

RESEARCH ARTICLE :

Study on knowledge level of farmers about chilli cultivation

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SUMMARY : The study was conducted in Bhiwapur Panchyat Samiti of Nagpur district Maharashtra state in 2016-2017, so as to find out the level of knowledge about improved cultivation practices and adoption of recommended cultivation practices of chilli by the farmers. From each selected village fifteen respondents were purposively selected for the study. Thus, a total of 150 farmers were selected for the study. The “Ex-post-facto” research design was used for the study. Data were recorded through interview schedule and were analyzed by using appropriate statistical methods. The study revealed that the maximum 53.34 per cent respondents had medium level of overall knowledge about chilli production technology. In case of reasons for decline of chilli crop in research area were 95 per cent lack of Churdamurda resistant varieties of chilli, 93.33 per cent delayed transplanting because of no rains, 88 per cent vagaries in monsoon, and 80.00 per cent high cost of insecticides, fertilizers and inputs are the major factors associated for decline the area under chilli cultivation.

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KEY WORDS:

Knowledge, Ex-post-facto, Adoption, Chilli production technology, Improved cultivation practices

BACKGROUND AND OBJECTIVES

Indian claim to grow the largest number of vegetable crops compared to any other country of the world because varied agricultural climatic conditions in India and can be grown all the year round in one part of the country or another like some of the important vegetable crops such as brinjal, tomato, okra, cucurbits, chillies, etc. Among vegetables grown in our country chilli [*Capsicum annum* (L.)] is an important spices crop, belongs to genus *Capsicum* under Solanaceae family. 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 organic matter of soils, well drained loamy soils are ideal for its cultivation. It is indispensable spice crop used in every Indian cuisine due to its colour (due to presence of pigment capsanthin), pungency (due to an alkaloid ‘capsaicin’), taste, appealing odours and flavors. Chilli fruits are rich source of vitamin A, C and E. In recent days, it is gaining popularity as vegetable as well as spice crop apart from its medicinal value as it prevents heart attack by dilating the blood vessels (www.ikisan.com).

In India chilli is grown in almost all the states of the country. The important chilli

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growing states in terms of production metric tonnes are Andhra Pradesh 685.15 followed by Karnataka 107, West Bengal 100, Odisha 70, Madhya Pradesh 93.57, Maharashtra 45.60, Tamil Nadu 23.06. Generally chilli arrivals from all over India hit the market from mid-October to may end (Anonymous, 2015).

In Maharashtra, chilli is grown in an area of 99.50 hectares contributing to the production of 45.60 metric tonnes with productivity of 0.46 tonnes /ha (National Horticultural Board 2015-16). In Maharashtra major chilli growing districts are Nanded, Jalgaon, Dhule, Solapur, Nagpur, Amravati, Chandrapur and Osmanabad district. In Nagpur district Bhiwapur Panchyat Samiti was the major chilli growing areas. Considering the above factors the study was carried on the knowledge level of farmers about recommended cultivation practices of chilli and the reasons for declining of chilli cropping area.

RESOURCES AND METHODS

The present research study was conducted at Nagpur district in Vidhrbha region of Maharashtra state. In Nagpur district Bhiwapur Panchyat Samiti were purposively selected for the research. Ten villages in Bhiwapur Panchyat Samiti were purposively selected for research. These villages are considered on basis of area under chilli crop. From each village fifteen chilli growers were selected comprising total 150 respondents for the research work. An interview schedule was developed with the help of scientists of Dr. P.D. K. V., Akola. Data were collected with the help of personal interview method. For the analysis of collected data simple statistical techniques like frequency, percentage, standard deviation and co-efficient of correlation were used. One shot case study research design with "Ex-post-facto" was used for the study.

English and English (1961) defined knowledge as a body of information possessed by an individual which is in accordance with the established fact. In this research study, knowledge denotes the farmers understanding about the different technologies of chilli cultivation. Keeping this in view, the present study was designed and conducted.

For measuring of knowledge teacher made test was used. Their responses were elicited on two point continuum *i.e.* correct/incorrect and for correct answer numerical score of one and zero will be assigned to Incorrect, respectively. Finally index was computed to

measure the knowledge in quantitative terms. The respondents were classified into three categories such as low, medium and high using mean and standard deviation and index scores are given in the Table A.

Sr. No.	Knowledge level	Index score
1.	Low	Up to 33.00
2.	Medium	33.01 to 66.00
3.	High	Above 66.00

$$\text{Knowledge index} = \frac{\text{Actual obtained knowledge score}}{\text{Maximum obtained knowledge score}} \times 100$$

OBSERVATIONS AND ANALYSIS

Knowledge has been referred as the body of information possessed by an individual who is in accordance with the established fact. The body of information possessed by the individuals influences them to behave in a particular manner. Knowledge is a pre-requisite for adoption of innovation, as this would enable the farmers to completely understand a technology and its relative advantage. Hence, an attempt was made to assess the knowledge. The responses of the farmers were analyzed and the respondents were categorized into low, medium and high based on their overall knowledge on the selected items. The distribution of respondents according to their knowledge level is presented in the Table 1.

Table 1 : Distribution of respondents according to level of overall knowledge about recommended cultivation practices of chilli (n=150)

Sr. No.	Knowledge level	Respondents	
		Frequency	Per cent
1.	Low (Upto 33.00)	21	14.00
2.	Medium (33.01 to 66.00)	80	53.34
3.	High (Above 66.00)	49	32.66
Total		150	100.00
Mean=60.16		S.D=19.19	

It could be inferred that majority of the respondents (53.34%) had medium level of knowledge on chilli cultivation, while, (32.66 %) of them had high level of knowledge and only, (14.00%) of the chilli growers had low level of knowledge. Similar type of findings were reported by Deshmukh *et al.* (2007) and Priya *et al.* (2014).

Table 2 : Distribution of the chilli growers according to their practice-wise knowledge about recommended cultivation practices of chilli (n=150)

Sr. No.	Practice	Respondents	
		Frequency	Per cent (%)
	Nursery Management		
1.	Raised nursery bed	140	93.33
2.	Method of sowing	121	80.66
	Line sowing	81	54.00
	Use of Portrays for nursery preparation	40	26.66
3.	Seed treatment (<i>Trichoderma viride</i> @4g/kg or <i>Pseudomonas fluorescens</i> @10g/kg Thiram @ 2-3 g/kg of seeds)	56	37.33
4.	Drenching on the nursery bed	41	27.33
5.	Compost application (2kg compost per 3 m ²)	42	28.00
6.	Mulching on nursery beds	72	48.00
	Sowing and transplanting periods of chilli.		
7.	Time of transplanting (<i>Kharif</i> – June– July, In summer -: Dec.-Jan).	106	70.66
8.	Sowing period of chilli : (in <i>Kharif</i> -June –July, in Summer-: Jan.-Feb)	103	68.66
	Main field cultivation.		
9.	Seed rate (1-1.5 kg/ha)	132	88.00
10.	Recommended varieties of chilli (Red chilli – Jayanti, pusajawala, jayanthi, surkatha, Agnirekha C.A.-960,G-3, X-235, Pant C-1, Tejasjwala, N.P-46,arkalatha,Pusa jyothi)	50	33.33
11.	Dipping of seedlings (2.5ml imidachloprid + sulphur (w.p.) 80% 3 g + Mancozeb 15 g/ 10 lit. of water)	41	27.33
12.	Spraying of NAA@25 ppm	76	50.66
13.	FYM (9-10ton/ha)	70	46.66
14.	Spacing -(Rain fed: 60 x 45 cm, 60 x 60 cm, Irrigated:120 x120)	80	53.33
15.	No of plant in one ha -: 35-40 thousand	85	56.66
16.	Sticky traps for control of sucking pests	79	52.66
17.	Method of irrigation		
	Ridges and furrow method	140	93.33
	Drip irrigation method	5	3.33
	Intercultural operations		
	Thinning	102	68.00
	Gap filling	96	64.00
	Hoeing	100	66.66
	Weeding	142	94.66
	Diseases and pests		
18.	Major pests and diseases of chilli	132	88.00
	Major Pests		
	Fruit borer		
	Sucking pests (Thrips, Mites, Jassids, Aphids, White flies),		
	Caterpillar (Semilooper, Tobacco leaf eating caterpillar)		
	Major Diseases		
	Leaf curl.		
	Murda complex		
	Root rot.		
	Fruit rot and dieback.		
	Powdery Mildew		
19.	Biological control measures of pests and disease	88	58.66
20.	Setting up of pheromone traps for <i>Helicoverpa armigera</i> or <i>Spodoptera litura</i> at 12 Nos./hec	44	29.33

Practice- wise knowledge level of chilli growers: Efforts were made to find out the practice-wise knowledge level of the respondents. The results were analyzed and discussed below :

Knowledge about nursery management practices:

The data presented in Table 2 concluded that 93.33 per cent of the respondents were having knowledge about raised nursery beds, 54.00 per cent line sowing on nursery beds, less than half 26.66 per cent of respondents were using portrays for raising a nursery, 37.33 per cent had done seed treatment with (*Trichoderma viride* @4g/kg or *Pseudomonas fluorescens* @10g/kg Thiram @2-3 g/kg of seeds) for control of seed borne diseases like Anthracnose spp. Damping off diseases.

It could be observed from the Table 2 that 27.33 per cent had knowledge about drenching on the nursery bed, 28.00 per cent knew about compost application @2kg compost per 3 m² on nursery beds, and 48.00 per cent knew about mulching on nursery beds.

Knowledge about sowing and transplanting periods of chilli :

Time of sowing and transplanting is one of the important factor for establishment of good crop stand and healthy crop growth. The farmers were sowing a crop or raising a nursery depending on the climatic conditions of that region, and sometimes the date of sowing was delayed or early sowing. More than half 70 per cent of the respondents had knowledge about time of transplanting, and per cent 68.66 per cent had knowledge on sowing periods of chilli.

Knowledge about main field cultivation :

It can be concluded from the Table 3 that 88.00 per cent were having knowledge about correct quantity of seed rate, 33.33per cent had knew recommended varieties of chilli, and 50.66 per cent knew about spraying of NAA @25 ppm for reducing the flower drop, 27 per cent on dipping of seedlings before transplanting of main field for, and 46 per cent have knowledge on usage of FYM @9-10 ton/ha, while 53 per cent of respondents followed spacing of rain fed: 60 x 45 cm, 60 x 60 cm, Irrigated : 120 x120.

Similarly, 56 per cent knew about 35-40 thousand/ one ha of plant density, 52 per cent were having knowledge on usage of sticky traps for control of sucking pests, 93 per cent Ridges and furrow method, 3 per cent drip irrigation method.

Knowledge about intercultural operations :

Similarly in case of intercultural operations 68 per cent were about thinning, 64 per cent gap filling, 66 per cent hoeing and 94 per cent about weeding.

Knowledge about pests and diseases and control measure :

It is clear from the Table 2 that the majority of chilli growers 88 per cent knew about major pests of and diseases chilli, 58 per cent biological control measures of pests and nearly 1/3rd 29 per cent of them setting up of pheromone traps. The findings of this study are in line with the findings of Mutkule (1999); Shrivastava *et al.* (2002); Deshmukh *et al.* (2007); Venkataramulu *et al.* (2010); Meena *et al.* (2012) and Dudi and Meena (2013).

An effort to find out the reasons for decline of chilli crop in research area, the findings are presented in Table

Sr. No.	Factors associated for decline the area under chilli cultivation	Frequency	Percentage
1.	High cost of insecticides, fertilizers and inputs	120	80.00
2.	low market price of chilli produce	113	75.33
3.	Lack of knowledge about the fertilizer doses and insecticide quantity	50	33.33
4.	High labour wages rates	94	62.66
5.	Policies of government towards chilli	37	24.66
6.	Delayed transplanting because of no rains	140	93.33
7.	Ineffectiveness of insecticides	86	57.33
8.	Lack of labour during transplanting of seedling and harvesting of chilli	110	73.33
9.	Vagaries in monsoon	132	88.00
10.	Lack of knowledge about dipping the seedling in insecticide solution	102	68.88
11.	Lack of churdamura resistant varieties	143	95.33

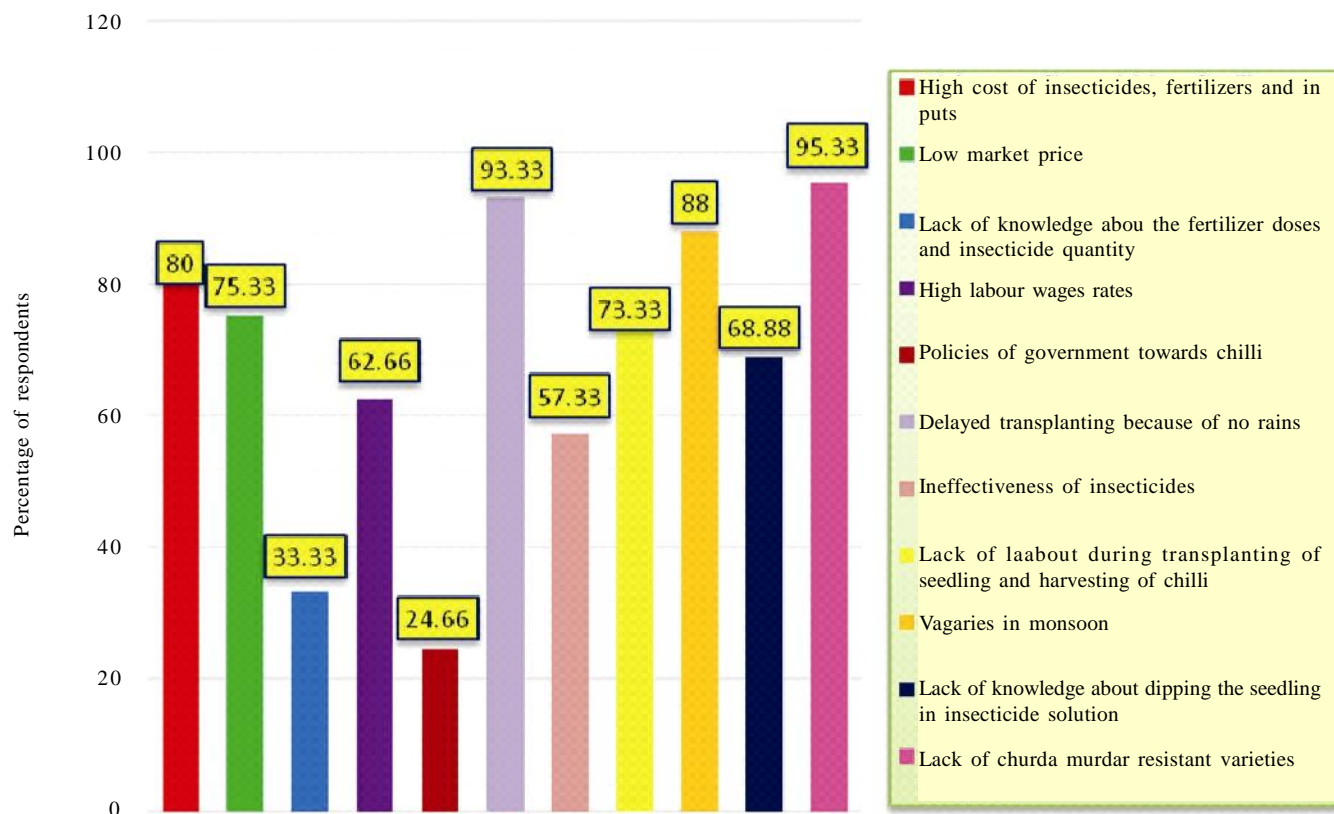


Fig. 1 : Reasons of decline crop area

Table 4: Factors associated for decline the area under chilli cultivation in research area among the farmers (n= 150)

Sr. No.	Factors associated for decline the area under chilli cultivation	Frequency	Percentage
1.	High cost of insecticides ,fertilizers and inputs	120	80.00
2.	low market price of chilli produce	113	75.33
3.	Lack of knowledge about the fertilizer doses and insecticide quantity	50	33.33
4.	High labour wages rates	94	62.66
5.	Policies of government towards chilli	37	24.66
6.	Delayed transplanting because of no rains	140	93.33
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8.	Lack of labour during transplanting of seedling and harvesting of chilli	110	73.33
9.	Vagaries in monsoon	132	88.00
10.	Lack of knowledge about dipping the seedling in insecticide solution	102	68.88
11.	Lack of churdamura resistant varieties	143	95.33

3 and Fig. 1 the results were 95 per cent due to lack of Churda murda resistant varieties of chilli, 93.33 per cent delayed transplanting because of no rains, 88 per cent vagaries in monsoon, and 80.00 per cent high cost of insecticides and fertilizers and inputs.

Similarly, 75 per cent low market price of chilli produce in markets,73 per cent lack of labour during

transplanting of seedling and harvesting of chilli,68 per cent lack of knowledge about dipping the seedling in insecticide solution, 62.66 per cent high labour wages rates, 57per cent ineffectiveness of insecticides, 33 per cent lack of knowledge about the fertilizer doses and insecticide quantity. Similar type of findings were identified by Rajput *et al.* (2007). Similar work related to

the present investigation was also carried out by Gupta and Tiwari (1985); Jadhav and Aski (2014); Jaitawat and Sisodia (2010); Kiranmayi (2013) and Sharma and Gupta (2009 and 2010).

Conclusion :

It can be concluded that maximum 53 per cent respondents had medium level of overall knowledge about chilli production technology and lack of Churda murda resistant varieties of chilli, delayed transplanting, vagaries in monsoon are the major reasons for decline of chilli crop area. It indicates that there is still scope to improve their knowledge level and to minimize the diversification of chilli under other crops. Thus, it is necessary in case of make efforts for particularly on the individual contact to organize demonstration, to convince the growers to show them the results of dipping the seedlings in insecticide solution, doses of fertilizers and spraying of insecticides. The chilli growers should also be motivated to grow chilli crop by surely supplying them Churd murda disease resistant varieties.

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