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Constraints in adoption of recommended technology of mustard cultivation

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Abstract
Rapeseed mustard is an important crop commonly grown as a each crop in Northern Indian plain. It is also used as condiment in preparation of pickles and flowering, India, with 10 million hectare is the largest rapeseed mustard growing country in the world china rank first production followed by India. The present study was conducted to find out knowledge and adoption of recommended technology of mustard cultivation in Jhunjhunu district of Rajasthan.

Keywords: mustard, constraints, recommended technology

Introduction
Rajasthan is the largest rape-seed mustard growing state and alone contributes 46.06 per cent production from the hectarage of 37.3 per cent. As much as 87 per cent of the total edible oil product in the country comes from two oil seed crops namely groundnut and rape-seed mustard. Therefore, their is an urgent necessity of increasing the productivity of these oil seed crops in the country is quite obvious. Through adoption of recommended technology by the farmers and by minimizing the production constraints. This calls for adequate knowledge of innovation on the part of mustard growers who adopt the know-how to modernize or improve the mustard cultivation. Therefore, it is very necessary to know the knowledge level, adoption level and constraints responsible for non-adoption of various recommended technology of mustard cultivation by the farmers and efforts should be made to reduce the constraints for speedy adoption of recommended technology of mustard cultivation. Consideration this fact, the present study was conducted with an objective "to find out the major constraints as perceived by the farmers in adoption of recommended technology of mustard cultivation"

Methodology
The present study was under taken in Chirawa panchayat samiti of Jhunjhunu district. From the selected panchayat samiti, ten gram panchayats were selected by using simple random sampling technique. Similarly, twenty villages were selected from selected gram panchayats by random sampling technique.
From the selected villages, a sample of 120 respondents were selected by stratified random sampling proportional allocation technique. Data were calculated by the investigator through personal interview technique with the help of schedule.
In this part an attempt was made to identify and analyse the constraints responsible for the recommended technology of mustard under the agro-climatic conditions where the farmer were living. The response were recorded three continnum response categories namely; up to high extent, upto to medium extent and up to low extent, three continnum response categories were 3, 2 and 1 respectively. Thereafter, collected data were analysed, tabulated and interpreted in the light of objective. The findings regarding these constraints have been presented in Table-1.

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Table 1: Constraints faced by the farmers in adoption of recommended technology of mustard cultivation

S. No.	Constraints	HE 3	ME 2	LE 1	M.S.	Aspect wise rank	Overall rank
A.	**Technical constraints**						
1.	Lack of knowledge about HYV seeds	71	21	28	2.36	V	11
2.	Lack of knowledge about proper seed rate	65	30	25	2.33	VI	13
3.	Lack of knowledge about seed treatment	70	15	25	2.29	VII	15
4.	Lack of knowledge about spacing	45	60	15	2.25	VIII	18
5.	Higher susceptibility to insect- pest and disease	65	35	20	2.37	IV	10
6	No knowledge about weedicides but follow manual weeding	75	20	25	2.41	III	7
7.	Crop failure due to aberrant weather condition	80	25	15	2.54	II	3
8.	Difficulty in maintaing seed depth	60	30	30	2.55	I	2
9.	Difficulty in interculture operation	40	45	35	2.04	IX	20
B	**Economic constraints**						
1.	High cost of HYVs seed	70	25	25	2.37	IV	10
2.	High cost of insecticides and pesticides	85	25	15	2.58	I	1
3.	High cost of weedcides	75	23	22	2.44	II	6
4.	High cost of fertilizers	72	22	26	2.38	III	9
5.	High cost of equipments (spray and duster)	64	32	24	2.33	V	13
C.	**Educational constraints**						
1.	Lack of confidence that HYV give good yield in the farmers field	67	28	25	2.35	IV	12
2.	Lack of knowledge and skill about proper method technique of sowing	74	20	26	2.40	III	6
3.	Lack of knowledge about chemical fertilizer and the proper application method	82	23	15	2.55	I	2
4.	Lack of knowledge about plant protection measure	71	31	18	2.44	II	6
5.	Lack of knowledge and skill in operating implements and equipments such as sprayers, dusters etc.	63	24	33	2.25	V	18
D.	**Infrastructural constraints**						
1.	Agricultural department does not provide proper guidance when required	63	32	25	2.32	IV	14
2.	Technical staff working in the field is not available when needed	51	37	32	2.15	VII	19
3.	Technical staff working in the field is not devoted to the professional work	66	32	22	2.36	III	11
4.	Too much difficulty in purchasing agricultural inputs from market and cooperative societies	78	23	19	2.49	II	5
5.	Credit facilities and service provided by bank are not timely and delayed in credit disbursals	81	18	21	2.50	I	4
6.	Problem of nepotism and favouritism in providing technical facilities	56	42	22	2.28	V	16
7.	Insufficient supply of electricity for cultivation of crop	73	26	21	2.27	VI	17

Results and Discussion
(i) Technical constraints
Table-1 explained that on the whole "Difficulty in maintaing seed depth" (2.55 MS) was as the most perceived constraint as it was perceived by 60 per cent farmer's up to high extent, 30 per cent farmers up to medium extent and 30 per cent farmers up to low extent perceived and hence it was ranked first. The second most perceived constraint was "Crop failure due to aberrant weather conditions" (2.54 MS) followed by "No knowledge about weedicides but follow manual weeding " (2.41 MS), "Higher susceptibility to insect pest and diseases" (2.37 MS) was perceived as second, third and fourth most perceived constraint respectively. The constraints "Lack of knowledge about HYVs seed " (2.36 MS), "Lack of knowledge about proper seed rate " (2.33 MS), "Lack of knowledge about seed treatment" (2.29 MS) and "Lack of knowledge about spacing" (2.25 MS), were perceived as fifth, sixth, seventh and eight most perceived constraint. The constraint "Diffuclty in interculture operation such as weeding, hoeing" (2.04 MS) was perceived as the least perceived constraint by the farmers as it was perceived by 40 per cent farmers upto high extent, 45 per cent farmers upto medium extent and 35 per cent farmers up to low extent perceived.

(ii) Economical constraints
Table-1 indicated that on the whole "High cost of insecticide and pesticide", "High cost of weedicide" were reported by 2.58 and 2.44 mean score and as such these were ranked at first and second places, respectively. The other constraints like "High cost of fertilizers", "High cost of HYVs seed" and "High cost equipment (spray and duster)" were also reported by 2.38, 2.37 and 2.33 mean score, respectively (ranked at III, IV and V place, respectively).

(iii) Educational constraints
Table-1 indicated that on the whole "Lack of knowledge about chemical fertilizer and proper application method" and "Lack of knowledge about plant protection measures" were reported by 2.55 and 2.44 mean score, respectively and as such these were ranked at first and second place, respectively. The other constraints "Lack of knowledge and skill about proper method and technique of sowing" and "Lack of confidence that HYV give good yield on the farmers field" were also reported by 2.40 and 2.35 mean score respectively. (ranked at III and IV place), respectively. The "Lack of knowledge and skill about operation of implements and equipment such as sprayers and dusters etc." was a constraint faced by only 2.25 MS which was ranked at last position in the educational constraints.

(iv) Infrastructural constraints
Table-1 depicts the findings of infra-structural constraints as perceived by the respondents responsible for recommended technology of mustard cultivation practices. A critical analysis of data presented in the Table-9 reported that credit

facilities and service provided by banker not in timely and delayed in credit disbursals" and "Too much difficulty in purchasing agriculture inputs from market and co-operative societies" were the most perceived infra-structural constraints which were reported by 2.50 and 2.49 MS, respectively (ranked I and II). The other constraints in descending order were "Technical staff working in the field is not professional devoted to the work" (2.36MS), "Agricultural department does not provide proper guidance when required" (2.32 MS), "Problem of nepotism and favouritism in providing technical facilities" (2.28MS), "Insufficient supply of electricity for cultivation of crop (2.27 MS) and "Technical staff working in the field is not available when needed" (2.15 MS) ranked III, IV, V, VI and VII respectively.

Table 2: Relative position of different categories of constraints as perceived by the farmers of mustard cultivation

S. No.	Categories of constraints	Mean per cent score	Rank
1.	Technical constraints	2.34	III
2.	Economical constraints	2.42	I
3.	Educational constraints	2.40	II
4.	Infrastructural constraints	2.33	IV

Table-2 -embodies the relative position of the four categories of constraints responsible for adoption of recommended technology of mustard cultivation.

A critical examination of the data presented in the table revealed that economical constraints possessed the first position (Rank-I) as perceived by 2.42 mean score.

Similarly, educational constraints got the second position (2.40 MS) and third position awarded to technical constraint (2.34MS) and infrastructure constraints (2.33 MS) was perceived by last position.

The present finding are in accordance of close conformity with the Bhati (1999), Agrawal (2000) and Jangid (2001) [2, 1, 3]

Conclusion
The study indicated that the constraints "Cost of insecticide and pesticide is very high (2.58 MS) was the most perceived constraint among all the constraints faced by the farmers which was responsible for adoption of recommended technology of mustard, as it perceived by 85 per cent farmers upto high extent, 20 per cent up to medium extent, 15 per cent farmers upto low extent perceived it. Hence it was awarded first rank. The second most perceived constraint faced by the farmers was "Difficulty in maintaining seed depth" (2.55 MS) and "Lack of knowledge about chemical fertilizer and proper application method" (2.55 MS) and it occupied second rank. The "Crop failure due to aberrant weather condition" (2.54 MS), had occupied third, respectively.

The constraint "Difficulty in interculture operation such as weeding, hoeing" (2.04 MS) was the least perceived by the farmers as it was perceived by 40 per cent farmers upto high extent, 45 per cent farmers upto medium extent, 35 per cent farmers upto low extent perceived it and was ranked at last position.

The problem of "Cost of insecticide and pesticide is very high" might be due to the fact that most of the farmers under study were of medium socio-economic status that is why an average farmer can not afford to purchase insecticide and pesticide for mustard crop. Also it might be due to the monopoly of private dealers and traders that they sale insecticide and pesticides on high cost to farmers in the study area.

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