



Research Article

Constraints of mothbean production technology in arid region of Rajasthan

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SUMMARY : The present study was conducted in purposely selected Bikaner district. Four Panchyat Samities viz., Bikaner, Nokha, Kolayat and Dungargarh were selected. 17 villages and 80 beneficiary respondents where the front line demonstration conducted by KVK, Bikaner were included in the study sample. Likewise 17 another village and 80 non-beneficiary respondents. Mothbean is an annual legume of dry and warm habitat and characterized as one of the most drought hardy legumes in arid region. Mothbean is mainly used in the Bikaneri Bhujia, papad and namkeen industry which is an important source of earning the foreign currency and provides the year long employment to the large number of people. The main objective of the front line demonstration was to demonstrate newly released crop production and protection technologies and management practices at the farmers' field under different agro-climatic regions and farming situations. There was association between ranks assigned by beneficiary and non-beneficiary mothbean growers in different aspects of input, financial, marketing output, environment and miscellaneous constraints. Further, there was no association between the ranks assigned by beneficiary and non-beneficiary mothbean growers in different aspects of technical constraints.

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KEY WORDS :

Constraints,
Mothbean, Front line
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Beneficiary and non-
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BACKGROUND AND OBJECTIVES

Mothbean is an annual legume of dry and warm habitat and characterized as one of the most drought hardy legumes in arid region. Mothbean is mainly used in the Bikaneri Bhujia, papad and namkeen industry which is an important source of earning the foreign currency and provides the year long employment to the large number of people. The main objective of the front line demonstration was to demonstrate newly released crop production and protection technologies and management practices at the farmers' field under different agro-climatic regions and farming situations.

RESOURCES AND METHODS

The present study was conducted in purposely selected four Panchyat Samities viz., Bikaner, Nokha, Kolayat and Dungargarh of Bikaner district. 17 villages and 80 beneficiary

respondents where the front line demonstrations conducted by KVK, Bikaner were included in the study sample. Likewise 17 another village and 80 non-beneficiary respondents on whose farm's front line demonstration were not conducted within the distance of 5 to 15 km were also selected randomly and included in the study as control group. Thus the total study sample comprised of 160 respondents (80 beneficiary and 80 non-beneficiary).

OBSERVATIONS AND ANALYSIS

The results of the present study as well as relevant discussion have been summarized under following heads:

Distribution of respondents according to constraints perceived by them in adoption of mothbean production technology:

The data in Table 1 indicate that 8.75 per cent beneficiary and 30.00 per cent non-beneficiary

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Table 1: Distribution of respondents according to constraints perceived by them in adoption of mothbean production technology (n=160)

Sr. No.	Extent of constraints	Beneficiary (n=80)		Non-beneficiary (n=80)	
		F	%	F	%
1.	Low (<26.69 score)	28	35.00	1	1.25
2.	Medium (26.69-46.99 score)	45	56.25	55	68.75
3.	High (>46.99 score)	7	8.75	24	30.00
	Total	80	100	80	100

F= frequency, % percentage

respondents were perceived more constraints.

Further 56.25 per cent beneficiary respondents and 68.75 per cent of non-beneficiary respondents were perceived moderate constraints, while, 35.00 per cent of beneficiary respondents and only 1.25 per cent non-beneficiary respondents perceived less constraints in adoption of mothbean production technology.

Constraints related to inputs as perceived by respondents regarding adoption of mothbean production technology:

The Table 2 shows that beneficiary respondents were facing more problems related to lack of irrigation facility, unavailability of improved seed at the time of sowing and unavailability of fertilizers during peak season. Further constraints regarding supply of inferior quality seed, unavailability of culture at time of sowing, availability of recommended chemicals for plant protection measures and more requirement of fertilizer and manures were least perceived by the beneficiary respondents and assigned 4th, 5th 6th and 7th rank respectively.

Further analysis of data shows that the non-beneficiary respondents reported much problem of unavailability of improved seed at the time of sowing, lack of irrigation facility and supply of inferior quality seed. Further constraints related to unavailability of fertilizers at the peak season were faced moderately. Least faced constraints (below 20 MPS) by non-beneficiary farmers were unavailability of recommended chemicals for plant protection measures and more requirement

of fertilizer and manures. An effort was also made to find out the relationship in perception of input constraints between beneficiary and non-beneficiary mothbean growers. The value of rank order correlation r_s was 0.92. It indicates positive correlation. The calculated value of 't' (5.28) was higher than its tabulated value at 1 per cent level of significance.

Financial constraints perceived by the mothbean production technology:

The Table 3 shows that beneficiary respondents were facing more problems related to high cost of fertilizers, unavailability of procurement price of the product, malpractices of the merchants in the mandies and high cost of seed of high yielding varieties, further they perceived relatively less constraints, regarding high cost of plant protection chemicals, high cost of labour and unavailability of credit on marginal interest with 40.0, 32.50 and 25.00 MPS, respectively.

Further analysis of data shows that the non-beneficiary respondents had much problem regarding high cost of fertilizer, malpractices of the merchants in the mandies, unavailability of procurement price of the product and high cost of chemicals, further they also perceived constraints regarding high cost of seed of high yielding varieties, unavailability of credit on marginal interest and high cost of labour with 51.25, 50.00 and 41.25 MPS, respectively. The tabulated value of rank order correlation r_s was 0.84 which indicates positive correlation. The calculated value of 't' (3.56) was higher than its tabulated value at 5 per cent level of significance.

Table 2 : Constraints related to inputs as perceived by the mothbean growers in adoption of mothbean production (n=160)

Sr. No.	Constraints	Beneficiary (n=80)		Non-beneficiary (n=80)	
		MPS	Rank	MPS	Rank
1.	Unavailability of improved seed at the time of sowing	43.75	2	42.50	1
2.	Supply of inferior quality seed	18.75	4	40.00	3
3.	Unavailability of fertilizer at the peak season	32.50	3	33.75	4
4.	More requirement of fertilizers and manures	13.75	7	16.75	7
5.	Unavailability of culture at time of sowing	17.50	5	28.75	5
6.	Unavailability of recommended chemicals for plant protection measures	16.25	6	20.00	6
7.	Lack of irrigation facilities	50.00	1	41.25	2
	Overall	27.50		31.78	

r_s = Rank correlation; ** indicates significance of value at P=0.01

$r_s = 0.92^{**}$
 $t = 5.28$

Table 3 : Financial constraints perceived by the farmers in adoption of mothbean production technology (n=160)

Sr. No.	Constraints	Beneficiary (n=80)		Non-beneficiary (n=80)	
		MPS	Rank	MPS	Rank
1.	High cost of seed of high yielding variety	52.50	4	51.25	5
2.	High cost of fertilizers	66.25	1	73.75	1
3.	High cost of plant protection chemicals	40.00	5	57.50	3.5
4.	High cost of labour	32.50	6	41.25	7
5.	Unavailability of credit on marginal interest	25.00	7	50.00	6
6.	Unavailability of procurement price of the product	63.75	2	57.50	3.5
7.	Mal practices of the merchants in the mandies	56.25	3	68.75	2
Overall		48.04		57.14	

r_s = Rank correlation; ** indicates significance of value at P=0.01

r_s = 0.84**
t = 3.56

Technical constraints perceived by the respondents in adoption of mothbean production technology:

A critical examination of Table 4 reveals that beneficiary respondents were facing relatively more problems about lack of knowledge about plant protection measures (26.25 MPS) and weed control through weedicides is complex practice (25.00 MPS). Further they perceived the lesser constraints regarding lack of knowledge about weed management, lack of knowledge about quantity of fertilizer, lack of skill for seed treatment, ignorant about the advantages of culture and lack of knowledge about recommended seed rate. The constraints regarding availability of technical advice as and when needed was not at all perceived by the beneficiary respondents as services of Agriculture Supervisor and KVK scientists were available in the area.

Further analysis of the data show that non-beneficiary respondents faced problems to the greater extent regarding lack of knowledge about quantity of fertilizer (37.50 MPS), unavailability of technical advice as and when needed (36.25 MPS), weed control through weedicides is complex practice, lack of knowledge about plant protection measures (35.00 MPS) and lack of skill for seed treatment 31.25 MPS. Further,

they perceived the lesser constraints regarding lack of knowledge about weed management, ignorant about the advantages of culture and lack of knowledge about recommended seed rate.

To see the relationship between the ranks assigned by the beneficiary and non-beneficiary farmers for realization of technical constraints in mothbean crop, the rank order correlation was calculated and tested by applying ‘t’ test. The value of ‘t’ for both the beneficiary and non-beneficiary categories of respondents was found non-significant which leads to the conclusion that there is difference in realization of technical constraints between beneficiary and non-beneficiary mothbean growers.

Constraints related to environment perceived by the moth growers in adoption of mothbean production technology:

A critical examination of Table 5 reveals that irrespective of beneficiary and non-beneficiary respondents major problem of long dry spell, uncertainty of monsoon, erratic rainfall, scarcity of moisture in soil and cloudy weather at the time of flowering were perceived major environmental problems by all the respondents. These problems were also perceived as

Table 4 : Technical constraints perceived by the farmers in adoption of mothbean production technology (n=160)

Sr. No.	Constraints	Beneficiary (n=80)		Non-beneficiary (n=80)	
		MPS	Rank	MPS	Rank
1.	Lack of skill for seed treatment	11.25	5	31.25	5
2.	Lack of knowledge about weed management	18.75	3	27.50	6
3.	Ignorant about the advantages of culture	10.00	6	16.25	7
4.	Weed control through weedicides is complex practice	25.00	2	35.00	3.5
5.	Unavailability of technical advice as and when needed	0.00	8	36.25	2
6.	Lack of knowledge about recommended seed rate	3.75	7	8.75	8
7.	Lack of knowledge about quantity of fertilizer	16.25	4	37.50	1
8.	Lack of knowledge about plant protection measures	26.25	1	35.00	3.5
Overall		13.91		28.44	

r_s = Rank correlation; NS= Non-significant

r_s = 0.26 NS
t = 0.66

major constraints by beneficiary as well as non-beneficiary respondents with a little variation.

The problem like insect pests and disease infestation due to continuous rainfall and high susceptibility to insect-pest and disease were perceived very less by all the respondents irrespective of beneficiary respondents or non-beneficiary respondents. Table further show that the value of rank order correlation (r_s) was to be 0.86. It indicates positive correlation. The calculated value of 't' (3.78) was higher than its tabulated value at 5 per cent level of significance.

Marketing output constraints perceived by the respondents in adoption of mothbean production technology:

The Table 6 shows that beneficiary farmers were facing more problems regarding lack of storage facility, lack of transport facility compulsion by village agent and mandi merchant and poor farmers' cooperative structure. Further, they also perceived constraints regarding, manipulation by merchants and lack of government grain procurement facilities

with 37.50 and 35.00 MPS, respectively.

Further, analysis of data shows that the non-beneficiary respondents faced more constraints regarding poor farmers' cooperative structures, compulsion by village agent and mandi merchant, lack of government grain procurement facilities and manipulation by merchants. Further they also perceived constraints regarding lack of storage facility and lack of transport facility with 42.50 and 40.00 MPS, respectively. The value of rank order correlation r_s was to be 0.68. It indicates positive correlation. The calculated value of 't' (2.64) was higher than its tabulated value at 5 per cent level of significance.

Similarly Singh *et al.* (2003) also worked on adoption and constraints of mothbean production technology in the arid zone of Rajasthan.

Conclusion:

– Beneficiary and non-beneficiary farmers perceived more constraints for environment, financial marketing output and input constraints in adoption of improved mothbean

Table 5 : Constraints related to environment perceived by the mothbean growers in adoption of mothbean production technology (n=160)

Sr. No.	Constraints	Beneficiary (n=80)		Non-beneficiary (n=80)	
		MPS	Rank	MPS	Rank
1.	Scarcity of moisture in soil	85.00	4	90.00	2
2.	Uncertainty of monsoon	92.50	2	88.75	3
3.	Erratic rainfall	91.25	3	87.50	4
4.	Long dry spell	93.50	1	92.50	1
5.	Cloudy weather at the time of flowering	67.50	5	83.75	5
6.	Insect pests and disease infestation due to continuous rainfall	8.75	6	10.00	7
7.	High susceptibility to insect pest and disease	7.50	7	12.50	6
	Overall	63.71		66.43	

r_s = Rank correlation; * indicates significance of value at P=0.05

$r_s = 0.86^*$
 $t = 3.78$

Table 6 :Marketing output constraints perceived by the farmers in adoption of mothbean production technology (n=160)

Sr. No.	Constraints	Beneficiary (n=80)		Non-beneficiary (n=80)	
		MPS	Rank	MPS	Rank
1.	Lack of storage facility	43.75	1	42.50	5
2.	Lack of transport facility	42.50	2	40.00	6
3.	Compulsion by village agent and mandi merchant	41.25	3	51.25	2
4.	Lack of government grain procurement facility	35.00	6	50.00	3
5.	Manipulation by merchants	37.50	5	46.25	4
6.	Poor farmers cooperative structures	40.00	4	52.50	1
7.	Problems of marketing in remote areas	6.25	10	8.75	10
8.	Lower price at harvesting	17.50	7	27.50	7
9.	Absence of assured marketing remunerative price and insurance facility	10.00	9	13.75	9
10.	Non-declaration of purchase price before sowing season	13.75	8	18.75	8
	Overall	28.75		35.12	

r_s = Rank correlation; *Significant at 5% level of significance

$r_s = 0.68^*$
 $t = 2.64$

production technology. Technical and miscellaneous constraints were perceived least in adoption of mothbean production technology by the overall, beneficiary as well as non-beneficiary respondents.

– There was association between ranks assigned by beneficiary and non-beneficiary mothbean growers in different aspects of input, financial, marketing output, environment and miscellaneous constraints. Further, there was no association between the ranks assigned by beneficiary and non-beneficiary mothbean growers in different aspects of technical constraints.

Recommendations:

– It is recommended that availability of seed and fertilizers at a required time be assured in the area. The responsibility of assuring the critical production inputs may be entrusted to cooperative societies, NGOs, input dealers of the area concern and over and above the research institution eg. Agricultural Research Station, Bikaner.

– On the basis of findings it is suggested that the technological constraints can be minimized by assuring availability of fertilizers and acquiring skill for seed treatment by the respondents. Therefore, the state department of agriculture should take the responsibility to make available the fertilizer and seed at the required time to the mothbean growers and see that they acquire perfection in seed treatment.

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