

RESEARCH ARTICLE :

Constraints causing serious concern to pea growers in Kota region of Rajasthan

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ARTICLE CHRONICLE :

Received :

11.01.2016;

Revised :

06.03.2016;

Accepted :

08.04.2016

SUMMARY : The findings indicated that 94 (47.00%) of total pea producers faced medium level of constraints in adoption of pea production technology. Whereas, 29 (14.50%) respondents were reported from the group of low constraints level and 77 (38.50%) respondents were in the high constraints level. It was also found that inadequate skill for seed treatment, non-availability of timely technical advice for crop cultivation, non-availability of improved agriculture tools in the local market, non-availability of labour at the time of harvesting of crop, non-availability of credit at marginal interest rate, high cost of plant protection chemicals were important constraints perceived by the pea growers in adoption of pea production technology.

How to cite this article : Meena, N.R., Sharma, F.L. and Singh, Narpat (2016). Constraints causing serious concern to pea growers in Kota region of Rajasthan. *Agric. Update*, 11(2): 104-111 (DOI : 10.15740/HAS/AU/11.2/104-111).

KEY WORDS :

Constraints,
Pea, Adoption,
Technology

BACKGROUND AND OBJECTIVES

Pea is commonly known as garden pea (matar), is very popular because its green pods as well as dry seeds are in great demand for cooking as vegetable and pulse, respectively. It is relatively hardy and grows best under cool climate. Peas are suitable for canning, freezing and dehydration and, therefore, they are available in the off-season. Pea continuous to serve an important role in modern agriculture as a nitrogen fixing rotational crop with cereals pea play important role in human diet as well as in the national economy of India pea is grown on area of 370.0 thousand hectares with the production of 3517.0 thousand mt. in India. The improved cultivation technology of pea has been

developed but the productivity is low as compared to recommended by the scientists. This may be due to the constraints perceived by the pea growers in adoption of pea cultivation technology. It is needless to mention that pace of adoption can be augmented by overcoming the perceived constraints. Looking to the above facts, the present study was conducted in Kota region of Rajasthan with the aimed to identify the constraints faced by the pea growers in adoption of pea production technology.

RESOURCES AND METHODS

The present study was conducted in Kota region of Rajasthan. Kota region consist of five districts, out of which three districts

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namely Bundi, Kota and Tonk were selected purposively on the basis of maximum area under pea cultivation. Two tehsils from each identified districts were selected on the basis of maximum area under pea cultivation. Thus, in all six tehsils were taken for the present study. Total twenty villages were identified on the basis of proportionate sampling from the selected tehsils. To select the respondents, a comprehensive list of all pea growers was prepared for all villages. Thereafter, the farmers were categorized into two groups *i.e.* small and marginal on the basis of pea cultivation. The respondents selected randomly from each category of the farmers. It was planned to select 10 respondents *i.e.* five in each category from the each selected village. Thus, the total sample size of the study was 200 respondents. Data were collected through prestructured interview schedule. Thereafter, data were analysed, tabulated and interpreted in the light of the objective.

OBSERVATIONS AND ANALYSIS

In the present study, the constraints perceived by the farmers about pea production technology were identified and same have been presented in subsequent Tables.

Distribution of pea growers according to level of constraints faced by them in pea cultivation :

To get an overview of the pea growers regarding the constraints encountered by them in adoption of recommended pea cultivation technology, they were ramified into three strata *i.e.* low, medium and high level of constraints on the basis of calculated mean and standard deviation of the score given to the constraints item by the respondents.

Table 1 reveals that 94 (47.00%) of total pea producers faced medium level of constraints in adoption of pea production technology. Whereas, 29 (14.50%) respondents were reported from the group of low constraints level and 77 (38.50%) respondents were in

the high constraints level. While analysing the case of small and marginal respondents regarding constraints in adoption of improved pea production practices, it was reported that 16 per cent small farmers were in the low constraints level and 35.00 per cent small farmers in the high constraints group, while 49.00 per cent small farmers were found in the medium level constraints category. Likewise, 45.00, 13.00 and 42.00 per cent marginal farmers faced medium, low and high level of constraints respectively in adoption of recommended pea cultivation practices.

It can be inferred that majority of small farmers fell under category of medium level of constraints regarding adoption of recommended pea production technology. Whereas, considerable number of marginal farmers were under high level of constraints as compared to small farmers.

Aspect-wise constrains perceived by the pea growers :

All the constraints expressed by the respondents were categorized into technical, input supply, financial, ecological, marketing and general groups. The results are presented under different headings as given below.

Technical constraints perceived by pea growers :

Data presented in Table 2 show that “inadequate skill for seed treatment” was the most severe constraint perceived by the marginal and small pea growers with mean per cent score 94.15 and 84.76, respectively and was ranked first by both the categories of farmers. The realization of this constraint might be due to lack of training programmes on seed treatment. The next most important problem faced by the marginal and small farmers was “non-availability of timely technical advice for crop cultivation” with 92.60 and 82.09 per cent, respectively. This was followed by the problem “poor knowledge about high yielding varieties” which was placed on third rank by marginal and small farmers with 82.13 and 68.30 MPS

Sr. No.	Level of constraints	Marginal farmers		Small farmers		Total	
		f	%	f	%	f	%
1.	Low (< 62)	13	13.00	16	16.00	29	14.50
2.	Medium (62-85)	45	45.00	49	49.00	94	47.00
3.	High (> 85)	42	42.00	35	35.00	77	38.50
	Total	100	100.00	100	100.00	200	100.00

f = Frequency, % = Per cent

respectively. The constraint “use of weedicide is technically complex practice” was perceived with the extent of 75.13 and 62.52 MPS by marginal and small farmers respectively. Whereas, ‘lack of knowledge about soil treatment’ was placed on fourth rank by small farmers and fifth rank by marginal farmers with the extent of 65.80 and 72.28 per cent, respectively. It was also noted that constraint regarding “lack of knowledge of about preservation techniques of pea” was expressed with the extent of 62.69 and 53.40 per cent among marginal and small farmers, respectively.

Table indicates that constraint related to “ignorant about rhizobium culture” was assigned eight rank by marginal and small farmers with extent of 56.96 and 47.96 MPS, respectively. The constraint about “lack of skill for application of plant protection chemicals” was accorded ninth rank by small and tenth rank by marginal farmers with 43.63 and 49.57 MPS, respectively. Further analysis of table reveals that the constraint related to “poor knowledge about plant protection measures” was accorded tenth rank by small farmers, ninth rank by marginal farmers. This was followed by “lack of know-how about the proper use of chemical fertilizers and micronutrients” which was placed on eleventh rank by marginal and small farmers with 42.60 and 38.40 per cent, respectively. The constraint about “poor knowledge about crop insurance” was put on last rank by marginal and small farmers with the extent of 39.43 and 37.40 per

cent, respectively. The present findings are supported by those of Nakela (1989) and Chandra (1995).

Input-supply constraints perceived by the pea growers :

Table 3 that “non-availability of improved agriculture tools in the local market” was perceived most important constraint by the marginal and small pea growers with 96.00 and 91.73 MPS, respectively and ranked first by both the categories of farmers. The next important constraint perceived by marginal and small farmers was “non-availability of labour at the time of harvesting of crop” with the extent of 93.97 and 89.13 MPS, respectively. This was followed by constraint related to “high requirement of manures and fertilizers for HYVs” expressed as third most important constraint by marginal and small farmers with the extent of 92.20 and 84.63 MPS, respectively. The constraint about “non-availability of culture at the sowing time” was accorded fourth rank by small and marginal farmers. “Non-availability of weedicides, insecticides and pesticides in the area” was expressed as important constraint with the extent of 84.78 and 78.19 per cent by marginal and small farmers, respectively.

Table shows the constraint about “non-availability of recommended chemicals for seed treatment” was assigned sixth rank by small (73.05%) and fifth rank by marginal farmers (82.66%). This was followed by “non-availability of improved seed at the time of sowing” which

Table 2: Technical constraints perceived by the pea growers

Sr. No.	Technical constraints	Marginal farmers		Small farmers		(n = 200) Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Poor knowledge about high yielding varieties	82.13	3	68.30	3	75.21	3
2.	Inadequate skill for seed treatment	94.16	1	84.76	1	89.46	1
3.	Lack of know-how about the proper use of chemical fertilizers and micronutrients	42.60	11	38.40	11	40.50	11
4.	Poor knowledge about plant protection measures	51.73	9	40.37	10	46.05	10
5.	Use of weedicides is technically complex practice	75.13	4	62.52	6	68.82	5
6.	Non-availability of timely technical advice for crop cultivation	92.60	2	82.09	2	87.34	2
7.	Lack of knowledge about soil treatment	72.28	5	65.80	4	69.04	4
8.	Ignorant about rhizobium culture	56.96	8	47.30	8	52.13	8
9.	Lack of skill for application of plant protection chemicals	49.57	10	43.63	9	46.60	9
10.	Poor knowledge about insurance	39.43	12	37.40	12	38.41	12
11.	Lack of knowledge about preservation techniques of pea	62.69	7	53.40	7	58.04	7
12.	Inadequate knowledge of maturity standards and harvesting of pea	70.83	6	63.18	5	67.00	6

MPS = Mean per cent score

was perceived by marginal and small farmers with the extent of 63.64 and 62.40 per cent, respectively.

Further, the constraint regarding “non-availability of suitable equipments for seed treatment” was assigned tenth rank by both the categories of farmers *i.e.* small and marginal farmers with 38.93 and 45.30 MPS, respectively. The constraint related to “irregular supply of electricity for irrigation” was perceived by marginal and small farmers with the extent of 59.89 and 54.47 per cent, respectively. The constraint about “non-availability of improved sprayers and dusters in the locale” was assigned eighth rank by small and marginal farmers. This was followed by the constraint namely “non-availability of fertilizers at the peak

season” faced by marginal and small farmers with extent of 41.62 and 37.63 per cent, respectively. The constraint related to “inadequate irrigation water” was put on the last rank by both the categories of farmers because sufficient irrigation water is available in Kota region of Rajasthan.

Financial constraints perceived by the pea growers:

Table 4 reveals that “non-availability of credit at marginal interest rate” was expressed as most important constraint by the marginal and small pea growers with 96.09 and 92.50 per cent, respectively and ranked first by both the categories of farmers. This was followed by the constraint of “high cost of

Table 3: Input supply constraints perceived by the pea growers

Sr. No.	Input-supply constraints	Marginal farmers		Small farmers		(n = 200) Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Non-availability of improved seed at the time of sowing	63.64	7	62.40	7	63.02	7
2.	High requirement of manures and fertilizers for HYVs	92.20	3	84.63	3	88.41	3
3.	Non-availability of recommended chemicals for seed treatment	82.66	5	73.05	6	77.85	6
4.	Non-availability of fertilizers at the peak season	41.62	11	37.63	11	39.62	11
5.	Inadequate irrigation water	37.50	12	23.17	12	30.33	12
6.	Non-availability of improved tools in the local market	96.00	1	91.73	1	93.86	1
7.	Non-availability of culture at the sowing time	78.25	6	78.37	4	78.31	5
8.	Non-availability of labour at the time of harvesting of crop	93.97	2	89.13	2	91.55	2
9.	Non-availability of weedicides, insecticides and pesticides in the area	84.78	4	78.19	5	81.48	4
10.	Non-availability of suitable equipment for seed treatment	45.30	10	38.93	10	42.11	10
11.	Irregular supply of electricity for irrigation	59.89	9	54.47	9	57.18	9
12.	Non-availability of sprayers and duster in the locale	63.53	8	61.20	8	62.36	8

MPS = Mean per cent score

Table 4: Financial constraints perceived by the pea growers

Sr. No.	Financial constraints	Marginal farmers		Small farmers		(n = 200) Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	High cost of seed of HYVs	91.35	3	72.20	4	81.77	3
2.	High cost of chemical fertilizers	82.87	4	74.04	3	78.45	4
3.	High cost of plant protection chemicals	92.28	2	86.17	2	89.22	2
4.	High wage rate of labour	22.19	8	15.29	8	18.74	8
5.	Non-availability of credit at marginal interest rate	96.09	1	92.50	1	94.29	1
6.	Minimum support price in not timely declared	52.87	7	28.96	7	40.91	7
7.	High cost of machinery	64.47	6	42.56	6	53.51	6
8.	High premium amount of crop insurance	79.38	5	61.13	5	70.25	5

MPS = Mean per cent score

plant protection chemicals” with the extent of 86.17 and 92.28 MPS among small and marginal pea growers, respectively. The third most important constraint was “high cost of seed of HYVs” among small and marginal farmers with the extent of 72.20 and 91.35 MPS, respectively.

Table further shows that “high cost of chemical fertilizers” was also perceived as important constraint by marginal and small farmers with extent of 82.87 and 74.04 per cent, respectively. Whereas, the constraint about “high premium amount of crop insurance” was ranked fifth by both the categories of respondents. Likewise, “high cost of machinery” was expressed as sixth important constraint by marginal and small farmers with the extent of 64.47 and 42.56 MPS, respectively. The constraint regarding “minimum support price is not timely declared” and “high wage rate of labour” was placed on seventh and eight rank by both the categories of farmers, respectively and these were perceived less important constraints by

the pea growers.

Ecological constraints perceived by the pea growers :

The data presented in Table 5 reveal that “excess moisture in the soil” was one of the major ecological constraints with 97.28 and 95.13 per cent among marginal and small pea growers, respectively and ranked first by both the categories of farmers. The constraint related to “heavy frost at flowering and pod formation stage” was given second rank by marginal and small farmers with 85.88 and 87.93 MPS, respectively. The ecological constraint namely “high rainfall” was perceived as third most important constraint by both the categories of farmers *viz.*, marginal and small farmers with 57.81 and 52.00 per cent, respectively. It was observed that high rainfall during *Kharif* season is affected the time of sowing of pea in the study area.

Further analysis of table shows that “higher susceptibility to insect-pest and diseases” was put on fourth rank with the extent of 42.37 and 40.71 MPS by

Table 5 : Ecological constraints perceived by the pea growers (n=200)

Sr. No.	Ecological constraints	Marginal farmers		Small farmers		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Excess moisture in the soil	97.28	1	95.13	1	96.20	1
2.	Heavy frost during flowering and pod formation stage	85.88	2	87.93	2	86.90	2
3.	High rainfall during <i>Kharif</i> season	57.81	3	52.00	3	54.90	3
4.	Cloudy weather and untimely rainfall at flowering time	32.93	6	23.85	6	28.29	6
5.	Higher susceptibility to insect pest and diseases	42.31	4	40.71	4	41.51	4
6.	Heavy damage by the birds	38.40	5	37.39	5	37.89	5

MPS = Mean per cent score

Table 6 : Marketing constraints perceived by the pea growers (n=200)

Sr. No.	Marketing constraints	Marginal farmers		Small farmers		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Absence of adequate cold storage facilities	74.10	3	73.62	4	73.86	3
2.	Lack of quick and cost effective transport facilities	60.23	6	71.42	5	65.82	6
3.	Mal practices by merchants in the market	88.11	1	91.29	1	89.70	1
4.	Non-availability of preservation unit in the area	85.28	2	87.37	2	86.32	2
5.	Lack of well set marketing	70.84	5	76.23	3	73.53	4
6.	Seasonal glut of the produce in the market	73.19	4	70.38	6	71.78	5
7.	Lower prices at harvesting time	45.14	9	41.90	9	43.52	9
8.	Perishable nature of crop	52.57	8	79.47	8	51.02	8
9.	Absence of legal standards	59.76	7	67.20	7	63.48	7

MPS = Mean per cent score

marginal and small farmers, respectively. The constraint related to heavy damage by the birds was considered as least important constraint and placed on last rank by both the categories of farmers.

Marketing constraints perceived by the pea growers :

Table 6 reveals that “mal practices by merchants in the market” was expressed as the most important constraint by the marginal and small farmers with 88.11 and 91.29 MPS, respectively and ranked first by both the categories of the farmers. The next important marketing constraint was “non-availability of preservation unit in the area” with 85.28 and 87.37 per cent by marginal and small farmers, respectively. The marketing constraint “lack of well set marketing” was also perceived important constraint by small and marginal farmers with the extent of 76.23 and 70.84 MPS, respectively. It was also found that “absence of adequate cold storage facilities” was perceived as fourth important constraint

by the small farmers, while third by the marginal farmers.

Table further shows that marketing constraint related to “lack of quick and cost effective transport facilities” was assigned fifth rank by small farmer and sixth by marginal farmers with the extent of 71.42 and 60.23 MPS, respectively. This was followed by the marketing constraint “seasonal glut of the produce in the market” which was placed on sixth rank by small farmers and fourth by marginal farmers. The problem perceived at lowest by the marginal and small farmers was “lower prices at harvesting time” with the extent of 45.14 and 41.90 per cent, respectively.

The conclusions are supported by the findings of Farooqui *et al.* (1993) who observed that inadequate transport facilities, lack of storage facilities, non-availability of technical information were the main constraints in adoption of summer groundnut production technology.

General constraints perceived by the pea growers:

Table 7 show that “supply of inferior quality inputs

Table 7: General constraints perceived by the pea growers (n=200)

Sr. No.	Constraints	Marginal farmers		Small farmers		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Lack of training institutions for training of the farmers	74.75	2	64.76	2	69.75	2
2.	Supply of inferior quality inputs by the input dealers	96.17	1	91.37	1	93.77	1
3.	Problem of grazing animals	58.13	3	52.49	3	55.31	3
4.	Poor risk bearing ability of farmers	35.84	4	31.11	4	33.47	4

MPS = Mean per cent score

Table 8: Comparison of constraints perceived by the marginal and small farmers in adoption of pea production technology (n=200)

Sr. No.	Category of respondents	Mean	S.D.	'Z' value
1.	Marginal farmers	103.26	12.3	7.26**
2.	Small farmers	94.37	10.7	

** indicate significance of value at P=0.01

Table 9 : Comparison of constraints perceived by the respondents of selected districts

Sr. No.	Source of variation	d.f.	S.S.	M.S.S.	'F' cal.
1.	Between the selected districts	2	8640.42	4320.21	12.36**
2.	Error	197	68856.58	349.52	
	Total	199	77497.00		

* indicate significance of value at P=0.01

Table 10 : Mean value

Sr. No.	Name of districts	Mean value	C.D. value
1.	Bundi	96.25	1.033
2.	Kota	97.60	
3.	Tonk	99.02	

by the input dealers” was the most severe constraint perceived by marginal and small pea growers with the extent of 96.17 and 91.37 MPS, respectively and was ranked first by both the categories of farmers.

The second important problem perceived by the marginal and small pea farmers was “lack of training institutions for training of the farmers” which was accorded second rank by marginal and small farmers with the extent of 74.75 and 64.76 MPS, respectively. Further analysis of table shows that “problem of grazing animals” was perceived as third important constraint by marginal and small farmers with the 58.13 and 52.49 MPS, respectively. However, constraint namely “poor risk bearing ability of farmers” was perceived at lowest by the small and marginal farmers in the study area. This may be due to the fact that marginal and small farmers possessing small size of land holding and poor socio-economic condition of the farmers.

Comparison of constraints perceived by the respondents :

The comparison of constraints perceived by the pea growers was made under following heads:

Comparison of constraints between marginal and small farmers :

To find out the variation or similarity in the constraints perceived by the small and marginal farmers, the ‘Z’ test was applied. The results presented in Table 8.

Hypotheses :

NH_{01} : There is no significant difference in constraints perceived by the marginal and small farmers in adoption of pea production technology.

RH_1 : There is significant difference in constraints perceived by the marginal and small farmers in adoption of pea production technology.

Table 8 that calculated ‘Z’ value is greater than tabulated value at 1 per cent level of significance. The Null hypothesis (NH_{01}) is, therefore, rejected and research hypothesis (RH_1) entitled “there is significant difference in constraints perceived by the marginal and small farmers” is accepted. This verifies that there was significant difference between marginal and small farmers about perception of constraints in adoption of

pea production technology. Comparing the mean value, it was found that marginal farmers had more mean value than small farmers, it means marginal farmers possessed more constraints than small farmers in adoption of pea cultivation technology

Comparison of constraints between the respondents of selected districts :

Analysis of variance test was applied to see the significant difference in relation to constraints perceived by the respondents of selected districts. The results are presented in Table 9.

Hypotheses :

NH_{02} : There is no significant difference between the respondents of selected districts with respect to constraints perceived by them in adoption of pea production technology.

RH_2 : There is significant difference between the respondents of selected districts with respect to constraints perceived by them in adoption of pea production technology.

Table 9 show that calculated ‘F’ value (12.36) is higher than tabulated ‘F’ value at 1 per cent level of significance and 2 degree of freedom. So the result is statistically significant. Thus, Null hypothesis (NH_{02}) was rejected and research hypothesis (RH_2) was accepted. It means that there was a significant variation among the respondents of selected districts with respect to constraints perceived by them in adoption of pea production technology.

Conclusion :

It was found that inadequate skill for seed treatment, non-availability of timely technical advice for crop cultivation, non-availability of improved agriculture tools in the local market, non-availability of labour at the time of harvesting of crop, non-availability of credit at marginal interest rate, high cost of plant protection chemicals, excess moisture in the soil, heavy frost during flowering and pod formation stage, mal practices by merchants in the market, non-availability of preservation unit in the area, supply of inferior quality inputs by the inputs dealers and lack of training institutions for training of the farmers were important constraints expressed by the marginal and small pea growers Kota region of Rajasthan.

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