed a strong understanding of specific agricultural needs and issues faced by local farmers (Rank II, MS = 3.36), highlighting their close connection with local farming challenges. Knowledge related to local crops, soil, and climate conditions was also fairly high (Rank III, MS = 3.21), reflecting good agro-environmental awareness. However, awareness about global agricultural trends and market forces was slightly lower (Rank V, MS = 3.14), suggesting that while owners are well-versed in local issues, their exposure to global agricultural dynamics is comparatively limited. Raghuvanshi *et al*. (2017) conducted a study in Uttarakhand, finding that

all surveyed farmers were aware of climate change, citing erratic rainfall and diminishing agricultural yields as key indicators. However, the adoption of sustainable practices was limited, indicating a gap between awareness and implementation. In the domain of policy and regulatory framework, CHC owners demonstrated a reasonably good understanding of agricultural policies, subsidies, and legal frameworks, achieving Rank IV with a mean score of 3.17. This suggests a fair level of awareness about formal procedures and government initiatives. However, their awareness regarding the ethical implications of machinery use, labour practices, and environmental impacts was slightly lower (Rank VIII, MS = 3.05), indicating a need for further sensitization towards ethical and sustainability issues in agricultural practices. In the area of practical implementation and mediation, CHC owners showed a moderate level of competence. Kumar *et al.* (2021) assessed farmers' awareness of the New Farm Laws 2020 across five eastern states of India.

The study found that about 50% of agricultural households were aware of the new laws, but they lacked detailed knowledge about their contents. The ability to mediate between technical knowledge and practical farming needs secured Rank VI with a mean score of 3.10, indicating that many respondents could fairly translate modern knowledge into field applications. Similarly, acting as a bridge between formal agricultural knowledge and local farming practices was ranked VII (MS = 3.06), suggesting that while CHC owners possessed some bridging skills, there is still room for strengthening their role in knowledge transfer and on-ground adaptation. A study by Bori and Das (2024) in Assam examined the practical implementation of knowledge and mediation between traditional practices and modern technologies is crucial for effective agricultural development.

Level of knowledge among owners of CHCs

Figure 1 illustrates the score of level of knowledge of farmers regarding CHCs, score of 5, 4, 3, 2 and 1 was assigned for strongly agree, agree, neutral, disagree, strongly disagree. To obtain a low, medium, and high level of knowledge, the total achievable score of 65 was divided into three groups with equal intervals. Data in table 4.3.2 showed that 42.90 per cent respondents were having medium level of knowledge about the various aspects of the scheme. Remaining 33.30 per cent and 23.80 per cent respondents were having a low and high level of knowledge, respectively. Kumar *et al.* (2020) highlighted that in their study on farm mechanization, 45% of farmers had medium-level knowledge about machinery schemes. The authors attributed this to inconsistent outreach and inadequate training, which often limits farmers' understanding of available resources and schemes.

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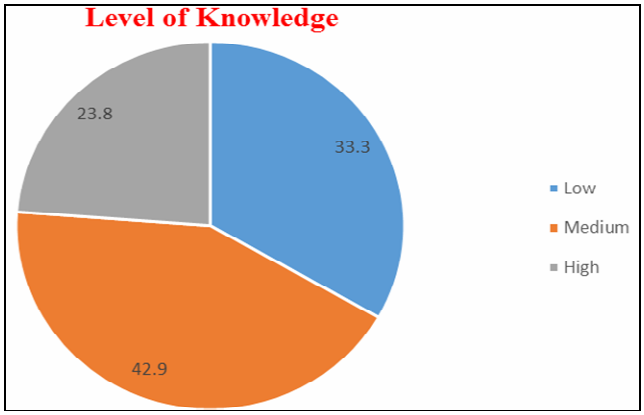

Fig. 1 : Level of knowledge among owners of CHCs

Association between socio-economic variables and knowledge of CHC owners

Table 2 shows that Age, education, family type, land holdings, annual income, mass media exposure, extension contact and socio-economic status of CHC owners were found significantly associated with knowledge of CHCs. Chander & Kumari (2023) also supported the results in his study. Age of the CHC owners was found highly significantly associated with knowledge of CHCs in table 2. More than half of the CHC owners (54.50%) who were from 25 to 40 years age group had low level of knowledge regarding CHCs. In contrast, 20.90 per cent CHC owners who were above 55 years age group had high level of knowledge about CHCs. Singh *et al.* (2020) observed that farmers aged 35-50 years were more likely to adopt new agricultural technologies, likely because of a balance between experience and openness to new information.

Education and knowledge of the CHC owners were significantly associated. Analysis reveals that 51.78 per cent of the CHC owners who were educated up to secondary school level had medium level of knowledge of CHCs. On the other hand, 42.60 per cent of the respondents who educated up to graduation or above had low level of knowledge of CHCs. Kumar *et al.* (2019) noted that higher education levels significantly improve the adoption of modern farming techniques. Types of family was found highly significantly associated with knowledge of CHCs. Further, analysis reveals that nearly half of the CHC owner who belonged to joint family had medium level of knowledge. In contrast, 41.66 per cent CHC owner who were belonged to nuclear family had high level of

knowledge about CHCs. Singh & Kumar (2018) also found that nuclear families tend to have better financial resources and access to new technologies, correlating with better knowledge levels.

Table 2 presents that landholding of the CHC owners was found highly significantly associated with knowledge of CHCs. It was found that more than two-fifth of CHC owners (61.10%) who were landless had low level of knowledge. On the other hand, more than one-third of CHC owners were related to medium size of landholding had high level of knowledge about CHCs. Annual CHCs' income and knowledge of owner was found highly significantly associated. The analysis reveals in Table 2 that maximum of the CHC owners (63.16%) who earned annual CHCs' income up to Rs. 2, 00,000/- had medium level of knowledge of CHCs. In contrast, 41.66 per cent CHC owners who earned annual CHCs' income above Rs. 5, 00,000/- had high level of knowledge. Ghosh *et al*. (2017) also observed that increased earnings from farming activities positively affected knowledge acquisition and the adoption of new technologies, aligning with the results from this study. Annual family Income of owners was found significantly associated with knowledge. The analysis reveals in Table 2 that 75.00 per cent owners who earned family annual income above Rs. 15, 00,000/- had high level of knowledge. In contrast, 63.79 per cent owners who earned family annual income between Rs.10, 00,000- 15, 00,000/- had medium level of knowledge.

Table 2: Association between socio-economic variables and knowledge of owners on CHCs

Socio-economic variables	Level of knowledge			Total
	Low	Medium	High	
Age group				
25-40 years	36 (54.50)	24 (36.40)	6 (9.10)	66 (27.50)
40 - 55 years	11 (10.28)	59 (55.14)	37 (34.60)	107 (44.60)
Above 55 years	33 (49.25)	20 (29.85)	14 (20.90)	67 (27.90)
Total	**80 (33.30)**	**103 (42.90)**	**57 (23.80)**	**240 (100)**
				χ^2=26.446**
Level of education				
Illiterate	3 (20.00)	7 (46.70)	5 (33.30)	15 (6.25)
Up to middle	14 (25.93)	16 (29.63)	24 (44.44)	54 (22.50)
Secondary	20 (35.71)	29 (51.78)	7 (12.96)	56 (23.33)
Senior Secondary	20 (34.30)	28 (41.20)	13 (24.50)	61 (25.42)
Graduation or above	23 (42.60)	23 (42.60)	8 (14.80)	54 (22.50)
				χ^2=5.938*
Caste				
General category	58 (33.30)	74 (42.50)	42 (24.10)	174 (72.50)
Backward class	8 (20.50)	21 (53.80)	10 (25.60)	39 (16.30)
Scheduled caste	14 (51.90)	8 (29.60)	5 (18.50)	27 (11.30)
				χ^2= 7.284
Family type				
Joint family	56 (38.90)	71 (49.30)	17 (11.80)	144 (60.00)
Nuclear family	24 (25.00)	32 (33.34)	40 (41.66)	96 (40.00)
				χ^2= 9.579**
Family size				
Small (up to 4 members)	10 (33.30)	15 (50.00)	5 (16.70)	30 (12.50)
Medium (5-8 members)	49 (32.70)	60 (40.00)	41(27.30)	150 (62.50)
Large (above 8 members)	21 (35.00)	28 (46.70)	11 (18.30)	60 (25.00)
				χ^2=3.101
Size of landholding				
Land less	11 (61.10)	4 (22.20)	3 (16.70)	18 (7.50)

Marginal (Up to 2.5 acres)	6 (46.15)	4 (30.80)	3 (23.05)	13 (5.40)
Small (2.6 - 5.0 acres)	22 (45.83)	20 (41.70)	6 (12.50)	48 (20.00)
Semi medium (5.1 - 10.0 acres)	31 (32.63)	41 (43.15)	23 (24.20)	95 (39.60)
Medium (10.1 - 25.0 acres)	10 (15.15)	32 (48.50)	24 (36.35)	66 (27.50)
				χ^2=36.66**
Subsidiary occupation				
No subsidiary occupation	63 (32.80)	88 (45.80)	41 (21.40)	192 (80.00)
Small scale enterprises and services	11 (36.70)	7 (23.30)	12 (40.00)	30 (12.50)
Dairy farming	6 (33.30)	8 (44.40)	4 (22.20)	18 (7.50)
				χ^2 =7.004
Annual income from CHCs (in Rs.)				
Up to 2,00,000/-	7 (36.84)	12 (63.16)	0	19 (7.90)
2,00,001-3,00,000/-	43 (32.80)	47 (35.90)	41 (31.30)	131 (54.60)
3,00,001-5,00,000/-	30 (38.46)	37 (47.44)	11 (14.10)	78 (32.50)
Above 5,00,000/-	0	7 (58.34)	5 (41.66)	12 (5.00)
				χ^2 =19.507**
Family annual income (in Rs.)				
3,00,000-5,00,000/-	8 (27.58)	3 (10.35)	18 (62.07)	29 (12.10)
5,00,001-10,00,000/-	58 (38.92)	63 (42.30)	28 (18.78)	149 (62.10)
10,00,001-15,00,000/-	13 (22.40)	37 (63.79)	8 (13.79)	58 (24.20)
Above 15,00,000/-	1 (25.00)	0	3 (75.00)	4 (1.70)
				χ^2= 14.591*
Social participation				
No social participation	68 (36.17)	76 (40.40)	44 (23.40)	188 (78.30)
Member of one organization	10 (25.00)	25 (62.50)	5 (12.50)	40 (16.70)
Member of more than one organization	2 (16.70)	2 (16.70)	8 (66.70)	12 (5.00)
				χ^2=13.640**
Mass media exposure				
Low (up to 8)	18 (26.47)	41 (60.30)	9 (13.23)	68 (28.30)
Medium (9-12)	60 (37.50)	59 (36.90)	41 (25.60)	160 (66.70)
High (above 12)	2 (16.70)	3 (25.00)	7 (58.30)	12 (5.00)
				χ^2 =15.026**
Extension contacts				
Low (up to 15)	23 (41.81)	13 (23.64)	19 (34.55)	55 (22.90)
Medium (16 to 20)	57 (36.77)	74 (47.74)	24 (15.48)	155 (64.60)
High (above 20)	0	16 (53.34)	14 (46.66)	30 (12.50)
				χ^2 = 37.221**
Socio-economic status				
Low (up to 14 -17)	18 (41.90)	10 (23.30)	15 (34.90)	43 (17.90)
Medium (18-21)	60 (39.73)	73 (48.34)	18 (11.92)	151 (62.90)
High (above 21)	2 (4.35)	20 (43.48)	24 (52.17)	46 (19.20)
χ2 = 16.567**				

Figures in the parentheses indicate percentage
*Significant at 0.05 level of significance
**Significant at 0.01 level of significance

There was highly significant association found between social participation and knowledge of CHCs. It was found that two-third of CHC owners (66.70%) who participated more than one social organization had high level of knowledge of CHCs. On the other hand, 62.50 per cent CHC owners who participated in one social organization had medium level of knowledge. Nair & Kumari (2019) emphasized that social participation helps disseminate agricultural knowledge with farmers who are members of multiple organizations being more exposed to new farming practices and information. Mass-media exposure was found highly significantly associated with knowledge of CHCs. Analysis reveals that 60.30 per cent owners who involved in medium exposure to mass-media had medium level of knowledge. Sharma & Gupta (2019) observed that farmers' exposure to agricultural media channels significantly enhanced their awareness of schemes like CHCs.

Extension contact was found highly significantly associated with knowledge of CHCs. Analysis reveals that more than half of the owners (53.34%) who involved in medium extension contact had medium level of knowledge. Socio-economic status was found highly significantly associated with knowledge of CHCs. It was clear from the field of the study that more than half of the owners (52.17%) who belonged to high socio-economic status had high level of knowledge. In contrast, 41.90 per cent CHC owners who belonged to low socio-economic status had low level of knowledge. Choudhury *et al*. (2019) supported the results that socio-economic status plays a crucial role in a farmer's ability to access agricultural information and adopt new technologies. It was also observed that caste, family size, subsidiary occupation of CHC owners were not found significantly associated with knowledge of CHCs.

Conclusion

The study highlights a varied level of knowledge among owners regarding the operational and managerial aspects of CHCs in rural Haryana. While many owners demonstrated basic understanding of the services and economic benefits of CHCs, gaps were observed in areas such as government schemes, maintenance practices and efficient resource utilization. Factors such as education level, exposure to extension services and institutional support significantly influenced the depth of knowledge. The findings underscore the need for targeted training programs and policy interventions to enhance owners' capacity in managing CHCs more effectively. Strengthening knowledge frameworks among CHC owners can not only improve service delivery but also contribute to greater agricultural mechanization and productivity in rural regions.

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References

Anil, K., N. Jeevan, Preeti, Y.H., Nandini, Hm and Chandana, L. (2024) Exploring farmer's profile characteristics and their views on custom hiring service centres. *International Jornal of Agriculture Extension and Social Development,* **7(9)**, 39-46.

Asha, T., Sailaja, V., Lakshmi, T. and Navya Jyothi, K. (2024). Knowledge Levels of Rice Farmers Regarding Mechanization: An Item-Wise Analysis in the North Coastal Zone of Andhra Pradesh, India. *Journal of Scientific Research and Reports*, **30(12)**, 863-870.

Barman, S., Deka, N. and Deka, P. (2019) Factors Affecting Farm Mechanization – A Case Study in Assam, India. *Asian Journal of Agricultural Extension, Economics & Sociology*, **32(1)**, 1-7.

Bori, R. and Das, R. (2024). Farmers' Awareness and Perception of Sustainable Agricultural Practices: A Case of Integrated Livestock–Fish Farming System in the State of Assam, India. *Journal of Agriculture and Rural Development*, **12(1)**, 45-58.

Chandel, N.S., Singh, M.K., Saha, K.P. and Tripathi, H. (2017). Estimation of capital budgeting for entrepreneurship development through custom hiring of harvesting machinery. *Agricultural Engineering Today,* **41(2)**, 21-28.

Chander Subhash and Kumari Vinod (2023). Knowledge and Adoption of Custom Hiring Centres among Farmers of Haryana. *International Journal of Education & Management,* **13(1)**, 13-17.

Choudhury, B. N., Das, S. C., Sarmah, M. C. and Ahmed, M. (2018). Influence of socio-economic factors on knowledge and technology adoption of sericulture farmers of Aizawl district of Mizoram. *International Journal of Advance Research, Ideas and Innovations in Technology*, **4(3)**, 35-42.

Ghosh, P., Sinha, S. and Patel, R. (2017). Socio-economic determinants of farm income and their implications on farm knowledge. *Indian Journal of Agricultural Economics,* **72(1)**, 12-20.

Kumar, A., Gupta, R. and Verma, H. (2020). Farmer awareness and adoption of mechanization schemes in North India: A regional study. *Journal of Rural Studies,* **45**, 99-107.

Kumar, A., Sonkar, V. K. and Bathla, S. (2021). Farmers' Awareness and Perceptions of the New Farm Laws 2020 in India: Empirical Evidence from a Household Survey. *Indian Journal of Agricultural Economics*, **76(3)**, 408-423.

Kumar, P., Patel, V. and Gupta, S. (2019). Educational factors influencing farmers' knowledge on government schemes

in India. *Journal of Agricultural Extension and Rural Development,* **11(4)**, 94-102.

Laxmi N.T., Tiralpur, Mundinamani SM. (2014) Economics of production of major crops in Dharwad district. *Karnataka J Agric Sci.* **27(2)**,165-169.

Ministry of agriculture and Farmers welfare, GOI (2021). Agricultural mechanization for in- situ management of crop residue. https://pib.gov.in/Pressreleaseshare.aspx?PRID=1707021

Nair, S. and Kumari, R. (2019). Social participation and its influence on agricultural knowledge dissemination. *Journal of Social Sciences and Humanities,* **44(2)**, 71-79.

Raghuvanshi, R., Ansari, M. A. and Amardeep. (2017). A Study of Farmers' Awareness About Climate Change and Adaptation Practices in India. *International Journal of Applied Agricultural Sciences*, **3(6)**, 154-160.

Sharma, R. and Gupta, D. (2019). The role of media in knowledge dissemination among farmers in India*. Indian Journal of Agricultural Communication,* **15(2)**, 52-60.

Singh, A. and Kumar, R. (2018). Impact of family structure and financial resources on farmers' knowledge adoption in Haryana. *Journal of Agricultural Development,* **36(1)**, 63-74.

Singh, R., Mahal, J.S., Kumar, A., Chahal, V.P., Singh, K. K. and Singh, A.K. (2020). Establishment of machinery bank for attracting rural youth for entrepreneurship development. *Journal of Krishi Vigyan,* **9(1)**, 125-130.

Singh, R., Meena, M. and Kumar, S. (2020). Age-related factors influencing the adoption of agricultural innovations in rural India. *Rural Sociology Journal,* **35(3)**: 82-90.