

Original Research Article

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## Extent Adoption and Utilization of Sources of Information in Recommended Chilli Production Technology

I. Venkata Reddy\*, P. K. Wakle, N. R. Koshti and A. S. Tingrae

Department of Extension Education, Dr. Panjabrao Deshmukh Krishi Vidyapeeth,  
Akola-444104, India

\*Corresponding author

### ABSTRACT

#### Keywords

Chilli, Ex-Post-Facto, Adoption

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The present investigation was carried out In Bhiwapur panchyat samiti Nagpur district of Maharashtra state in 2016-2017, to assess the level of adoption and utilization of sources of information. Ten villages were selected on the basis of chilli cultivation. From each selected village fifteen respondents were purposively selected for the study. Thus, total 150 farmers were selected for the study. The "Ex-Post-Facto" Facto design of social research was used for investigation. Data were recorded through interview schedule and analyzed to use appropriate statistical methods. The study revealed that the maximum (57.33%) respondents had medium level of adoption about chilli production technology. In case of information source (63.34%) were having medium level of usage of sources of information.

### Introduction

Indian can claim to grow the largest number of vegetable crops compared to any other country of the world because varied agricultural climatic conditions in India make it possible to grow more varieties of vegetables crops all the year round in one part of the country or another. Some of the important vegetable crops which are 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](http://www.ikisan.com)). Chilli is origin of Mexico and it brought by Portuguese from Brazil in 1585 in Goa. Since then it has rapidly spread throughout the country and commonly considered as red pepper.

In India, chilli is grown in almost all states of

the country. The important states growing chilli 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, Tamilnadu 23.06. Generally chilli arrivals from all over India hit the market from mid-October to may end (Anonymous, 2015-2016).

In Maharashtra, chilli is grown on area of 99.50 hectares contributing to the production of 45.60 tonnes with productivity of 0.46tonnes /ha (National Horticultural Board 2015-16). In Maharashtra major chilli growing districts are Nanded, Jalgaon, Dhule, Solapur, Nagpur, Amravati, Chandrapur and Osmanabad District out of these districts Nagpur selected for study because total area and production in Nagpur district under chilli cultivation is 14100 ha and 20090 tonnes, respectively in Nagapur Bhiwapurpanchyatsamiti major chilli growing area. The information hungry farmers are approaching very many sources and channels for getting information on farm innovation there are many agencies of farm information engaged in disseminating the scientific innovation on chilli cultivation technology. However, the diffusion of innovation is not getting adequate momentum. In view of this fact, the present study was under taken adoption of recommended package practices and study the formal, informal, mass media sources of information by the chilli growers.

### **Materials and Methods**

The present research study was conducted in Nagpur district of Vidhrbha region in Maharashtra state. In Nagpur district Bhiwapurpanchyatsamiti were purposively selected for the research. Ten villages in Bhiwapurpanchyatsamiti 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 was collected with the help of interview schedule. Personal interview method was used for data collection. For the analysis of collected data simple statistical techniques like frequency, percentage, standard deviation and coefficient of correlation were used. One shot case study research design with “Ex-Post-Facto” research approach was used present study. responses of the respondents was collected on three-point continuum viz. i.e. fully adopted, partially adopted and not at all adopted with assigning a score of 2, 1 and 0 respectively. Then on the basis of score obtained for technologies adopted, the adoption index for each practice was worked out by using following formula.

$$\text{Adoption index} = \frac{\text{Actual obtained adoption score}}{\text{Maximum obtainable adoption score}} \times 100$$

In case of sources of information the scoring pattern was given 2 to regular, 1 to occasional and zero for never responses for seeking the information. Thus, total score for each individual was calculated and this was considered as individual score for information.

### **Results and Discussion**

The data collected from 150 respondents from ten villages from Bhiwapurpanchyatsamiti in Nagpur district were compiled into primary tables.

They were the transferred in secondary tables in view of the objectives of the study. Appropriate statistical tests were used for drawing the inferences. The results of the investigation are presented under following heads.

The information pertaining to practice to

practice adoption of recommended cultivation practices of by chilli growers is depicted in Table 1.

The data regarding practice wise adoption of recommended chilli cultivation practices presented in Table 1 revealed that, cent per cent of respondents had fully adopted practice of harvesting of red chilli. In case of nursery management majority of respondents had fully adopted practices viz; age of seedling (76.66%) followed by type of soil required for chilli (72.00%), seed sowing depth and row distance (70.66%), seed rate per ha (70.00 %), size of seed bed (70.00%) and chilli varieties to be used (52.00 %) respectively. Less than half of respondents had fully adopted the chilli practices in nursery were compost application (42.00%), time of fertilizer application (42.00 %) and number of seed bed per ha (28.66%).

In case of partial adoption of chilli cultivation practices, majority of respondents (62.00%) had partially adopted practice number of seed bed in one ha. The respondents who were partially adopted practices in nursery management were doses of fertilizer application (39.33 %), compost application and time of fertilizer application (38.00%), seed rate in nursery (30.00 %) and size of seed bed (30.00%) for chilli nursery. The 40.00per cent of respondents was not adopting recommended practice seed treatment; whereas major per cent of respondents were not adopted recommended chilli cultivation practices.

In case adoption of recommended chilli cultivation practices in main field, over three fourth of respondents had fully adopted practices viz; time of chilli transplanting (78.66%), land preparation (76.00%), intercultural operations weeding, hoeing and gap filling (76.00 %), spacing (68.00%) and doses of fertilizers application (52.00%). Less than half of the respondents were fully

adopted practices viz., sucking pest management (44.66%), manure application (36.66%), bud borer pest management (44.66%), mildew disease (36.00 %), leaf curl disease management (32.00%), fruit rot and dieback management (32.00%).

In case of partially adoption of chilli cultivation practices, less than half of the respondents had adopted leaf curl (46.00%) disease management practices, followed by manure application (42.66%), mildew disease (42.00%), fruit rot and die back disease (38.00%) and application of doses of fertilizers (38.00%), respectively.

In case of no adoption of recommended chilli cultivation practices in main field, over two fifth of respondents had not adopted practices viz., irrigation schedule (44.00%), bud borer management (44.00%) and management of disease mildew (22.00%).

Whereas the respondents had not adopting practices like caterpillar pest management (38.66%), fruit rot and dieback disease (30.00 %), and root rot management (36.66%), respectively. Similar findings are quoted by Wase (2001), Kiranmayi (2013).

### **Over all adoption level about recommended cultivation practices in chilli**

The level of adoption in respect of improved chilli cultivation practices was studied by adding individual scores received on different practices. On the basis of total score, they were cauterized and results were presented Table 2. Analyzed data showed that majority of the respondents 57.34per cent were observed in the 'medium' level of adoption of chilli cultivation practices, while 26.66 per cent and 16.00per cent had high and low level of adoption category while of adoption of recommended cultivation practices chilli crop.

**Table.1** Practice wise adoption of recommended cultivation practices by chilli growers in chilli

Sl. No.	Practice wise adoption in recommended chilli cultivation	Adoption level		
		Full Adoption	Partial adoption	No Adoption
<b>A.</b>	<b>Nursery management practices</b>	<b>Freq. (%)</b>	<b>Freq. (%)</b>	<b>Freq. (%)</b>
1.	<b>Soil type</b> (Well drained, heavy to medium)	108 (72.00%)	32 (21.33%)	10 (6.66%)
2.	<b>Varieties</b> (red chilli – Jayanti, Agnirekha C.A.-960,G-3, X-235, Pant C-1, Tejasjwala, N.P-46,Agni rekha,Pusajyothi)	78 (52.00%)	44 (29.33%)	28 (18.66%)
3.	<b>Seed rate</b> (1 to 1.500 kg seeds ha-1)	105 (70.00%)	45 (30.00%)	5 (3.33%)
4.	<b>Seed treatment</b> (Thirum 2-3 gm per 1 kg seeds)	53 (35.55%)	37 (24.66%)	60 (40.00%)
5.	<b>Size of seed bed</b> (2mt. Length, 1 mt. breadth, 20 cm height)	105 (70.00%)	45 (30.00%)	0 (00.00%)
6.	<b>Compost application</b> (2kg compost per 3 m2)	63 (42.00%)	57 (38.00%)	30 (20.00%)
7.	<b>Dose of fertilizers</b> (20 gm N2, 10 gm P2O5, 10 gm K2O per 3 m <sup>2</sup> )	76 (50.66%)	59 (39.33%)	15 (10.00%)
8.	<b>Time of fertilizer application</b> (Half dose of N and full dose of P and K at the time of sowing and half dose of N 20-25 DAS after sowing)	63 (42.00%)	57 (38.00%)	30 (20.00%)
9.	<b>Seed sowing</b> (Sowing depth 2 cm, row distance 8-10 cm)	106 (70.66%)	37 (24.66%)	7 (46.66%)
10.	<b>Number of seed beds</b> (20-25 beds of seedlings in 1 ha. area)	43 (28.66%)	93 (62.00%)	14 (9.33%)
11.	<b>Age of seedlings</b> (Seedling age 4 weeks)	115 (76.66%)	45 (30.00%)	0 (00.00%)
<b>B.</b>	<b>Main field cultivation</b>			
12.	<b>Land preparation</b> (Ploughing and harrowing operation in the month of April – May)	114 (76.00%)	25 (16.66%)	11 (7.33%)
13.	<b>Manure application</b> (10 tons FYM/ha)	55 (36.66%)	64 (42.66%)	31 (20.66%)
14.	<b>Time of transplanting</b> Kharif – June-July	118 (78.66%)	32 (21.33%)	0 (00.00%)
15.	<b>Spacing</b> 60 × 45 cm, 60 x 60 cm	102 (68.00%)	48 (32.00%)	0 (00.00%)

16.	<b>Dose of fertilizers</b> (Rain fed chilli - 50:25:00 NPK/ha, Irrigated chilli - 150:50:50 NPK/ha in 4 splits at regular and remaining at 4, 11, 13 weeks in split doses).	78 (52.00%)	57 (38.00%)	15 (10.00%)
17.	<b>Intercultural operations</b> Weeding (3-4) 1st – 15 DAT 2nd – 45 DAT. Hoeing (4 to 5) 8 DAT. Gap filling 15-45 DAT	114 (76.00%)	33 (22.00%)	3 (2.00%)
18.	<b>Irrigation schedule</b> In winter 10-15 days interval In summer 5-6 days interval	46 (30.66%)	37 (24.66%)	67 (44.00%)
19.	<b>Pest management</b>			
1.	Bud borer – spraying of Methyl dematon 25% 8 ml in 10 lit. water.	54 (36.00%)	30 (20.00%)	66 (44.00%)
2.	Sucking pests (Thrips, Mites, Jassids, Aphids, White flies) – spraying of Dimethoate 30% 10 ml in 10 ltr. Water.	67 (44.66%)	52 (36.66%)	30 (20.00%)
3.	Caterpillar (Semilooper, Tobacco leaf eating caterpillar) – spraying of Chloropyriphos 20 EC 25 ml in 10 ltr. water.	44 (29.33%)	48 (32.00%)	58 (38.66%)
20.	<b>Disease management</b>			
A.	Leaf curl – spraying of Malathion 50% ml in 20 lit. water + Sulphur 80% (w.p.) 25 gm + Mancozeb 20 gm in 10 ltr. Water.	48 (32.00%)	69 (46.00%)	33 (22.00%)
B.	Root rot – seed treatment with 3 gm Thirum and 4 gm Trichoderma per kg seeds.	40 (26.66%)	54 (36.00%)	56 (38.66%)
C.	Fruit rot and dieback – spraying of Mancozeb 25 gm in 10 lit. Water	48 (32.00%)	57 (38.00%)	45 (30.00%)
D.	Mildew – spraying of Sulphur 80% (W.P.) 30 gm in 10 lit. Water.	54 (36.00%)	63 (42.00%)	33 (22.00%)
21.	<b>Harvesting red chilli</b>	150 (100.00%)	0 (00.00%)	0 (00.00%)

**Table.2** Distribution of chilli growers according to overall adoption about recommended cultivation practices in chilli

Sl. No.	Adoption level	Respondents (n=150)	
		Frequency	Per cent
1.	Low(Up to 33.00)	24	16.00
2.	Medium(33.33 to 66.66)	86	57.33
3.	High(Above 66.66)	40	26.66
<b>Total</b>		<b>150</b>	<b>100.00</b>

Mean=59.60

S.D=20.40

**Table.3** Distribution of respondents according to their frequency of use of different sources of information

Sl. No.	Sources of information	Respondents (n=150)		
		Always	Sometimes	Never
		Freq. (%)	Freq. (%)	Freq. (%)
<b>A) Formal Sources</b>				
1	Gramsevak	16 (10.67%)	28 (18.67%)	106 (70.66%)
2	Agri. Assistant	10 (6.67%)	76 (50.67%)	64 (42.66%)
3	Agri. Extension Officer	6 (4.00%)	5 (3.34%)	139 (92.66%)
4	Agricultural Officer	4 (2.66%)	17 (11.34%)	129 (86.00%)
5	B. D. O.	0 (0.00%)	0 (0.00%)	150 (100%)
6	Project Director	1 (0.66%)	4 (2.67%)	145 (96.67%)
7	University Scientists / KVK Scientists	3 (2.00%)	46 (30.67%)	101 (67.33%)
<b>B) Informal Sources</b>				
1	Friends	60 (40.00%)	58 (38.67%)	32 (21.33%)
2	Neighbours	58 (38.66%)	50 (33.34%)	42 (28.00%)
3	Local Leaders	41 (27.33%)	49 (32.67%)	60 (40.00%)
<b>C) Mass Media Sources</b>				
1	Radio	8 (5.33%)	17 (11.34%)	125 (83.33%)
2	TV	42 (28.00%)	52 (34.67%)	56 (37.33%)
3	Newspaper	20 (13.33%)	61 (40.67%)	69 (46.00%)
4	Farm magazine	6 (4.00%)	23 (15.34%)	121 (80.66%)
5	Agricultural Exhibition	4 (2.67%)	16 (10.67%)	130 (86.66%)

**Table.4** Distribution of respondents according to their sources of information used

Sl. No.	Sources of information	Respondents (n=150)	
		Frequency	Percentage
1	Low (Up to 13)	31	20.66
2	Medium (14 to21)	95	63.34
3	High (above 21)	24	16.00
	<b>Total</b>	<b>150</b>	<b>100.00</b>

Mean = 14.06

S.D = 5.60

The possible reason for the above findings may be tendency of growers to adopt only those practices, which they feel are simple, involve low cost and are effective in getting higher yield. The results suggest a need for greater extension effort to provide know how of the improved chilli cultivation practices of the respondents so that their so that their adoption level enhanced. Moreover, it was observed that farmers with more economic resources and extension contact were able to adopt more production technologies than others. In view of above the practices mass media necessitated for increasing the adoption these practices. The works of Ambedkar (2010), Kothari *et al.*, (2010), and Kalyan *et al.*, (2012) also supports the present finding.

The distribution of the respondents according various formal sources of information utilized by the chilli growers for seeking information about chilli cultivation practices presented in Table 3 revealed that, the per cent of the respondents were never contacting the B.D.O (100%), followed by Project Director (96.67%) then Agil. Extension Officer (92.66%), Agriculture Officer (86.00%), Gramsevak (70.66%), University Scientists / KVK Scientists (67.33%), and Agril. Assistant (42.66%). Whereas chilli growers sometime contacting the Agril. Assistant (50.67%) followed by University Scientists / KVK Scientists (30.67%), Gramsevak (18.67%), Agriculture Officer (11.34%), Agril. Extension Officer (3.34%), and Project Director (2.67%). and few chilli growers always contacting the Gramsevak (10.67%) followed by Agril. Assistant (6.67%). Agril. Extension Officer (4.00%), Agriculture officer (2.66%),

University Scientists / KVK Scientists (2.00%), and negligible of the respondents contacting with Project Director (0.66%).

In case of Informal sources majority of respondents stated that they were in regular contact friend (40.00%) for acquiring information about recommended chilli cultivation practices, it was followed by neighbours (38.66%) and local leader (27.33%) from whom they seek the information. Whereas chilli growers sometime contacting with friends (38.67%), neighbours (33.34%) and local leaders (32.67%). and some respondents also made it clear that, they have not contacting the local leader (40.00%) followed by neighbor (28.00%) and friends (21.33%) for seeking information about chilli cultivation practices.

Amongst mass media sources, some respondents tried to acquire the information about chilli cultivation practices regularly from television (28.00%) by exposing farm television programmes on many media channel of mass communication followed by newspaper (13.33%), radio (5.33%), farm magazine (4.00%), agriculture exhibition (2.67%). However chilli grower some time acquire information from newspaper (40.67%), followed by television (34.67%), farm magazine, (15.34%), radio (11.34%), and agriculture exhibition (10.67%). Whereas majority of respondents not tried to agricultural exhibition (86.66%) followed by radio (83.33%), farm magazine (80.66%), newspaper (46.00%), and television (37.33%) for getting information about improved chilli cultivation practices.

Thus, the chilli growers are likely to use different sources for getting information about chilli cultivation.

It was evident from the Table 4, that majority of respondents 63.34 percent were having medium level of sources of Information, While slightly more than one fifth 20.66 percent of respondents were having low level of sources of information and Only 16.00per cent of respondents were having high level of sources of information. The results were accordance with findings Pawar (2008), Mane (2012).

More awareness of is to be created on formal and mass media sources of information and improve the diffusion new agricultural innovations and improve the sustainable development of farmers.

Based on findings of the study was concluded that majority of respondents were medium level of adoption chilli cultivation practices mainly due to the less contact with extension agents means formal sources and similarly medium utilization of sources of information.

Insight also could help in selecting the right type of sources of information channels so as to suit to the farmer's preference and taste and gearing up the diffusion of chilli production technology.in addition to this, they may be trained in new technologies recommended by universities will enhance the production which in turn it will lead to the sustainable livelihood and improved quality life of chilli growers.

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