Perception Dynamics of Farmers Affecting Sustainability in Chilli Production: An Analytical Study

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ABSTRACT

A study was conducted to ascertain the difference between the recommended chilli production technology and the technology actually adopted by the farmers. The study was conducted at five villages of Khargone district, Madhya Pradesh during 2012. Fifteen farmers from each village were selected randomly. A questionnaire was developed with the help of scientists of Zonal Agriculture Research Station and Krishi Vigyan Kendra. The technological gap on six important chilli cultivation practices namely improved cultivars/hybrids, nursery raising techniques, planting and plant geometry, integrated nutrient management, water management and Integrated Pest Management were considered. The data reveals that over all technological gap in recommended chilli production technology was 58.66 per cent. The technological gap was as high as 88 per cent for Integrated Nutrient Management. The gap was 85.33 per cent in case of nursery raising techniques and 76 per cent in case of integrated pest management, ranked II, III respectively. The practices such as water management, improved cultivar /hybrids registered 69.33 and 18.66 per cent were ranked IV and V respectively. The lowest gap 14.66 per cent was noticed with regard to planting and plant geometry.

Key words: *Nursery raising techniques; Integrated nutrient management; Water management; IPM;*

Chilli (*Capsicum annuum L.*) is one of the important commercial crops of India. It is a crop of tropical and sub-tropical regions and requires a warm humid climate. Though, chilli can be grown in many types of soils, well drained loamy soils, rich in organic matter are best suited for the cultivation. The chillies are believed to be originated in the tropical America and known from pre-historic times in Peru. Columbus carried chilli seed to Spain in 1493. The cultivation of chilli and capsicum spread rapidly from Spain to Europe. Chilli is an indispensable condiment of every Indian household. It is used in the daily diet on one form or the other. It is a rich source of vitamin A and C with good medicinal properties. Among the spices consumed per head, dry chilli fruits constitute a major share. The pungency in chilli is due to the alkaloid 'capsicin'. It occurs in the cores or septa walls and placenta. In India, chillies are grown in almost all states of the country. The total production in the country is around 1223.4 thousand tones from 792.1 thousand ha (*India Horticulture Database-2011*).

The world production of chilli crop, around 7 million tons and is cultivated in approximately 1.5 million hectares of land. India is the world leader in context of chilli production followed by China and Pakistan. This shows that the bulk share of chilli production is held by the Asian countries though it is produced throughout the world. The large demand of chilli is made by several chilli consuming countries as it forms part of cuisines of various cultures and is also used as a coloring agent. Most of its demand is generated in the food processing sector. In 2010-11 export of chillies reached a record level of 240.00 thousand tones valued at Rs 1535.54 crores, accounting for a share of 45.64 per cent in volume and 22.44 per cent in value of the total export of spices and spices products from India. Madhya Pradesh occupies 116.47 thousand ha. area with a production of 637.17 lakhs tones and productivity 5.47 tonnes/ha (2001-12). The Khargone district occupies 25603 ha. area with a production of 110180 tonnes and productivity 4.30 tonnes/ha (2011-12). At present the production and productivity of chilli are not realized to its full potential

due to various problem faced by the farmers. Technologies to increase the production are available however breakthrough has not been achieved mainly due to failure of technology transfer to the farmers and the existence of technology gap. The technology gap can be filled if the extension workers transfer scientific technology which is developed by agricultural universities and research institutes to the farmers by using appropriate methods. In view of this a study was undertaken to find the technological gap between the practices developed at research stations and practices followed by the farmers.

METHODOLOGY

The study was conducted in five villages of Khargone district, Madhya Pradesh during 2012. Fifteen farmers from each village were selected randomly with the objective to find out the technology gap in scientific cultivation of chilli. A questionnaire was developed with the help of scientists of Zonal Agriculture Research Station and Krishi Vigyan Kendra. The technological gap in the present study was conceptualized as the difference between the recommended chilli production technology and the technology actually adopted by the farmers. For this purpose age, education, plot size, innovative proneness, risk orientation, market orientation, economic motivation, extension participation and mass media participation variables were taken to correlate the adoption of recommended production technology of chilli. To find out the technology gap, six important chilli cultivation practices namely improved cultivars/hybrids nursery raising techniques, planting and plant geometry, integrated nutrient management, water management and integrated pest management were considered. The technological gap index was worked out by the following formula and the gap has been expressed in per cent.

$$\text{Tech. gap\%} = \frac{R - A}{R} \times 100$$

Where, R= Recommended practices.

A= Actually adopted practices by the farmers

RESULTS AND DISCUSSION

The data shown in Table 1 reveals that most of the farmers were using the appropriate planting and plant geometry (85.00%) in chilli cultivation followed by improved cultivars/hybrids (81.33%), water management (25.33%), integrated pest management (25.33%), nursery raising techniques (16.00%), integrated nutrient management (12.00%).

Table 1: Response of the farmers about adoption of chilli cultivation techniques (N=75)

Chilli production technology	Adopter	Not adopter
Improved cultivars/hybrids	61 (81.33)	14 (18.670)
Nursery raising techniques	12 (16.00)	63 (84.00)
Planting and plant geometry	64 (85.33)	11(14.67)
Integrated nutrient management	9 (12.00)	66 (88.00)
Water management	19 (25.33)	56 (74.67)
Integrated pest management	18 (24.00)	57 (76.00)

Note: Data within paranthesis indicate percentages

Table 2: Effect of age on adoption of chilli cultivation techniques (N=75)

Age group of farmers	% farmers adopted
18-25	50.00
26-35	83.33
36-50	65.00
Above 50	35.00

Table 3: Effect of educational on adoption of chilli cultivation techniques (N=75)

Education level of farmers	% farmers adopted
Illiterate	37.00
Upto middle	44.00
Upto higher secondary	69.00
Graduate and above	86.00

Table 2 inferred that age of the farmers affected adoption rate of chili production technologies. Farmers between the age group of 26-35 years were found to have the highest (83.33%) rate of adoption in chilli production techniques followed by age groups of 36-50, 18-25 and above 50 as 65.00, 50.00 and 35.00 per cent respectively.

The data presented in Table 3 indicated that educational level of the farmers also affected the adoption of recommended technologies of chilli among the farmers i.e. 86.00% farmers having graduate and postgraduate degree found more sincere to adopt the modern technologies followed by higher secondary (69.00%), middle (44.00%) and illiterate (35.00%).

The data presented in Table 4 reveals that over all technological gaps in recommended chilli production technology were 58.66 per cent. Further the table indicates that technological gap was as high as 88.00 per cent for integrated nutrient management. The gap

Table 4: Extent of technological gap in the recommended chilli production technology (N=75)

Chilli production technology	Gap%	Rank
Improved cultivars/hybrids	18.66	V
Nursery raising techniques	84.00	II
Planting and plant geometry	14.66	VI
Integrated nutrient management	88.00	I
Water management	69.33	IV
Integrated pest management	76.00	III
Over all technological gap	*58.44*	

was 85.33 per cent in case of nursery raising techniques and 76.00 per cent in case of integrated pest management, ranked II, III respectively. The practices such as water management, improved cultivar/hybrids registered 69.33 and 18.66 per cent and were ranked IV and V respectively. The minimum gap (14.66%) was noticed in regard to planting and plant geometry.

Relationship between the characteristics of Chilli growers and technological gap: It is showed in the Table 5 that out of nine variables 4 variables namely, education, extension participation, innovative proneness and mass media participation were found to have negative and significant relationship with the technological gap. While the variables age, plot size, risk orientation, economic motivation and market orientation showed positive but non-significant relationship with technological gap in adoption of recommended chilli production technologies.

The data revealed that education, extension participation, innovative proneness and mass media participation were negatively and significantly related with technological gap of chilli growers, while others

Table 5: Relationship between the characteristics of Chilli growers and technological gap (N=75)

Variables	'r' value
Age	0.089NS
Education	-0.172*
Plot size	0.131NS
Innovative proneness	-0.192*
Risk orientation	0.109NS
Market orientation	0.099NS
Economic motivation	0.148NS
Extension participation	-0.167*
Mass media participation	-0.156*

NS=Non Significant
*indicates significance of value at P=0.05

variables such as age, risk orientation, market orientation and economic motivation had no significant relationship.

The above findings are in consonance with the observation made by *Jadhav and Manjunath, (2011); Siddharatah, (2002)* and *Sakthivel, (2008).*

CONCLUSION

The overall technological gap is 58.66 per cent in recommended chilli production technology. There was a gap in almost all the recommended packages of practices of chilli, which calls for extension approach through appropriate aids to motivate the farmers for adoption and also need to educate the farmers. The district Horticulture department as well as other concerned authorities may take care of these aspects to boost chilli production in the district.

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