Vol.11 No. 1, Page No. 1- 5 (2022)
Received: January, 2022; Accepted: March, 2022

Extent of Farm Mechanization by Wheat Growers in Bhopal District of Madhya Pradesh

Priyanka Jat[1], Kamini Bisht[2], Sonam Agarwal[3] and S.P. Singh4

1.Ex-M.Sc. student
2.Assistant Professor & Corresponding Author, Department of Extension Education, College of Agriculture, Jabalpur
3. Assistant Professor, Department of Extension Education, College of Agriculture, Powarkheda
4. Assistant Professor, Department of Extension Education, College of Agriculture, Tikamgarh

Abstract

The present study was carried out in Bhopal district of Madhya Pradesh. Bhopal district comprises of two blocks i.e. Berasia and Phanda. Out of which Phanda block was selected as Central Institute of Agricultural Engineering exist in the nearby location of the block. From Phanda block, 10 villages were selected randomly for the present study. The data shows that most of the wheat growers prefer manpower for carrying out farming operations because of having "small and fragment land holdings" (40.00%), followed by "high initial cost" (33.34%) and "availability of cheap labour" (26.66%). Extent of farm mechanization by wheat growers was assessed Primary tillage" ranked first with mean scale value of 2.94 as majority of wheat growers preferred use of farm implements and machineries for tillage purpose followed by "harvesting" ranked second with mean value of 2.88, "Sowing" ranked third with mean value of 2.57.

Key words : *Farm mechanization, Wheat growers*

Introduction

Wheat is one of the oldest and most important of the cereal crops. The major wheat growing states like, Punjab, Madhya Pradesh and Rajasthan have witnessed positive change in area, yield and production. Average production in Madhya Pradesh showed an increase by 6.87 million tonnes, followed by Rajasthan (1.2 million tonnes)[2].

Contribution of human labour in yield was found significant for soybean and gram production while machinery and miscellaneous (seed, fertilizer, manure, agro-chemical) were contributed significantly in the wheat and gram productivity. Size of land holding and machinery contributed significantly in cultivation of wheat and gram. Thus, use of machinery showed a positive response with size of holding. The level of mechanization index was found higher in crops like wheat (57.61%) and gram (44%) while it was comparatively low in paddy (40%), soybean (40.4%) and maize (43.5%). Mechanization level may increase with adoption of power operated machines for transplanting, weeding/inter-culture and spraying/dusting[3].

The effective mechanization contributes to increased production in two major ways: firstly, the timeliness of operation and secondly the good quality of work. Improved and quality agricultural implements and machines play a pivotal role in sustainable development of agriculture and enhancement of crop productivity. Therefore, identification of quality and need based agricultural machines/equipments are of paramount importance.

However, in present circumstances when labour wages are increasing at higher rate and their availability at peak time of sowing, harvesting is decreasing, the farmers are getting more inclined towards use of agricultural machinery. Scarcity of labour is a fact and mechanisation is the panacea to reduce the burden on farmers. Yet, expertise is essential and hence ensuring the availability of expert human resources to operate different agro-machinery and implements has become imperative[4]. In modern agricultural practices, mechanization of farm is needed from the view of point of the profitability of agriculture[1]. The present study therefore was conducted on "Extent of Farm Mechanization by Wheat Growers in Bhopal district of Madhya Pradesh".

Material and methods

The present study was carried out in Bhopal district of Madhya Pradesh. Bhopal district comprises of two blocks i.e. Berasia and Phanda. Out of which Phanda block was selected as Central Institute of Agricultural Engineering exist in the nearby location of the block. From Phanda block, 10 villages were selected randomly for the present study. From selected 10 villages, only 8 per cent of the households were taken from the total number of households in each village on the basis of proportionate random sampling method. Thus total 85 wheat growers from 10 villages were selected for the present study.

Result and Discussion

Preference for wheat farming

Wheat growers were asked about their preference for wheat farming i.e. whether they prefer manpower or mechanization.

Table 1 Preference for wheat farming

S. No.	Preference	f	%
1.	Manpower	30	35.30
2.	Farm mechanization	55	64.70

Regarding preference for wheat farming, 35.30per cent of wheat growers prefer manpower over mechanization. Whereas, 64.70 per cent preferred farm mechanization for wheat farming.

Table 2 Reasons for preference of manpower to carry out farming operation for wheat cultivation

S.No.	Reasons	f	%
1.	Availability of cheap labour	8	26.66
2.	Small and fragment land holdings	12	40.00
3.	High initial cost	10	33.34

Table 2 presents the data of thirty number of wheat growers who preferred manpower over mechanization for wheat farming. The data shows that most of the wheat growers prefer manpower for carrying out farming operations because of having "small and fragment land holdings" (40.00%), followed by "high initial cost" (33.34%) and "availability of cheap labour" (26.66%).

Table 3 Reasons for preference of farm machineries to carry out farming operation for wheat cultivation

S. No	Statement	f	%
1.	Timely completion of work	12	21.81
2.	More efficient	26	47.27
3.	Non-availability of labour	17	30.92

As far as preference of farm mechanization for carrying out farming operations was concerned, the data presented in table 4.21 reveals that most of the wheat growers preferred farm mechanization because of "efficiency" (47.27%), followed by "non-availability of labour" (30.92%) and "timely completion of work" (21.81%).

Extent of farm mechanization

Table 4 Distribution of wheat growers according to extent of farm mechanization

S. No.	Farming operation	Extent of farm mechanization				
		Full mechanized f (%)	Partial mechanized f (%)	Not mechanized f (%)	Mean scale value	Rank
1.	Primary tillage a. Tractor b. Mould-board plough c. Chisel plough d. Disc plough	80 (94.11)	5 (5.88)	0 (0.00)	2.94	I
2.	Secondary tillage a. Cultivator b. Rotavator c. Land laveller d. Horrow	40 (47.05)	30 (35.29)	15 (17.64)	2.29	VIII
3.	Seed treatment a. Seed treatment drum	23 (27.05)	45 (52.94)	17 (20.00)	2.07	X
4.	Sowing a. Seeddrill b. Ferti-cum-seed drill	49 (57.64)	36 (42.35)	0 (0.00)	2.57	III
5.	Irrigation a. Sprinkler	43 (50.58)	27 (31.76)	15 (17.64)	2.32	VIII
6.	Weeding a. Manual sprayer b. Electrical sprayer	52 (61.17)	18 (21.17)	15 (17.64)	2.43	V
7.	Plant protection a. Manual sprayer b. Electrical sprayer	52 (61.17)	18 (21.17)	15 (17.64)	2.43	V
8.	Harvesting a. Combine harvestor b. Reeper	75 (88.23)	10 (11.76)	0 (0.00)	2.88	II
9.	Threshing a. Thresher b. Pedal thresher c. Hand winnower d. Power operated winnower	48 (56.47)	37 (43.52)	0 (0.00)	2.56	IV
10.	Post harvesting practices a. Drying–seed drying machine b. Grading – grading machines c. Storage – seed storage drum	42 (49.41)	30 (35.29)	13 (15.29)	2.34	VII

Extent of farm mechanization by wheat growers was assessed and the data in Table 4 shows that "Primary tillage" ranked first with mean scale value of 2.94 as majority of wheat growers preferred use of farm implements and machineries for tillage purpose followed by "harvesting" ranked second with mean value of 2.88, "Sowing" ranked third with mean value of 2.57, "Threshing" ranked fourth (mean value of 2.56), Weeding" "Plant protection" both were ranked fifth with mean scale value of 2.43, "Post harvesting practices" ranked seventh with mean value of 2.34, "Irrigation" ranked eighth (mean value 2.32), "Secondary tillage" " ranked ninth with mean scale value of 2.29 and "Seed treatment" ranked tenth with mean scale value of 2.07.

For primary tillage tractor was used by 100 per cent of wheat growers, followed by chisel plough (82.35%). For secondary tillage cultivator was used by 96.47 per cent of the wheat growers, followed by rotavator (90.58%), land leveller (64.70%) and harrow (40.00%). For seed treatment, seed treatment drum was used by 82.35 per cent of the respondents. For sowing, seed drill was used by 82.82 per cent of wheat growers. For irrigation, most of the wheat growers (63.52%) used sprinkle. For weeding, electrical sprayer was used majority of respondents (70.58%), followed by manual sprayer (29.41%). For plant protection, electrical sprayer was used majority of respondents i.e. 70.58 per cent, followed by manual sprayer (29.41%). For harvesting, combine harvester was used by most of the respondents (63.00%). For threshing, majority of the wheat growers were using hand winnower (70.64%) followed by power operated winnower (16.47%) and thresher (37.00. For post harvesting practices, seed storage drum and grading machines were used by 77.64 and 9.41 per cent of the wheat growers, respectively.

Table 5 Distribution of wheat growers according to overall extent of farm mechanization

S.No.	Category	f	%
1.	Low farm mechanization	9	10.86
2.	Medium farm mechanization	45	52.94
3.	High farm mechanization	31	36.47
	Total	**85**	**100.00**

Table 5 reveals that 52.94 per cent of wheat growers had medium (52.94%) level of farm mechanization followed by high (36.47%) and low (10.86%) level of farm mechanization. Thus, it can be stated that most of the wheat growers were having medium (52.94%) level of farm mechanization.

Conclusion

On the basis of study it can be concluded that maximum number of the wheat growers had medium to high level of farm mechanization in wheat cultivation. The possible reason attributed to the factors as educational status and medium source of information utilization because mass media like television, telephone, Krishi Patrika, radio, newspaper etc. provide information on farm implements and machinery.

References

1. Ghosh, B. K. (2010). Determinants of farm mechanization in modern agriculture: A case study of Burdwan districts of West Bengal. International Journal of Agricultural Research,5(12):1107-1115.
2. Ramadas, S., Kiran Kumar T.M. and Singh G.P. (2019). Wheat Production in India: Trends and Prospects. Open Access Peer-Reviewed Chapter. Retrieved from https://www.intechopen.com/chapters/67311.
3. Singh, R.S. and Kumar, M. (2017). Economic Evaluation and Mechanization Index of Selected Cropping Pattern in Madhya Pradesh, Economic Affairs, 62(3):439.
4. The Hindu. (2017). Mechanisation key to farming productivity. Retrieved from https://www.thehindu.com/news/national/kerala/mechanisation-key-to-farming-productivity/article22271714.ece