



Research Article

CONSTRAINTS PERCEIVED BY THE FARMERS IN ADOPTION OF IMPROVED GINGER PRODUCTION TECHNOLOGY IN UDAIPUR DISTRICT OF RAJASTHAN

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Abstract- Ginger is an important spice and medicinal crop. The present study was conducted in Udaipur district of Rajasthan. There are total eleven tehsils in Udaipur district, out of which two tehsils namely, Jhadol and Gogunda were selected on the basis of maximum area under ginger cultivation. Five villages from each identified tehsil were selected on the basis of maximum area under ginger cultivation. For selection of respondents, 100 ginger growers were randomly selected from identified villages (10 from each village) for data collection. It was found that majority of respondents (45.00%) fell in medium level of constraint group whereas, 28.00 per cent ginger growers were observed in the low level of constraint group and remaining 27.00 per cent respondents were possessed high level of constraint about adoption of improved ginger production technology. Study shows that major constraints for ginger growers were lack of knowledge about high yielding varieties, on-availability of improved high yielding varieties of the ginger crop, perishable commodities and resources poor farmers.

Keywords- Ginger, Constraints, Adoption, Production and Technology.

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Introduction

Ginger the underground stem, or rhizome, of the plant has been used as spice and medicine to help digestion and treat stomach upset, diarrhoea, and nausea. Ginger has also been used to help treat arthritis, colic, and heart conditions. Ginger is an aromatic spicy rhizome often dried and ground to powder and used as a flavor in biscuits, cake, cookies or preserved in syrups. Ginger is an underground stem called rhizome of the plant, it is rich in starch, volatile oil and protein. It contains 2-3% proteins, 0.9% fats, 2.4% fiber, 12.3% carbohydrates and is good source of vitamins, minerals and trace elements [1].

In Rajasthan, ginger crop is cultivated mainly in Udaipur, Dungarpur and Baran districts, producing total of 246 tons in 122 ha. The climatic conditions of the Udaipur district are most suitable for cultivation of ginger but the production of this crop is very less and production decreases year after year very rapidly. Keeping this view in mind, the present investigation was undertaken in the potential area [2].

Materials and Methods

The present investigation was conducted in Udaipur district of Rajasthan because of the selected district has the highest area and great potential of increasing production and productivity under ginger crop. The selected district consists of eleven tehsils, out of which two tehsils, namely Jhadol and Gogunda with maximum area under ginger crop were selected for the study purpose. Five villages from each tehsil were identified on the basis of maximum area under ginger crop. Thus, in all ten villages were selected for the present investigation. A comprehensive list of ginger growers prepared with the help of village patwari and agriculture supervisor of respective village, out of list 10 farmers were selected from each village on the basis of random sampling technique. Thus, total 100

farmers were selected for present investigation. Data were collected by personnel interview method through structured schedule. Thereafter, data were tabulated, analysed and conclusion were drawn in light of the objective [3-5].

Statistics

In order to answer the research questions mentioned under hypothesis and to achieve the object of the study, investigator undertook appropriate and most pertinent statistical analysis. The following statistical methods were used in the present study:

Percentage and frequency

The percentage and frequency of each studied item was calculated and simple comparisons were made.

Mean per cent score (MPS)

It was calculated by multiplying total obtained score of the respondents by 100 and divided by the maximum obtainable score.

$$\text{Mean per cent score} = \frac{\text{Total score obtained}}{\text{Maximum obtainable score}} \times 100$$

Rank

Ranks were accorded in the descending order according to the mean per cent score obtained. This was used to find out the constraints severity in order of priority.

Standard Deviation

The standard deviation (S.D.) measures the absolute dispersion of variability of distribution. The standard deviation was used in categorization of respondents in different groups.

$$SD = \sqrt{\frac{\sum X_i^2}{n} - \left(\frac{\sum X}{n}\right)^2}$$

Where,

- $\sum X_i^2$ = sum of squares of the observation
- $\sum X_i$ = sum of values of the observation
- n = Number of respondents

Results and Discussion

The constraints under present investigation were considered as major impediments that restrict the farmers to adopt the improved ginger production technology in their fields. The results are present in subsequent tables.

Distribution of respondents on the basis of their level of constraints

In this section an attempt has been made to know the level of constraints perceived by farmers in the adoption of technology. The respondents were grouped into low (< 54), (ii) medium (54 to 67) and (iii) high (> 67) constraints group on the basis of calculated mean and S.D. of the obtained scores by the respondents. The distribution of respondents is given in [Table-1].

Table-1 Distribution of respondents according to their constraint level in adoption of improved ginger production technology n=100

S.No.	Constraint level	Jhadol tehsil		Gogunda tehsil		Total	
		f	%	f	%	f	%
1.	Low (<54)	15	30.00	13	26.00	28	28.00
2.	Medium(54 to 67)	22	44.00	23	46.00	45	45.00
3.	High(>67)	13	26.00	14	28.00	27	27.00
	Total	50	100	50	100	100	100

f = frequency, % = per cent

The data in [Table-1] reveal that out of 100 respondents, majority of respondents (45.00%) fell in medium level of constraint group whereas, 28.00 per cent ginger growers were observed in the low level of constraint group and remaining 27.00 per cent respondents were possessed high level of constraint about adoption of improved ginger production technology.

Analysis of [Table-1] further reveals that 30.00 and 26.00 per cent respondents were observed in low constraint group in Jhadol and Gogunda tehsils respectively. While, 44.00 and 46.00 per cent respondents were observed in medium constraint group in Jhadol and Gogunda tehsils respectively. Whereas, 26.00 and 28.00 per cent respondents were observed in high constraint group in Jhadol and Gogunda tehsils respectively. The similar findings had been reported by Sharma (2014).[6]

Aspect-wise constraints perceived by the respondents

In the present investigation the constraints were categorized in to four suitable categories viz., technical constraints, input supply constraints, economic & marketing constraints and general constraints. The results pertaining to each category is presented in the subsequent tables.

Technical constraints perceived by the respondents

For working out the technological constraints faced by respondents in adoption of improved ginger production technology, in all 7 aspects related to technological constraint were considered. The mean per cent score (MPS) was calculated for each statement and rank was assigned accordingly. The results of technological constraints have been present in [Table-2].

Table reveals that among technical constraints lack of knowledge about high

yielding varieties was ranked first with MPS 97.66 by ginger growers. Lack of technical guidance with MPS 92.66 was ranked second. Lack of technical know-how about insect-pest and disease management with MPS 82.66 ranked third. Likewise lack of technical know-how about curing of rhizomes with MPS 79.33, lack of knowledge about value addition of ginger with MPS 79.00, lack of know-how about seed treatment with MPS 65.33 and lack of knowledge about proper time of harvesting with MPS 33.33 were ranked fourth, fifth, sixth and seventh respectively.

Table-2 Technological constraints faced by ginger growers in adoption of improved ginger production technology n=100

S.No.	Technical constraints	MPS	Rank
1.	Lack of knowledge about high yielding varieties	97.66	I
2.	Lack of technical guidance	92.66	II
3.	Lack of know-how about seed treatment	65.33	VI
4.	Lack of technical know-how about insect-pest and disease management	82.66	III
5.	Lack of knowledge about proper time of harvesting	33.33	VII
6.	Lack of technical know-how about curing of Rhizomes	79.33	IV
7.	Lack of knowledge about value addition of ginger	79.00	V

MPS = Mean per cent score

It is concluded that the main technical constraints for farmers in adoption of improved ginger production technology were lack of knowledge about high yielding varieties and lack of technical guidance. The inferences may be drawn from the findings that the most important constraint was lack of knowledge about high yielding varieties.

Input supply constraints perceived by the respondents

For working out the input supply constraints faced by respondents in adoption of improved ginger production technology, in all 6 statements related to input supply constraints faced by farmers were considered. The mean per cent score (MPS) was calculated for each statement and rank was assigned accordingly. The results of input supply constraints have been present in [Table-3].

Table-3 Input supply constraints faced by ginger growers in adoption of improved ginger production technology n=100

S. No.	Input supply constraints	MPS	Rank
1.	Non-availability of improved high yielding varieties of the ginger crop	87.00	I
2.	High requirement of manure and fertilizer for high yielding varieties	57.56	III
3.	Non-availability of fertilizers at the peak season	49.33	V
4.	Inadequate irrigation facility	48.66	VI
5.	Non-availability of insecticides and pesticides in the study area	56.00	IV
6.	Lack of processing facilities in the study area	85.00	II

MPS= Mean per cent score

[Table-3] shows that in the input supply constraints non-availability of improved high yielding varieties of the ginger crop was ranked first with MPS 87.00 and lack of processing facilities in the study area was ranked second with MPS 85.00. Table further shows that high requirement of manure and fertilizer for high yielding varieties with MPS 57.56, non-availability of insecticides and pesticides in the study area with MPS 56.00, non-availability of fertilizers at the peak season with MPS 49.33 and inadequate irrigation facility with MPS 48.66 were ranked fourth, fifth and sixth respectively.

It is concluded that major input supply constraints faced by farmers in adoption of improved ginger production technology were non-availability of improved high

Economic & marketing constraints perceived by the respondents

For working out the economic & marketing constraints faced by respondents in adoption of improved ginger production technology, in all 10 statements related to these constraints faced by farmers were considered. The mean per cent score (MPS) was calculated for each statement and rank was assigned accordingly. The results of economic & marketing constraints have been present in [Table-4]. Table shows that in the economic & marketing constraints perishable commodities ranked first with MPS 97.66 by ginger growers. High fluctuation in market price with MPS 79.00 was ranked second. High cost of inputs with MPS 71.66 ranked third. Whereas, the other constraints in descending order of their magnitude were related to poor access of market information with 66.33 mean per cent score and was ranked fourth by the ginger growers. Another problem which was faced by the ginger growers was lack of credit facility in the area with 64.66 mean score and was ranked fifth by the ginger growers.

Table-4 Economic & marketing constraints faced by ginger growers in adoption of improved ginger production technology n=100

S.No.	Economic & marketing constraints	MPS	Rank
1.	Labour intensive crop	49.33	IX
2.	High cost of inputs	71.66	III
3.	Lack of credit facility in the area	64.66	V
4.	Perishable commodities	97.66	I
5.	High cost of planting material	56.66	VII
6.	Lack of storage facility	57.66	VI
7.	Lack of proper market	44.66	X
8.	High fluctuation in market price	79.00	II
9.	Costly transport service	52.00	VIII
10.	Poor access of market information	66.33	IV

MPS= Mean per cent score

Likewise, high cost of planting material with MPS 56.66, costly transport service with MPS 52.00, labour intensive crop with MPS 49.33 and lack of proper market with MPS 44.66 were ranked seventh, eighth, ninth and tenth respectively. It is concluded that major economic & marketing constraints faced by farmers in adoption of improved ginger production technology were perishable commodities and high fluctuation in market price.

General constraints faced by the farmers in adoption of improved ginger production technology

For working out the general constraints faced by respondents in adoption of improved ginger production technology, in all seven aspects related to general constraints were considered. The mean per cent score (MPS) was calculated for each statement and rank was assigned accordingly. The results of general constraints have been present in [Table-5].

[Table-5] reveals that among general constraints resources poor farmers was ranked first with MPS 88.33 by ginger growers. Poor education status with MPS 87.66 was ranked second. Less risk bearing capacity of farmers with MPS 74.33 ranked third. Likewise, fragmented and undulated land with MPS 73.66, lack of motivating agencies in the area with MPS 66.33, adverse climatic condition at critical stage of crop with MPS 36.00 and natural calamities with MPS 35.66 were ranked fourth, fifth, sixth and seventh respectively.

Table-5 General constraints faced by ginger growers in adoption of improved ginger production technology n=100

S.No.	General constraints	MPS	Rank
1.	Natural calamities	35.66	VII
2.	Fragmented and undulated land	73.66	IV

3.	Less risk bearing capacity of farmers	74.33	III
4.	Resources poor farmers	88.33	I
5.	Poor education status	87.66	II
6.	Adverse climatic condition at critical stage of crop	36.00	VI
7.	Lack of motivating agencies in the areas	66.33	V

MPS= Mean per cent score

It is concluded that the main general constraints for farmers in adoption of improved ginger production technology were resources poor farmers and Poor education status.

Overall constraints perceived by the farmers in adoption of improved ginger production technology.

To get an overview of constraints perceived by farmers in adoption of improved ginger production technology, the overall score for each category was pooled and results have been presented in [Table-6].

Table-6 Overall constraints perceived by the farmers in adoption of improved ginger production technology n=100

S. No.	Constraints	MPS	Rank
1.	Technical constraints	75.71	I
2.	Input supply constraints	63.93	IV
3.	Economic & marketing constraints	64.03	III
4.	General constraints	66.00	II

MPS= Mean per cent score

The data presented in table reveal that among the selected constraints, technical constraints were up to greatest extent by the ginger growers with MPS 75.71 and ranked first followed by general constraints with MPS 66.00 and ranked second however, the extent of economic & marketing constraints with MPS 64.03 and input supply constraints with MPS 63.93 were ranked third and fourth, respectively by ginger growers in the study area.

Conclusion

The study shows that major constraints faced by ginger growers in the study area were lack of knowledge about high yielding varieties and lack of technical guidance (Technical constraints), non-availability of improved high yielding varieties of the ginger crop and lack of processing facilities in the study area (Input supply constraints), perishable commodities and high fluctuation in market price (Economic & marketing constraints),resources poor farmers and poor education status (General constraints). Among the selected constraints, technical constraints were up to greatest extent by the ginger growers with MPS 75.71 followed by general constraints with MPS 66.00 however, the extent of economic & marketing constraints with MPS 64.03 and input supply constraints with MPS 63.93 of ginger growers in the study area.

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Abbreviations:

- % - Per cent
- et al. - et alibi (& elsewhere)
- f - Frequency
- MPS - Mean Per cent Score

n - Number of respondents
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RCA - Rajasthan College of Agriculture

Conflict of Interest: None declared

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