TRENDS OF TECHNOLOGICAL GAP IN SELECTED CROPS UNDER DRYLAND FARMING

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ABSTRACT

The present study was conducted in C D block Chapa in district Allahabad of U.P. to investigate trends of technological gap for selected crops in dryland farming under study. Out of 36 villages in Chapa block, only five villages selected purposively for the study on the basis of the highest percentage area under dryland farm technology. Thirty farmers were selected randomly from each of the five villages in equal preportion from each categories (small, medium and large) of households. Thus a total sample of one hundred fifty respondents was selected for the present study. The study reported that the adoption of recommended varieties of wheat were found to the level of 41.33 per cent of the total sample farmers followed by Paddy, Gram and Arhar. The percentage area under recommended varieties of crops was found more in holding of small farmers to medium and large farmers in almost all the crops except wheat. In case of proper seed rate, there was higher percentage gap found in Paddy and Wheat crops. Regarding adoption of land improvement and water harvesting practices in dryland condition the study reported that Land shaping and land leveling was adopted by 61.33 farmers while contour bunding was adopted by 59.33 per cent farmers of the study area. Only 1.33 per cent farmers adopted water harvesting. Further, it was found that lack of knowledge was most important reasons for non adoption of land improvement and water harvesting practices followed by non practicable, lack of guidance, high cost and lack of credit which were also another important reasons for above scenario.

Key words : Technological gap, Dryland farming, Water harvesting

INTRODUCTION :

In Indian agriculture nearly 70 per cent of the cultivated area are under dryland agriculture and contributes 42 per cent of total food grains and 75 per cent of pulses and oilseeds. The dryland /rainfed areas are habited mostly by the rural poor, who have negligible resources at their disposal and their land holding too are very small. Unirrigated areas in India are characterized by low and unstable crop yields. In the Northern State of Madhya Pradesh and U.P. only little more than half of the net cultivated areas is irrigated. The crop wise analysis shows that about 90 per cent of the area under sorghum, pearl millet and groundnut is rainfed. About 65 per cent of the area under rice and rapeseed/mustard is rainfed. Nearly 80 per cent of the area under gram, maize and cotton spreads is under dryland while, in wheat, only 35 per cent area in the country is rainfed. It is estimated that even by the end of the 20 th century about 50 per cent of the cultivated area will continue to be under dryland agriculture. Thus, it is clear that the dryland agriculture could contribute significantly in increasing production and scope for future. The specific objective of the present study was to study the trends of technological gap in selected crops in dryland farming.

METHODOLOGY :

The study was conducted in C D block Chapa in district Allahabad of U.P. to investigate trends of technological gap for selected crops in dryland farming under study. Out of 36 villages in Chapa block, only five villages selected purposively for the study on the basis of the highest percentage area under dryland farm technology. Thirty farmers were selected randomly from each of the five villages in equal preportion from each categories (small, medium and large) of households. Thus, a total sample of one hundred fifty respondents was selected for the present study.

RESULTS AND DISCUSSION :

An attempt was made to study the gap in adoption of recommended varieties of dryland crops and their technological gaps in selected crops.

Table 1. Distribution of categories of farmers adopting the recommended varieties of crops in dryland

S. N.	Crops	Recommended Varieties	Percentage of farmers adopting practices			
			Large (N=21)	Medium (N=46)	Small (N=83)	Total (N=150)
1.	Gram	K468, Pant G 114	28.57	49.27	15.66	27.77
2.	Arhar	U.P.A.S. 120, T.21, T.17	26.98	36.95	29.31	31.55
3.	Wheat	K-65, Sonalika, C.306, Mukta	25.41	39.85	42.57	41.33
4.	Paddy	Kavery, Saket-4	19.04	27.53	17.67	11.11

It is evident from table 1 that the adoption of recommended varieties of wheat viz. Sonalika, K-65, C-306, Mukta were found to the level of 41.33 per cent of the total sample farmers followed by Paddy, Gram and Arhar to the extent of 11.11, 27.77and 31.55 percent, respectively.

Table 2 shows that percentage area under recommended varieties of crops was found more in holding of small farmers to medium and large farmers in almost all the crops except wheat.

1. Trg. Asso. (Ag. Ext.), RDS KVK, Kalakankar, Pratapgarh, (U.P.), **2.** Head, (Ag.Ext.), K.A. (P.G.) Collage, Allhabad (U.P.)

Table 2 Distribution of area of dryland crops under improved seed

S N	Crops	Recommended Varieties	Percent area under recommeded varieties		
			Large (N=21)	Medium (N=46)	Small (N=83)
1.	Gram	K468, Pant G 114	57.14	67.39	83.13
2.	Arhar	U.P.A.S. 120, T.21, T.17	42.85	63.04	75.90
3.	Wheat	K-65, Sonalika, C. 306, Mukta	76.19	82.60	84.33
4.	Paddy	Kavery, Saket-4	38.09	56.52	71.08

Table 3. Resource gap on seed rate

S N	Crops	Percentage of gap under different categories of farmers		
		Large	Medium	Small
1.	Gram	19.04	17.39	19.17
2.	Arhar	23.80	28.26	15.27
3.	Wheat	28.57	10.86	6.02
4.	Paddy	38.09	23.91	16.86

Table 4. Resources gap in fertilizer application

S N	Crops	Categories of Farmers	Percentage of gap	
			N	P_2O_5
1.	Gram	Small	39.75	67.46
		Medium	52.17	67.39
		Large	33.33	57.14
2.	Arhar	Small	45.78	63.85
		Medium	47.82	63.04
		Large	38.09	57.14
3.	Wheat	Small	49.39	67.46
		Medium	50.00	58.69
		Large	52.38	76.19
4.	Paddy	Small	48.19	69.87
		Medium	54.34	60.86
		Large	47.61	71.42

The analysis of the resources gap was concerned upon the extent of use of proper seed and fertilizer in dryland cultivation (Table 3 & 4). Table 3 shows that in case of proper seed rate, there was higher percentage gap found in Paddy and Wheat crops. On an average 'medium' categories of farmers had higher resources gap fertilizer application under selected crops. Therefore, the production and productivity of these crops is also effected.

Regarding adoption of land improvement and water harvesting practices in dryland condition table 5 indicates that Land shaping and land leveling was adopted by 61.33 farmers while contour bunding was adopted by 59.33 per cent farmers of the study area. About 56 per cent farmers adopted off season tillage followed by soil mulching (50 Per cent) and water harvesting (1.33 per cent)

Table 5. Adoption of land improvement and water harvesting practices in dryland condition

S. No.	Dryland Agricultural Practices	High N=21	Medium N=46	Small N=83	Total N=150
1.	Contour bunding	8 (38.09)	25 (54.34)	51(61.44)	89(59.33)
2.	Land shaping and land leveling	11(52.38)	21 (45.62)	43(51.80)	92(61.33)
3.	Off season tillage	10(47.61)	19(41.30)	35(42.16)	85(56.66)
4.	Soil mulching	9(42.85)	20(43.47)	38(45.78)	75(50.00)
5.	Water harvesting	2(9.52)	-	-	2(1.33)

Table 6. Reasons for non adoption of land improvement and water harvesting practices

S N	Reasons for non adoption	Rank order of the reason
1.	Lack of knowledge	I
2.	Non practicable	II
3.	Lack of guidance	III
4.	High cost	IV
5.	No. of need felt	V
6.	Lack of credit	VI
7.	Lack of conviction	VII
8.	Risky	VIII
9.	Lack of time	IX
10	Requires high skill	X
11.	Poor weather	XI
12.	Non profitable	XII

Table 6 reveals that lack of knowledge was (first rank) most important reasons for non adoption of land improvement and water harvesting practices followed by non practicable, lack of guidance, high cost and lack of credit which were also another important reasons for above scenario. A less number of farmers felt that lack of conviction , time, requires high skill, poor weather and not profitable crops also other reasons of non adoption of land and water harvesting practices.

CONCLUSION :

Efforts are needed to proper selection of crops varieties and encouragement for oilseed, pulses cultivation and also carefully adopted viz. time of sowing, depth and distance of planting. There is strong need to use area and climate based mixed cropping, interculture, weed control and plant protection. Besides, the farmers need to be educated and assisted through training, demonstration and financial help to undertake water conservation, water harvesting, soil moisture preservation, overcoming soil physical constraints and making alternative land use system. The infrastructural support needs revitalization that inputs are timely and adequately available and linkage with the district extension machinery and the university research system also need integration.

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