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Suman Singh
Department of Agricultural
Extension, IGKV, Raipur,
Chhattisgarh, India

MA Khan
Department of Agricultural
Extension, IGKV, Raipur,
Chhattisgarh, India

ML Sharma
Department of Agricultural
Extension, IGKV, Raipur,
Chhattisgarh, India

Impact of farmers training programme on knowledge and adoption of scientific production techniques of major spices in Chhattisgarh

Suman Singh, MA Khan and ML Sharma

Abstract

The current study was conducted during the year 2020-21 considering the trainings imparted by the “Centre of excellence on medicinal and aromatic plants and non-timber forest produce” in Chhattisgarh state. This aim of the study is to assess the knowledge and adoption regarding scientific production techniques of spices of the respondents. A *pre-post* research design was used in the present investigation. This study had been carried out by taking the response from trainees total of 4 training programmes organised for the spices growers in the “Centre of Excellence on Medicinal, Aromatic Plants and Non - timber forest produce”, IGKV Raipur during last 3 years with a total of 160 beneficiaries. The study reveals that majority of the respondents belongs to middle age group having educational qualification upto middle school. Most of the trainee were male consisting land holding of 2 to 4 ha (i.e. semi-medium land holding) and majority of them had tube well as the major source of irrigation. Most of the respondents are categorized under the annual income of 1lakh to 2lakhs with cropping intensity of more than 200 percent. Majority of them follow the direct marketing channel i.e. Producer to Krishi Upaj Mandi. Most of them were having (0.6-1 ha) area under spices crop. The average productivity of chilly was maximum (20.09q/ha) but turmeric was cultivated by majority of them. Most of the respondents had highest B:C ratio in turmeric spices. Majority of them had extension contact with farmers friend with medium level of contact with extension personal. Most of the respondents were categorized under medium level of mass media utilization, medium source of information, medium level of risk orientation, medium level of achievement motivation with moderate effectiveness of training programme. Before attending training programme, majority of them had maximum knowledge about field preparation spices crops whereas after attending training programme, they had maximum knowledge about field preparation of spices crops. Gain in knowledge percentage is maximum in ginger (10.05%). Majority of them were categorized under medium adoption level of cultivation practices of spices crops.

Keywords: spices, practices, knowledge, cultivation, CoE MAP and KVK Chhattisgarh

Introduction

Spices can be understood as seed, fruit, root, bark, and other plant substance which is essentially used flavoring and coloring of food. It can be distinguished from the herbs, as herbs are the flowers, leaves, or stem of plants used for flavoring.

Spices can be used as a food and medicine also. They bring out the unique taste of cuisines and can be used to make food more attractive by giving a different look of food. Some of the wild spices can be used as a food preservative. The major spices of the Chhattisgarh Chilli, Ginger, Turmeric, Coriander and Garlic covers an area of spices 55,376 ha as recorded in the year 2019-20 with total production of 3,54,525 MT.

Turmeric is India’s pride among spices. It is boiled, dried, cleaned and polished rhizomes of *curcuma longa*. It is used to flavour and to colour foodstuffs. It is a principle ingredient in curry powder. In Chhattisgarh productivity of turmeric is 1.86 tonnes /ha with an area of 1120 ha as reported in 2018.

Chillies by far constitute the largest and most widely cultivated food commodity among the spices grown in India. India is also the largest producer of chillies in the world.

Ginger is one of the most important rhizomatous spices. It is best suited as intercrop in plantation crops. Ginger is full of aroma which is pleasant and spicy, the taste is pungent and slightly bitter. In Chhattisgarh, the productivity was ginger was found 0.99 MT/ha with an total area of 1330 ha.

Garlic is widely used as a spice and condiment. It is the second most important among the cultivated Alliums after onion.

Corresponding Author
Suman Singh
Department of Agricultural
Extension, IGKV, Raipur,
Chhattisgarh, India

Coriander is an important spice crop having a prime position in flavoring food. The plant is a thin, stemmed, small, bushy herb. Coriander is the important vegetable, spice crop of the Chhattisgarh state with area and production of 314 thousand million tonnes in 13,374 ha (Indian horticulture database 2013-14).

Materials and Methods

This study will be carried out by taking the response from trainees of farmers training programme on spices crop conducted by the centre of excellence on medicinal, aromatic plants and Non-timber forest produce, Indira Gandhi krishi Vishwa Vidyalaya, Raipur, KVK Raipur, KVK Korea, KVK Rajnandgaon during last 3 years. All the 160 trainees will be virtually contacted via telephone calls, emails, WhatsApp and goggle form using a well prepared Questionnaire for collection of data. For the present investigation, a pre-post design will be followed to provide deep insights in to the problem. Collected data will be tabulated and processed by using appropriate statistical tools and methods.

Rogers (1983) categorized knowledge into three categories namely awareness knowledge, how to knowledge and principle knowledge.

The set of questions developed were discussed with the respondents of the training programme, 12 practices of spices cultivation were selected for the present study of test of knowledge before and after training. The knowledge score of the individual respondents the total score obtained by the respondents from all 12 practices. Knowledge Index is

calculated for individual spices crops like Ginger, Turmeric, Chilli, Garlic and Coriander of all 12 practices respectively. Then average knowledge Index is calculated for all 12 practices respectively.

To assess the level of knowledge of each respondents a knowledge Index was worked out with the following formula:

$$\text{Knowledge Index} = \frac{\text{Total obtained score by respondents}}{\text{Total obtainable score}} \times 100$$

Result and Discussion

Pre – training knowledge level

As a body understood information possessed by individual or by a culture is defined as knowledge. It is further explained that knowledge is the part of a persons information, which is in accordance with established fact. In the present investigation, the knowledge level of respondents regarding spices cultivation was assessed and presented in table 1.

The data in the table 1 shows that for various improved spices cultivation practices average knowledge index score and overall knowledge is calculated. Out of total respondents, majority of the respondents having knowledge about field preparation (80.5), followed by seed /rhizome treatment (74.7), irrigation management (68.9), nutrient management (67.5), time of sowing (62.8), weed management (62.1), method of sowing (59), processing (56.4), pest management, (50.3), harvesting time and implement (48), disease management (45.5) and recommended variety (38.6).

Table 1: 2014 Distribution of the respondents according to their level of pre-training knowledge regarding improved spices cultivation practice

Si. No	Knowledge items	Average knowledge Index score (%)					Overall knowledge (%)
		Ginger	Turmeric	Chilli	Garlic	Coriander	
1.	Recommended Variety	42	53.5	37.5	23.5	36.5	38.6
2.	Field preparation	81.5	89	78.5	67.5	86	80.5
3.	Method of sowing	61	70	60	44	60	59
4.	Time of sowing	72	76	60	40	66	62.8
5.	Seed / rhizome treatment	80	80	74	58.5	81	74.7
6.	Irrigation Management	66.5	82.5	71	47.5	77	68.9
7.	Nutrient Management	64.5	71	68	69	65	67.5
8.	Weed Management	67	71.5	66.5	39.5	66	62.1
9.	Pest Management	50.5	61.5	50.5	32	57	50.3
10.	Disease Management	45.5	55.5	52.5	26.5	47.5	45.5
11.	Harvesting time and implement	40.5	66.5	50	29.5	53.5	48
12.	Processing	56	70	57.5	38.5	60	56.4

It can be concluded that majority of the respondents had maximum knowledge about spacing

Post training knowledge

Knowledge is a familiarity, awareness or understanding of someone or something, such as facts, information,

descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning. In the present investigation, the knowledge level of respondents regarding spices cultivation was assessed and presented in table 2

Table 2: Distribution of the respondents according to their level of post-training knowledge regarding improved spices cultivation practice

S. no	Knowledge items	Gain in knowledge (%)					Average gain (%)
		Ginger	Turmeric	Chilli	Garlic	Coriander	
1.	Recommended Variety	67.33	69.66	63.66	46.33	65	62.39
2.	Field preparation	77.33	81.33	73.33	57	75.66	72.92
3.	Method of sowing	79.33	80.66	77.33	55.66	78.66	74.32
4.	Time of sowing	72.66	86	73	55.66	82	73.86
5.	Seed / rhizome treatment	67.33	76	72	51.66	73	67.99
6.	Irrigation Management	76.66	82.33	67.66	50	74.33	70.19
7.	Nutrient Management	63	64.66	59.66	44.33	64.66	59.26
8.	Weed Management	65.33	71.33	56.66	42.66	66.66	60.52
9.	Pest Management	76	69.66	57.33	70	66.66	67.93

10.	Disease Management	62.33	81.66	58.66	45.66	69.66	63.59
11.	Harvesting time and implement	74.33	80.33	75	54.33	76	71.99
12.	Processing	66	82	65.33	50	72.33	67.13

The data present in the table 2 shows that out of total, majority of the respondent had maximum knowledge about method of sowing (74.32), followed by time of sowing (73.86), field preparation (72.92), harvesting time and implement (71.99), irrigation management (70.19), seed/rhizome treatment (67.99), pest management (67.93), processing (67.13), disease management (63.59), recommended variety (62.39), weed management (60.52) and nutrient management (59.26). It can be concluded that majority of respondents had maximum knowledge about method of sowing. The probable reason for this trend may be

the fact that the respondents were frequently taught about recommended cultivation practices of spices. This coupled with the respondents regular contact with extension personnel and scientists seeking advice and clarifying doubts on the topics they had heard through different sources made them to have more knowledge.

Overall knowledge Index

The data depicts in the table 3 shows the overall knowledge index of respondents of various spices with their change percentage.

Table 3: Overall knowledge Index of various spices with their change percentage

Crops	Post-training knowledge (%)	Pre -training knowledge (%)	Gain in knowledge (%)
Ginger	70.63	60.58	10.05
Turmeric	77.13	70.58	6.55
Chilli	66.63	60.5	6.13
Garlic	51.94	43	8.94
Coriander	72.05	62.95	9.10

The table 3 shows that in case of post -training knowledge turmeric had high knowledge index (77.13), followed by coriander (72.05), ginger (70.13), chilli (66.63) and garlic (51.94). In case of pre -training knowledge again turmeric had maximum high knowledge index (70.58), coriander (62.95), ginger (60.58), chilli (60.5) and garlic (43). Overall gain in knowledge is maximum in ginger (10.05), coriander (9.10), garlic (8.94), turmeric (6.55) and chilli (6.13). It can be concluded by maximum gain in knowledge is observed in ginger. The probable reason might be the keen interest of respondents in cultivation practices in ginger because of the good market facilities and higher profit.

Conclusion

It can be concluded that before training maximum overall knowledge was for field preparation (80.5%), but after training it was observed that maximum average knowledge gain percentage in method of sowing (74.32). Gain in knowledge percentage was maximum in ginger (10.05%).

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