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CONSTRAINTS IN ADOPTION OF WHEAT PRODUCTION TECHNOLOGY PERCEIVED BY THE SMALL FARMERS

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ABSTRACT

The study was conducted in 12 villages of Bharatpur district of Rajasthan with the sample size 225 small farmers cultivating wheat crop. Results indicated that the varieties of constraints were responsible for low adoption of wheat production technology however, few of them were most important such as , lack of soil testing facility, lack of knowledge about chemical control of weeds, water salinity, use of chemicals weed control is not as effective as hand weeding, lack of knowledge about soil treatment, lack of proper storage facility, non availability of under ground water for irrigation, lack of knowledge about plant protection and seed treatment, non availability of HYV seed in time, costly chemicals for soil treatment, inadequate irrigation facility, lack of technical help about plant protection measures, non-availability of plant protection equipments, lack of conviction about pesticides and adulteration of insecticides, non-availability of fumigants , non availability of fertilizers in time and lack of awareness about soil analysis. This trends to imply that more educational efforts are required to be undertaken by extension agency for improvement of knowledge and accelerating the pace of production by way of more adoption of new technologies of wheat cultivation.

INTRODUCTION

Wheat is the major cereal crop of india in terms of area as well as production. It is grown almost in all parts of india during rabi season. It covers 27.80 million ha. area with the production of 80.73 million tones and average yield 29.07 q/ha. The productivity of wheat varies from state to state. In the year 2008-09 Rajasthan had about 2.3million hectares area under wheat , which is mostly under uncertain irrigation facility, where soil were coarse in texture, having poor fertility status and moisture retention capacity. The production of state is about 7.28 million tones and the productivity (31.75q/ha) is less than the neighboring state Haryana, Punjab and Uttar Pradesh. Despite the good potential of the wheat verities, average production of region is quite low (3275kg/ha) it may be due to low adoption of wheat production technology by the small farmers. Efforts are being made at various levels to sustain food security through wheat production. But as on date, the result is not satisfactory and worthy. Thus, the factor limiting the production can not be ignored and therefore, the present study was undertaken to analysis the constraints faced by the wheat growers.

Adoption of agricultural technologies differs from farmer to farmer. Adoption refers to both mental acceptance and also covers the use of new agricultural technologies. In present study adoption is define as the use of recommended agricultural technologies on continuing basis.

The new technology in general has been adopted by big farmers who were innovative and were well off in resource structures and inputs availability, resulted into wide range gap in term of adoption of wheat production technology by big and small farmers. Keeping this point of view, the study was undertaken to see the complete picture of the constraints being faced by the farmers in adoption of wheat production technology in the district with the specific objectives-:

- To study the constraints faced by the farmers in adoption of wheat production technology in Bharatpur district of Rajasthan.

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RESEARCH METHODOLOGY

The study was conducted in Bharatpur district of Rajasthan. Out of nine Panchayat Samities in the district, three Panchayat Samities namely, Kumher, Sewar and Nadbai were selected purposively. Three villages were selected randomly from each Panchayat Samiti. This way nine villages were selected randomly. In all 25 small farmers (respondents) were selected randomly from each village constituting the sample of 225 respondents for the purpose of study. The data were collected with the help of specially developed interview schedule duly modified before the final use. The data thus collected were dully processed and on the basis of which findings have been presented in this paper.

RESULTS AND DISCUSSION

Table 1. Major constraints as perceived by the small farmers in adoption of wheat production technology

n = 225

S. No.	Constraints	Number of respondents	Percentage	Rank
(A)	**Seed technology**			
1.	Lack of knowledge of growing HYV wheat	98	43.55	III
2.	Non availability of HYV seed in time.	136	60.44	I
3.	High cost of HYV seed	96	42.66	IV
4.	Lack of finance	79	35.11	V
5.	Inadequate irrigation facility	134	59.55	II
(B)	**Seed treatment**			
1.	Lack of knowledge	145	64.44	I
2.	Not availability of seed dresser	64	28.44	IV
3.	Lack of awareness	72	32.00	III
4.	High cost of chemicals	85	37.77	II
5.	Lack of finance	68	30.22	V
(C)	**Soil treatment**			
1.	Lack of knowledge	164	72.89	I
2.	Lack of awareness	108	48.00	III
3.	High cost of chemicals	136	60.44	II
4.	Lack of assured irrigation	72	32.00	V
5.	Lack of finance	84	37.33	IV
(D)	**Soil analysis technology**			
1.	Lack of soil testing facility	215	95.55	I
2.	Lack of interest by extension personnel	125	55.55	II
3.	Lack of knowledge	96	42.66	IV
4.	Lack of awareness	104	46.22	III
5.	Lack of convience about utility	78	34.66	V
(E)	**Fertilizer technology**			
1.	Lack of knowledge	72	32.00	IV
2.	Lack of irrigation facility	98	43.55	II
3.	Non availability of fertilizers in time	108	48.00	I
4.	High cost of fertilizers	65	28.88	V
5.	No-credit facility	84	37.33	III
6.	Lack of finance	62	27.55	VI
(F)	**Plant protection technology**			
1.	Lack of knowledge	148	65.77	I
2.	Non availability of chemicals	74	32.89	VII
3.	High cost of pesticide & fungicides	126	56.0	III
4.	Lack of technical help	130	57.78	II
5.	Adulterated insecticides	122	54.22	V
6.	Non-convienced about their effectiveness	118	52.44	VI
7.	Non-availability of plant protection equipments	125	55.11	IV

S. No.	Constraints	Number of respondents	Percentage	Rank
(G)	**Irrigation technology**			
1.	Lack of finance	55	24.44	V
2.	Lack of irrigation facility	97	43.11	IV
3.	Low flow of water in deep tube well	102	45.33	III
4.	Charges of tube well water is so high	36	16.0	VI
5.	Non-availability of under ground water for irrigation.	162	72.0	II
6.	Saline water	178	79.11	I
(H)	**Chemical control of weeds**			
1.	Lack of knowledge	186	82.66	I
2.	Risky method	50	22.22	V
3.	Manual weeding provides green fodder	60	26.66	IV
4.	High cost involved	93	51.55	III
5.	Hazardous to crop	45	20.00	VI
6.	Lack of awareness	60	26.66	V
7.	Chemical weed control is not as effective as hand weeding	164	72.89	II
(I)	**Improved implements**			
1.	Lack of knowledge	48	21.33	IV
2.	Small size of land holding	66	29.33	II
3.	Lack of experience	45	20.00	V
4.	High cost of improved farm implements	96	42.66	I
5.	Lack of finance	65	28.89	III
(J)	**Grain storage**			
1.	Using traditional practices of storage	75	33.33	V
2.	Lack of knowledge	88	39.11	IV
3.	Unavailability of fumigants	114	50.66	III
4.	Lack of proper storage facility	162	72.00	I
5.	Grain is stored for very short period	125	55.55	II

The constraints responsible for low adoption of ten selected practices of wheat cultivation as reported by small farmers were presented in Table-1.

(A) Seed technology: It is evident from the Table 1 that 'Non availability of seed in time ' (60.44%), 'inadequate irrigation facility' (59.55%), 'lack of knowledge growing HYV of wheat'(43.55%), 'high cost of HYV seed '(42.66%) and 'lack of finance' (35.11%) were the important constraints responsible for low adoption of seed technology, which were ranked I, II, III, IV and V, respectively.

(B) Seed treatment: Table 1 reveals that 'lack of knowledge' (64.44%) is the main constraint for low adoption of seed treatment practices followed by 'high cost of chemical' (37.77%) and 'lack of awareness' (32.00%) about seed treatment were ranked second and third respectively. The 'lack of finance' (30.22%) and 'non-availability of seed dresser' (28.44%) were another constraints affecting reverse the adoption process and ranked IV and V respectively.

Thus, from the above explanation it may be concluded that the most important constraints affected reversely the adoption of seed treatment technology by the small farmers were, 'lack of knowledge', 'high cost of chemicals' and 'lack of awareness'.

(C) Soil treatment: It is depicts from the Table 1 that 'lack of knowledge'(72.89%) is the main constraint responsible for low adoption of soil treatment technology. The other important constraints were 'high cost of chemicals' (60.44%), 'lack of awareness about soil treatment' (48.00%), 'lack of finance' (37.33%), and 'uncertain crop due to lack of assured irrigation' (32.00%), which were responsible for low adoption of soil treatment technology.

Thus, from the above explanation, it may be concluded that lack of knowledge, costly chemicals

and lack of awareness were the three important constraints experienced by the small farmers in adoption of soil treatment technology.

(D) Soil analysis technology: It is apparent from the Table 1 that 'lack of soil testing facility' (95.55%) and 'lack of extension personnel's interest' (55.55%) were the main constraints in getting the soil analysed by small farmers. The other constraints which were reported by less than 50.00 per cent respondents were; 'lack of awareness' (46.22%), 'lack of knowledge' (42.66%) and 'lack of convience about utility' (34.66%).

Thus, from the explanation it could be concluded that lack of soil testing facility, lack of interest by extension personnel and lack of awareness were the three important constraints responsible for low adoption of soil analysis technology.

(E) Fertilizer technology: It is evident from the Table 1 that 48.00 per cent respondents have explained that the problem of 'non availability of fertilizers in time is the most important constraint in adoption of fertilizers. The other important constraints were 'lack of irrigation facility' (43.55%), ' 'non availability of suitable credit facility' (37.78%), 'lack of knowledge' (32.00%), 'high cost of fertilizers' (28.00%) and 'lack of finance (27.55%).

Thus, it is concluded that on the basis of rank order the important constraints being experienced by the farmers were 'non availability of fertilizers in time ', 'lack of irrigation facility', and "non availability of credit facility'.

(F) Plant protection technology: Table 1 clearly indicates that the important constraints which were responsible for low adoption in case of plant protection technology were 'lack of knowledge' (65.77%), 'lack of technical help' (57.78%), 'high cost of pesticides/fungicides' (56.00%), non-availability of plant protection equipment (55.11%), 'adulterated insecticides' (54.22%) and 'lack of convience about their effectiveness' (52.44%) and 'non availability of chemicals (32.89%) respectively .

Thus, from the foregoing description, it may be concluded that 'lack of knowledge', lack of technical help, 'high cost of pesticides/fungicides', and 'non-availability of plant protection equipments' were the main constraints observed for the responsible for low adoption of plant protection technology by small farmers.

(G) Irrigation technology: Table 1 further reveals that 'saline water ' and 'non availability of underground water for irrigation' were the major constraints experienced by the 79.11% and 72.00% respondents respectively. The other constraints which were experienced by less than 50.00 per cent respondents were 'low flow of water in deep tube well', 'irrigation water in proper time' (45.33%), 'lack of irrigation facility' (43.11%), 'lack of finance' (24.44%). 'charges of tube well is so high' (16.08%) was reported by less then 20.00% of the respondents.

Thus, it may be concluded that 'water salinity', 'non availability of underground water for irrigation 'and 'low flow of water in deep tube well' were the three important constraints responsible for low adoption of irrigation technology by the small farmers.

(H) Chemical control of weeds: It is apparent from the Table 1 that 'lack of knowledge' (82.66%) was the main constraint responsible for low adoption of chemical control of weeds. The second important constraints reported by 72.89 per cent of small farmers was 'use of chemicals weed control is not as effective as hand weeding' while, 'high cost of weedcides' is ranked third (51.55%) as an important constraint.

From above explanation, it may be concluded that prominent constraints responsible for low adoption of chemical control of weeds were 'lack of knowledge', 'use of chemical control is not as effective as hand weeding' and 'high cost involved'.

(I) Improved implements: It is clear from the above Table that major constraint was responsible for low adoption of improved implements technology was 'high cost of improved farm implements' reported by 42.66% farmers, however others constraints which were reported by less than 30.00% farmer were 'small size of land holding' (29.33%), 'lack of finance' (28.89%), 'lack of knowledge' (21.33%) and 'lack of experience' (20.00%), which were ranked II,III and IV

respectively.

Thus, the conclusion can be drawn that 'high cost of improved farm implements', small size of land holding' and 'lack of finance' were the important constraints responsible for low adoption of improved implements.

(J) Grain storage: A cursory review of Table 1 reveals that 'lack of proper storage facility' (72.00%), 'grain is stored for very short period' (55.55%),'non availability of fumigants' (50.66%), lack of knowledge (39.11%) were the main constraint responsible for low adoption of grain storage practices.

Thus, it may be concluded that 'lack of proper storage facility', 'grain is storage for very short period' and 'unavailability of fumigants' were the three important constraints responsible for low adoption of fumigants practices in storage.

CONCLUSION

Thus, from the above results, it may be concluded that major constraints which were responsible for low adoption of wheat production technology as experienced by the small farmers were 'lack of soil testing facility', 'lack of knowledge about chemical weed control ', 'water salinity', 'use of chemicals weed control is not as effective as hand weeding', 'lack of knowledge about soil treatment', 'lack of proper storage facility', ' non availability of underground water for irrigation ', 'lack of knowledge about plant protection technology', 'lack of knowledge about seed treatment', 'non availability of HYV seeds in time', ' costly chemicals for soil treatment', 'inadequate irrigation facility', 'lack of technical help regarding plant protection technology, 'high cost of pesticides/fungicides', 'lack of extension personnel', 'grain is stored for very short period', 'adulteration of insecticides', 'high cost involved in chemical control of weeds, and hence they were not effective in controlling the pests', 'lack of convience about pesticides effectiveness', 'unavailability of fumigants easily', 'untimely availability of fertilizers' and 'lack of awareness about soil treatment'.

It may also be concluded from the present investigation that action should be taken to ensure the availability of insecticide/pesticides etc. Farmers must be provided with credit facility for purchase of different inputs at reasonable rate of interest.

Adulteration in seeds, fertilizers, insecticide, pesticides is a very serious problems. Government must take efforts for checking the adulteration in farm inputs for efficient use of the farm inputs, production cost of different farm inputs should be reduced and prices of different farm produce should be remunerative.

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