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## RESEARCH ARTICLE

# Adoption of Chilli Management Practices in North Kashmir

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## ABSTRACT

The study was carried out to know the chilli management practices and constraints faced by the chilli growers in district Baramulla. A sample size of 300 from the three districts Baramulla, Kupwara and Bandipora, were selected. The study revealed that 43% per cent of the growers were cultivating recommended varieties of chilli crop .37.33 per cent of growers had used the recommended seed rate. The majority of the growers had transplanted the seedlings of recommended age (28-35 days). The majority of the growers (61%), obtained chilli seeds from private agencies. Majority (57%) of the growers had done recommended hoeing (2-3 times), 60% of the growers had given recommended number of irrigations (3 to 4) to the chilli crop. All of the growers had planted 3-5 seedlings/hill, the majority of the growers are planting chilli seedlings at lesser space 30% less than the recommended spacing. All the growers faced the problem of Wilt, Damping-off and Anthracnose.

**Keywords:** Chilli growers, adoption, management practices .

## INTRODUCTION

Chilli pepper is used as a vegetable and a spice. *Capsicum annuum* is a vegetable known for its rich antioxidants content. Red pepper is highly appreciated for its flavor, color as well as scope of antioxidant compounds. Fresh peppers are an excellent source of vitamin- A and C. Pepper contain moderate to high amount of neutral phenolic or flavonoids, phytochemicals that are valuable antioxidants components of a plant based diet other than traditional nutrients that may lower the risk of degenerative diseases. Capsicum fruit is rich source of antioxidants and contains a high level of vitamin C and E and carotenoids & xanthophyll. [1]. Carotenoids work as antioxidants and free- radical scavengers in our body and reducing the risk of cancers and having a positive effect on the immune response. In addition, some carotenoids such as  $\beta$ -carotene and  $\beta$ -cryptoxanthin have pro-vitamin activity. Many studies have demonstrated that peppers contain a wide array of phytochemicals. But many species of capsicum have not been evaluated for these vital compounds. Phytochemical changes that occur during maturation and consequence of the antioxidant activity are significant dietary considerations that may affect the consumption of different types of capsicum. Thus the study has been taken up to investigate the antioxidant activity of two capsicum species.

India is not only the largest producer but also the largest consumer of chilli in the world. India is known as the land of spices or spice bowl of the world. Andhra Pradesh is the largest producer of chilli in India followed by Karnataka, Maharashtra, Orissa and West Bengal. [2]

In world Chilli is raised over an area of 2020 thousand ha with a production of 3762 thousand tonnes [3.]. In India, chilli is grown over an area of 774.9 thousand ha with total production of 1492.10 thousand tonnes. Andhra Pradesh is the largest producer of chilli in India and contributes 26 percent of the total area under chilli, followed by Maharashtra (15%), Karnataka (11%), Orissa (11%) and Madhya Pradesh (7%). The remaining states contributed (22%) of the total area under chillies. Indian chillies are considered to be world-famous for two important commercial qualities viz., colour and pungency [4]. In Jammu and Kashmir, the total area under vegetable crops is about 62.63 thousand ha producing 1386.37 metric tonnes. The area under chilli crop in Kashmir valley is about 3080ha with a production of 48072 metric tonnes [5]. Baramulla is the most important chilli growing district of Kashmir valley due to favourable climatic conditions and availability of proper marketing facilities as compared to other districts. The Agricultural Sub-Division Pattan of District Baramulla has 43.79 acres of land under chilli and 91.69 acres under other vegetables crops [6].

## MATERIALS AND METHODS

The study was carried out in the districts of Kupwara, Bandipora and Baramulla of North Kashmir to study the extent of adoption of chilli cultivation practices by the growers and find out the constraints faced by the chilli growers in the adoption of Chilli cultivation. A sample of 300 growers was selected by a proportionate allocation method from three selected districts.

### Design of interview schedule

The device used for data collection was well-structured interview schedule. The schedule was developed for gathering information on management practices and constraints faced by the Chilli growers. The interview schedule was strictly formulated in accordance with the set objectives and consultation with experts from the division of Vegetable science, KVK's and Agriculture extension functionaries of the Agriculture Department. The Part-A of the interview schedule consisted of management practices carried by cabbage growers. Part-B included questions related to the constraints faced by chilli Growers.

### Pretesting of Interview Schedule

The interview schedule was pretested before finalizing over some 10 growers not included in the sample. The necessary modifications were made in light of offered suggestions to make the interview schedule more appropriate, compelling and valuable.

### Data collection

The researcher personally collected the data by interviewing the growers through a well-structured interview schedule. The data was collected at the leisure time of the growers. Each respondent was met personally so that the investigator could get first-hand information. The response of each respondent was recorded in the interview schedule separately. The growers were at ease and expressed their opinion freely, fairly and frankly as friendly atmosphere was maintained during the interview. Every effort was kept to check and cross-check the data collected from all the sampled growers.

### Compilation and working of data

After the collection of data from the growers, scores were given to responses collected from them and then accordingly tabulated, classified and quantified. Suitable statistical tools were used for the analysis of data, and findings that emerged out of the data were interpreted based on the objectives and accordingly discussed, and necessary inferences, conclusions were drawn.

### Statistical procedures

The following statistical tests and measures were used for the analysis of the data.

#### Arithmetic Mean

This was used to compare the growers in respect of their dependent variables. The arithmetic mean is the sum of scores divided by the number of growers.

$$\bar{x} = \frac{\sum x}{n}$$

Where,

$\bar{x}$  = Mean

$\sum x$  = sum of scores

n = Number of growers

## Standard Deviation

Standard deviation is the square root of the mean of the sum of squares of the deviation taken from the mean of the distribution.

$$\sigma = \frac{1}{n} \left( \sum x^2 - \frac{(\sum x)^2}{n} \right)$$

Where,

$\sigma$  = Standard deviation

$x^2$  = Sum of squared deviations from the mean

n = Number of items

Frequencies (f) and Percentages (%)

Some of the data were also subjected to and interpreted in terms of their frequencies and percentages.

## RESULTS AND DISCUSSION

**Table 1:** Distribution of respondents on the basis of adoption of different varieties and spacing followed for sowing of seeds in nursery by chilli growers N =300

S.No.	Varieties adopted	Respondents	
		Frequency	Percentage
A)	Recommended		
1)	Shalimar long	129	43
2)	Other	171	57
S.No.	Spacing adopted	Respondents	
		Frequency	Percentage
1	Recommended (25-30 cm)	113	38
2	50-70% less than recommended	187	63

\* Multiple response

From the Table- 1, it is clear that 43 per cent of the chilli growers were cultivating recommended variety of chilli whereas 57 per cent of the growers adopted non-recommended variety. The table in data also reveals that all 63 per cent of the growers had followed 50-75 per cent less than the recommended spacing for sowing of seeds in their nursery and 38 per cent had followed recommended spacing. This study is in line with the Verma *et al* 2015.[7]

**Table 2:** Distribution of respondents on the basis of seed rate used for growing seedlings N=300

S.No.	Level of adoption	Respondents	
		Frequency	Percentage
1.	Recommended seed rate(1.5-2kg/ha)	112	37.33
2.	25-35 per cent less than recommended seed rate	63	21.00
3.	35-45 per cent more than recommended seed rate	125	41.67

A perusal of data presented in Table-2 reveals that majority (41.67%) of the growers had used 35-45 per cent more than recommended seed rate whereas, 37.33 per cent of the growers had used recommended seed rate and only 21 per cent of the growers had used 25-35 per cent less than recommended seed rate.

**Table 3:** Distribution of respondents on the basis of age of seedlings used for transplanting N=300

S.No.	Age of seeding	Respondents	
		Frequency	Percentage
1.	Recommended(28-35 days)	129	43.00
2.	10 days more than recommended	49	16.33
3.	20 days more than recommended	122	40.67

The data given in Table-3 reveals that the majority (43%) of the growers had transplanted seedlings as per the recommendation; 16.33 per cent of the growers had transplanted 45 days old seedlings whereas 40.67 per cent of the growers had transplanted 55 days old seedlings. The reason might be the unavailability of labor at the time of transplanting. The study is in line with the jha and Das 2019. [8]

**Table 4:** Distribution of respondents on the basis of intercultural operations N=300

S.No.	Spacing followed	Respondents	
		Frequency	Percentage
1.	Recommended 2-3 shallow hoeing	171	57
2.	less than recommended 1-2	129	43
3.	more than recommended 4-5	0	0

From Table-4, it is clear that the majority (57%) of the growers had adopted (2-3) recommended hoeings spacing while 43 per cent of the growers had done less than recommended hoeings

**Table 5:** Distribution of respondents on the basis of method and time of irrigation schedule of chilli crop N=300

S.No.	Irrigation schedule	Respondents	
		Frequency	Percentage
A)	<b>No. of irrigation</b>		
1.	As per recommendations (3)	189	63.00
2.	Not as per recommendations (5-6)	111	37.00
B)	<b>Time of irrigation</b>		
1.	As per recommendation (at 7-10 days interval)	192	64.00
2.	Not as per recommendation (15-20 days interval)	108	36.00

From Table-5, majority (64%) of the growers had irrigated the crop at recommended time and 36 per cent of the growers had not irrigated the crop at recommended time.

**Table 6:** Overall adoption level of growers N=120

S. No.	Variable	Categories	Respondents	
			Frequency	Percentage
1.	Adoption	Low (below 19.31)	82	27.33
		Medium (between 19.31-28.29)	172	57.33
		High (Above 28.29)	46	15.34
			Mean: 23.8, S.D: 4.49	

### Overall adoption level of respondents

From Table-6, it is evident that the majority 57.33 per cent of the growers had medium level of adoption, whereas 27.33 per cent and 15.34 per cent of the growers had low and high levels of adoption, respectively.

This might be because the majority of the growers were middle-aged with medium farming experience, scientific orientation and knowledge about the recommended package of practice and

were educated up to middle level having medium scientific orientation. The findings are in line with the results of Soni *et al.* [2015].

### CONCLUSION

The overall study revealed that 43% per cent of the growers were cultivating recommended varieties of chilli crop .37.33 per cent of chilli growers in North Kashmir had used the recommended seed rate Majority of the growers had transplanted the seedlings of recommended age (28-35 days). The majority of the growers (61%) obtained chilli seeds from private agencies. The majority (57%) of the growers had done recommended hoeing (2-3 times), 60% of the growers had given recommended number of irrigations (3 to 4) to the chilli crop. All of the growers had planted 3-5 seedlings/hill, the majority of the growers are planting chilli seedlings at lesser space 30% less than the recommended spacing. All the chilli growers faced the problem of Wilt, Damping-off and Anthracnose in North Kashmir.

The overall adoption indicates that majority 57.33 per cent of the growers were having a medium level of adoption, whereas 27.33 per cent and 15.34 per cent of the growers were having a low and high level of adoption, respectively

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