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Constraints Perceived by Farmers in Adoption of Recommended Production Technology of Mungbean in Jaipur District of Rajasthan, India

Mukesh Choudhary[1*], Hanuman Lal Jat[2], Rajneesh[3], R. Rajasree[4] and Vidya Bhati[5]

[1]Department of Extension Education, RCA,Udaipur, India
[2]Department of Horticulture, SKRAU, Bikaner, India
[3]Department of Extension Education, Sri Karan Narendra College of Agriculture, Jobner (Rajasthan)-303329, India
**Corresponding author*

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A B S T R A C T

Pulses are the main source of quality protein and a rich source of energy, minerals and certain vitamins. The study was conducted in Jaipur district of Rajasthan. Jaipur district comprises of sixteen tehsils, out of which 3 tehsils viz., Dudu, Phulera and Phagi were selected purposely. Two gram panchayats were selected randomly from each tehsils. Two revenue villages were selected from each selected gram panchayat on the basis of random sampling method. Thus the total 12 villages were selected. Total 120 mungbean growing farmers (respondents) were selected randomly through proportional allocation to the size of sample. Among all the five categories of constraints the "Marketing constraints" (66.20 MPS) with highest intensity were found most important while "Financical constraints" (57.36 MPS) were found at last rank perceived by farmers or by the overall respondents in adoption of recommended cultivation practices of mungbean The constraints like "Lack of knowledge about plant protection measures" (Technical constraints), "High cost of insecticides and pesticides" (Financial constraints), "Lower Minimum Support Prices (MSP) of produce fixed by the Government" (Marketing constraints), "High losses during storage due to stored grain pests" (Storage constraints) and "Natural calamities" (General constraints) were perceived as major constraints by overall respondents in the adoption of recommended production technology of Mungbean.

Introduction

Pulses are the main source of quality protein and a rich source of energy, minerals and certain vitamins. They help in balancing the cereal dominated diet of low and middle income families by supplementing the essential amino acids profile of cereal proteins economically

Among the various legume crops grown in India mungbean occupies an important place because of its 25 percent protein excellent quality and high digestibility due to low flatulence (Singh *et al.*, 1983). Providing balanced ration to the growing population of India Mungbean is a good option because of its high yielding potential. A quantum jump in the production of this crop can meet the expectations of the policy makers and nutritional planners.

Mungbean stands third after chickpea and pigenpea in the country among pulses. Pulses accounts 24.79 m ha area with an annual production of 19.77 million tons in the country. Mungbean occupies 29.36 lakh hectare area and contributes 12.80 lakh tones in pulse production in the country (Anonymous, 2012-13). The important mungbean growing states are Rajasthan, Madhya Pradesh, Uttar Pradesh, Orisha, Maharastra, Karnataka, Bihar etc.

In Rajasthan mungbean is grown over 790185 hectare with the production of 23426 tonnes. Jaipur district has 60624 hectare area under mungbean cultivation and production 9579 tonnes, which is nearly 4.09 per cent of total mungbean production in Rajasthan (Annoymous, 2012-13). The productivity of Jaipur district is 158 kg/ha. There is a wide scope to improve and increase the mungbean production and productivity by enhancing the knowledge and adoption of recommended production technology by farmers.

Materials and Methods

The study was conducted in Dudu, Phagi and Phulera tehsils of Jaipur district of Rajasthan. Jaipur district was selected purposely on account of lowest productivity i.e. 158 kg/ha and tehsils were selected purposely because these tehsils have maximum area under mungbean crop in Jaipur district, Farmers were selected on the basis of proportinate random sampling technique from each selected village making a total sample of 120 mungbean growers.

An interview schedule consisting of measuring devices along with the face data of the respondents was developed for the study purpose and was personally introduced to the respondents following the principles of interviewing. The schedule was having three categories viz. up to high extent, up to medium extent and up to low extent and the scores of 3, 2 and 1, respectively were awarded to them. The total scores of a constraint were summed up and they divided by total number of respondents to obtain the mean per cent score. The constraints were then ranked in descending order on the basis of these mean per cent score, for getting the constraint score of an individual respondent. The scores of all the constraints that the individual faced were summed up.

Constraints perceived by the farmers in adoption of recommended adoption technology of mungbean

In this section it was tried to find out the constraints in the adoption of improved mungbean production technology perceived by the respondents. As reported earlier there exists a glaring gap in level of knowledge and extent of adoption of improved mungbean production perceived by the respondents. All the possible constraints faced by the farmers which hinder the extent of adoption of improved practices of mungbean were grouped in to five major categories viz., (i) Technological constraints (ii) Financial constraints (iii) Marketing constraints (iv)Storage constraints and (v) General constraints.

Technical constraints perceived by the farmers in adoption of recommended adoption technology of mungbean

Table 1.reveals that “Lack of knowledge about plant protection measures” (73.33 MPS) was perceived as the constraint with high intensity faced by respondents indicated by first rank assigned to it. This was followed by “Unavailability of suitable variety” (69.44 MPS), “Unavailability of latest technology at village level”(66.11) “Lack of technical guidance” (60.83 MPS), “Lack of knowledge about seed treatment” (60.56 MPS), “Lack of knowledge about spacing” (60.56 MPS),

"Lack of knowledge about bio-fertilizer" (58.61 MPS), "Inadequate technology" (57.78MPS) with II, III, IV, V,VI,VII and VIII ranks assigned in order of constraints realized by the respondents, respectively. The constraints "Inadequate knowledge of agriculture functionaries" with 57.50 MPS and "Lack of knowledge about fertilizer" with 54.44 MPS were perceived as the least affecting constraints in adoption of mungbean cultivation by the respondents (Srivastava *et al.*, 2002; Bankar, 2008 and Sisodia and Rathore, 2004-05).

Results and Discussion

This might be due the fact that number of VEWs and KVK scientist were inadequate. The working area of a VEW and KVK scientist was large. Therefore, it was not possible to cover entire farm families of their operational area. Lack of knowledge about plant protection measures and complex practices in their application were found main obstacle in the adoption of improved mungbean production technology. Because of this reason they followed hand weeding practice and used these weeds as green fodder for the animals.

Financial constraints perceived by the farmers in adoption of recommended adoption technology of mungbean

In table 2.reveals that financial constraints "High cost of insecticides and pesticides" with MPS 73.89 was found at the first rank. The other constraints like "high labour charges"(69.44 MPS), "High cost of high yielding varieties"(66.07 MPS)," High cost of crop insurance"(65.56 MPS), "High cost of weedicides"(64.17 MPS), "Non-availability of credit facility at marginal interest"(61.94 MPS), "High cost of equipments (sprayer and duster)" (59.44 MPS) "Non-availability in season and high cost of fertilizers" (57.22 MPS), and "High cost of input" (55.28 MPS) were also reported important constraints ranked at II, III, IV, V, VI, VII, VIII and IX place, respectively by the respondents (Chandawat *et al.*, 2012 and Chand *et al.*, 2002).

From the above results it may be concluded that "High cost of insecticides and pesticides", high cost of high yielding varieties" and high labor charge were perceived by majority of the farmers as most important financial constraints. This might be due to the facts that on one hand, the small land holders had low capacity to purchase production inputs and on the other hand, there was continuous increase in the cost of plant protection chemicals, fertilizers and HYV seeds and continuous increase of labour wages. It might be due to the monopoly of private dealers and traders that they sale insecticides and pesticides at high cost with low quality to farmers in the rural area. This was also true that the problems of credit facility and services provided by banks are not timely and delay in credit disposal. So, farmers could not use improved techniques in the field.

Marketing constraints perceived by the farmers in adoption of recommended adoption technology of mungbean

The data in table 3.indicates that "Lower Minimum Support Prices (MSP) of produce fixed by the Government" (77.22 MPS), was perceived as major constraint with 1st rank by the respondents. This was followed by other constraints like "Monopoly of traders in local mandis" (73.89 MPS), "Unregulated marketing system" (69.44 MPS), "Distress sale due to immediate need of money (68.61 MPS), "Mal practices of middlemen" (67.78 MPS), "Complicated marketing system" (64.44 MPS), and "Unavailability of input in the village" (60.28 MPS) were reported at II, III, IV, V, VI, and VII ranks in order of marketing constraints faced by overall

respondents in adoption of improved mungbean production technology. Whereas, "Biasness by mandi supervisor" and "mandi taxes on the poor producer" were faced by only 58.06 and 56.11 MPS respondents which were ranked at last position in the marketing constraints (Jat *et al.*, 2011 and Khan and Chauhan, 2005). Majority of the respondent reported "Lower Minimum Support Prices (MSP) of produce fixed by the Government" (77.22 MPS) as major marketing constraint with 1st rank. The "Monopoly of traders in local mandis" (73.89 MPS) and "Unregulated marketing system" (69.17 MPS) were also considered as important constraints in the adoption of improved mungbean production technology. It was reported by respondents that due to low MSP farmer were tend to sold their produce into the local market there were few buyers and they were showing the monopoly and giving less price, so farmer facing these problem under the marketing constraints.

Storage constraints perceived by farmers in adoption of recommended technology of mungbean

A critical analysis of table 4.reveals that "High losses during storage due to rodent and stored food grain pests" (82.22 MPS) was perceived as constraints with top priority and accorded 1st rank by the respondents. This was followed by "Lack of technical knowledge about storage" (73.80 MPS), "Lack of technical know how about curing (68.61 MPS), "Unavailability of proper place of storage" (67.78 MPS) and inaccessibility of fumigants for storage (66.39 MPS) which were considered critical constraints with II, III, IV and V ranks, respectively. "Lack of storage houses (50.83 MPS), and "Unavailability of gunny bags" (49.44 MPS) had hardly obstructed the mungbean growers which is indicated by their last rank (Burman, *et al.,* 2006 and Kumar *et al.,* 2009 & 2010).

It was noted that majority of farmers reported that "High losses during storage due to stored grain pest", "Lack of technical knowledge about storage", and "Lack of technical know how about curing" were major storage constraints in adoption of improved mungbean production technology. Most of the farmers in study area are poor so they sale their produce immediately after harvesting, thus they do not store their produce at huge level.

General constraints perceived by farmers in adoption of recommended technology of mungbean

The data presented in table 5.indicates that "Natural calamities" (82.50 MPS) was perceived as major constraint with 1st rank by the respondents. This was followed by "Lack of supervision by extension agencies among farmers" (73.61 MPS), "Lack of coordination among the farmers" (63.06 MPS), "Lack of motivating agencies in the area" (61.94 MPS), Resource poor farmers" (61.83 MPS), "Fragmented and undulated land" (60.83 MPS) and "Lack of transportation facilities due to lack of pucca road", (44.17 MPS) with II, II, IV, V, VI and VII ranks assigned by respondents, respectively (Patodiya and Sharma, 2014 and Shinde *et al.*, 2003).

From the findings result it may be concluded that that the constraint "Natural calamities" (82.50 MPS) was ranked first, by the respondents. It may also be concluded that the constraints "Lack of transportation facilities due to lack of pucca road" and "Fragmented and undulated land" were found least opinion important in farmers with 60.83 and 44.17 MPS respectively. This might be due to the fact that the numbers of VEW for agronomy crops were still inadequate and the operational area of a VEW was big. Therefore, it was not possible to cover entire farmers in the operational area.

Table. 1 Technical constraints perceived by the farmers in adoption of recommended adoption technology of mungbean

N= 120

S.N.	Constraints	MPS	Rank
A	**Technical constraints**		
1.	Lack of technical guidance	60.83	IV
2.	Inadequate technology	57.78	VIII
3.	Unavailability of suitable variety	69.44	II
4.	Inadequate knowledge of agriculture functionaries	57.50	IX
5.	Unavailability of latest technology at village level	66.11	III
6.	Lack of knowledge about plant protection measures	73.33	I
7.	Lack of knowledge about seed treatment	60.56	V
8.	Lack of knowledge about spacing	60.56	VI
9.	Lack of knowledge about fertilizer	54.44	X.
10.	Lack of knowledge about bio-fertilizer	58.61	VII
	Average	61.89	

Table.2 Financial constraints perceived by the farmers in adoption of recommended adoption technology of mungbean

N= 120

S.N.	Constraints	MPS	Rank
B	**Financial constraints**		
1	High labour charges	69.44	II
2	Non-availability at season and high cost of fertilizers	57.22	VIII
3	High cost of input	55.28	IX
4	High cost of equipments (sprayer and duster)	59.44	VII
5	High cost of high yielding varieties	66.07	III
6	High cost of weedicides	64.17	V
7	High cost of insecticides and pesticides	73.89	I
8	Non-availability of credit facility at marginal interest in time	61.94	VI
9	High cost of crop insurance	65.56	IV
	Average	57.36	

Table.3 Marketing constraints perceived by the farmers in adoption of recommended technology of mungbean

N= 120

S.N.	Constraints	MPS	Rank
C.	**Marketing constraints**		
1	1. Distress sale due to immediate need of money	68.61	IV
2	Lower Minimum Support Prices (MSP) of produce fixed by the Government	77.22	I
3	Complicated marketing system	64.44	VI
4	Unregulated marketing system	69.44	III
5	Mal practices of middlemen	67.78	V
6	Mandi taxes on the poor producer	56.11	IX
7	Monopoly of traders in local mandis	73.89	II
8	Biasness by mandi supervisor	58.06	VIII
9	Unavailability of input in the village	60.28	VII
	Average	66.20	

Table.4 Storage constraints perceived by farmers in adoption of recommended technology of mungbean

N= 120

S.N.	Constraints	MPS	Rank
1.	Lack of technical knowledge about storage	73.80	II
2.	Lack of know-how about curing	68.61	III
3.	Inaccessibility to fumigants for storage	66.39	V
4.	Unavailability of proper storage place	67.78	IV
5.	High losses during storage due to stored grain pests	82.22	I
6.	Lack of storage houses	50.83	VI
7.	Unavailability of gunny bags	49.44	VII
	Average	65.60	

Table.5 General constraints perceived by farmers in adoption of recommended technology of mungbean

N= 120

S.N.	Constraints	MPS	Rank
1.	Natural calamities	82.50	I
2.	Fragmented and undulated land	60.83	VI
3.	Resource poor farmers	61.83	V
4.	Lack of motivating agencies in the area	61.94	IV
5.	Lack of coordination among the farmers	63.06	III
6.	Lack of supervision by extension agencies among farmers	73.61	II
7.	Lack of transportation facilities due to lack of pucca road	44.17	VII
	Average	64.56	

Table.6 Relative position of different constraints in adoption of recommended production technology

S.No.	Constraints	MPS	Rank
1.	Technical constraints	61.89	IV
2.	Financial constraints	57.36	V
3.	Marketing constraints	66.20	I
4.	Storage constraints	65.60	II
5.	General constraints	64.56	III

Relative position of different constraints in adoption of recommended production technology of mungbean

Table 6.explain the relative position of five categories of constraints responsible for adoption of improved cultivation practices of mungbean, the data in table 6 reveals that among five categories of constraints the marketing constraints (66.33 MPS) were perceived with highest intensity by the respondents. This was followed by storage constraints (65.60 MPS), general constraints (64.56 MPS) technical constraints (61.89 MPS) and financial constraints (57.36 MPS), respectively by all the respondents (Sharma *et al.,* 2005 and Sharma and Sharma, 2007.

In conclusion it was found among all the five categories of constraints the "Marketing constraints" (66.20 MPS) with highest intensity were found most important while "Financical constraints" (57.36 MPS) were found at last rank perceived by farmers or by the overall respondents in adoption of recommended cultivation practices of mungbean.

The constraints like "Lack of knowledge about plant protection measures" (Technical constraints), "High cost of insecticides and pesticides" (Financial constraints), "Lower Minimum Support Prices (MSP) of produce fixed by the Government" (Marketing constraints), "High losses during storage due to stored grain pests" (Storage constraints) and "Natural calamities" (General constraints) were perceived as major constraints by overall respondents in the adoption of recommended production technology of mungbean.

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