Knowledge Level of Beneficiaries Farmers as Compared to Non-Beneficiaries Farmers Regarding Turmeric Cultivation

ABSTRACT

The present study was conducted to know the knowledge level of ~~beneficiaries~~ beneficiaryfarmers as compared to non-beneficiaries farmers about turmeric cultivation. The reach required a sample size of 160 beneficiaries respondents, proportionate ~~randomly~~ random~~method~~ methodswere used and equal numbers of non-beneficiaries respondents were also selected randomly from the same villages. In this way, a total of 320 farmers were considered as respondents to respond as per the interview schedule design for the study. The study revealed that the majority of the beneficiaries (73.12%) and non-beneficiaries (75.62%) had a medium level of knowledge, followed by 19.38 ~~per cent~~percent of the beneficiaries and 20.63 ~~per cent~~percent of the non-beneficiaries had a low level of knowledge and 7.50 ~~per cent~~percent of the beneficiaries and 3.75 ~~per cent~~percent of the non-beneficiaries had high knowledge about turmeric cultivation.

~~*Key words*~~*Keywords: Knowledge level, beneficiaries farmers, non-beneficiaries farmers, turmeric cultivation.*

1. INTRODUCTION

India produces a wide variety of fruits, vegetables, root and tuber crops, flowers, ornamental plants, medicinal and aromatic plants, spices, condiments, plantation crops and mushrooms. These crops form a significant part of total agricultural produce in the country. All horticulture crops put together covered nearly 23.7 million hectares area with an annual production of 268.8 million tonnes during 2012-13 (Anonymous, 2013). Though these crops occupy about 10.7 percent of the gross cropped area, they contribute over 30 per cent to the agricultural Gross Domestic Product and 37 per cent of total export of agricultural commodities in the country. The area and production of horticultural crops have increased considerably as compared to the situation a couple of decades ago. The area under horticulture crops has increased from 16.3 million ha in 2002-03 to 23.7 million ha in 2012-13 with the corresponding increase in production from 144.4 million tonnes to 268.8 million tonnes.

Turmeric is one of the important cash crops in India. India is the larger producer and exporter of turmeric in the world. Turmeric occupies about 6 per cent of the total area under spices and condiment products in India. In the year 2012-13 turmeric cultivation was 194 thousand ha with the production of 971 thousand tonnes. It reached to 233 thousand ha with the production of 1190 thousand tonnes in the year 2014-15 (Anonymous, 2015).

Chhattisgarh is also one of the important states of turmeric cultivation. In the Chhattisgarh state about 11.021 thousands ha with the production of 113.34 thousand tonnes. Looking towards increase in area under turmeric present is carried out (Anonymous, 2014).

2. MATERIALS AND METHODS

The present study was conducted during the year 2015-16 and 2016-17 in Chhattisgarh plains. The state comprises 27 districts, out of which 5 districts were selected purposively on the basis of maximum area and maximum number of turmeric growers. From each selected districts, 2 blocks were selected purposively for the study on the basis of maximum area and maximum number of turmeric growers. From each selected block, 4 villages were selected purposively on the basis of maximum area and maximum number of turmeric growers. From each selected villages, 4 beneficiaries and 4 non-beneficiaries were selected randomly for the comparison between both groups. In this way total 320 farmers were considered as respondents for the study. Data were collected by the personal interview method using structured schedule.

The knowledge test consisted of items called questions covering all the package of practices of turmeric cultivation. For the study of knowledge, 16 practices of turmeric cultivation were selected for the present study. The weightage of "2" for "full knowledge", "1" for "partial knowledge" and "0" for "no knowledge" were assigned for each practices. The total score obtained by the respondents from all 16 practices was the knowledge score of the individual respondent.

The respondents were classified into three categories *viz.* low, medium and high level of knowledge on the basis of mean and standard deviation.

Table 1. Three categories of knowledge level based on mean and standard deviation

Level of knowledge	Criteria
➢ Low	Below Mean – S.D.
➢ Medium	Between Mean ± S.D.
➢ High	Above Mean + S.D.

3. RESULTS AND DISCUSSION

The data presented in Table 2 reveals that out of total 74.38 per cent of the respondents had medium knowledge about turmeric cultivation, followed by 20.00 per cent had low knowledge and 5.62 per cent of them had high knowledge.

Table 2: Distribution of the respondents according to their overall knowledge level about turmeric cultivation

S. No.	Knowledge level	Respondents					
		Beneficiaries		Non-beneficiaries		Total	
		F	%	F	%	F	%
1	Low	31	19.38	33	20.63	64	20.00
2	Medium	117	73.12	121	75.62	238	74.38
3	High	12	7.50	6	3.75	18	5.62

F – Frequency, % - Percentage

In case of beneficiaries 73.12 per cent of the respondents had medium knowledge, followed by 19.38 per cent had low knowledge and 7.50 per cent of them had high knowledge.

Similarly, in case of non-beneficiaries 75.62 per cent of the respondents had medium knowledge, followed by 20.63 per cent had low and 3.75 per cent of them had high knowledge.
It can be concluded that majority of the respondents had medium to high level of knowledge in case of beneficiaries, whereas it was medium to low level of knowledge in non-beneficiaries.

3.1 Knowledge of beneficiaries and non-beneficiariesfarmers regarding turmeric cultivation

Beneficiaries:

Knowledge is defined as a body understood information possessed by individual or by a culture. 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 selected beneficiaries of NHM regarding turmeric cultivation was assessed and presented in Table 3. The findings reveal that majority of the respondents had full knowledge about improved cultivation practices like recommended varieties (91.25%), methods of planting (90.00%), ploughing and field preparation (79.38%), irrigation management (74.38%), inter-cropping (73.75%), harvesting time and methods (71.88%), recommended seed rate (60.00%), balance dose of fertilizers (57.50%), Earthin up operation (56.88%), Application of FYM (54.38%), seed treatment (50.00%), insect-pest management (46.25%), recommended spacing (45.00%), disease management (16.88%), chemicals for weed control (6.88%) and use of mulching (4.37%).

However, it was observed that the majority of the respondents had partial knowledge of improved cultivation practices like disease management (68.75%), recommended spacing (55.00%), application of FYM (45.62%), seed treatment and insect-pest management (45.00%), earthing up operation (43.12%), balance dose of fertilizers (42.50%), recommended seed rate (40.00%), harvesting time and methods (28.12%), inter-cropping (26.25%), irrigation management (25.62%), ploughing and field preparation (20.62%), chemicals for weed control (18.12%) and methods of planting (10.00%).

It was also found that the majority of the respondents had no knowledge about improved cultivation practices like use of mulching (95.63%), chemicals for weed control (75.00%), disease management (14.37%), recommended variety and insect-pest management (8.75%) and seed treatment (5.00%).

Table 3: Distribution of the respondents according to their knowledge regarding improved turmeric cultivation practices

Sl. No.	Practices	Respondents					
		Beneficiaries			Non-beneficiaries		
		No knowledge	Partial knowledge	Full knowledge	No knowledge	Partial knowledge	Full knowledge
		F (%)	F (%)	F (%)	F (%)	F (%)	F (%)
1	Field preparation	0 (0.00)	33 (20.62)	127 (79.38)	0 (0.00)	39 (24.38)	121 (75.62)
2	Improved variety	14 (8.75)	0 (0.00)	146 (91.25)	30 (18.75)	0 (0.00)	130 (81.25)
3	Seed rate	0 (0.00)	64 (40.00)	96 (60.00)	0 (0.00)	78 (48.75)	82 (51.25)
4	Method of planting	0 (0.00)	16 (10.00)	144 (90.00)	0 (0.00)	22 (13.75)	138 (86.25)
5	Spacing	0 (0.00)	88 (55.00)	72 (45.00)	0 (0.00)	93 (58.12)	67 (41.88)
6	Seed treatment	8 (5.00)	72 (45.00)	80 (50.00)	15 (9.38)	97 (60.62)	48 (30.00)
7	Earthing up	0 (0.00)	69 (43.12)	91 (56.88)	0 (0.00)	77 (48.12)	83 (51.88)
8	Inter-cropping	0 (0.00)	42 (26.25)	118 (73.75)	0 (0.00)	45 (28.12)	115 (71.88)
9	Mulching	153 (95.63)	0 (0.00)	7 (4.37)	157 (98.12)	0 (0.00)	3 (1.88)
10	Application of FYM	0 (0.00)	73 (45.62)	87 (54.38)	0 (0.00)	93 (58.12)	67 (41.88)
11	Application of fertilizers	0 (0.00)	68 (42.50)	92 (57.50)	0 (0.00)	98 (61.25)	62 (38.75)
12	Chemicals for weed control	120 (75.00)	29 (18.12)	11 (6.88)	119 (74.37)	35 (21.88)	6 (3.75)
13	Water management	0 (0.00)	41 (25.62)	119 (74.38)	0 (0.00)	43 (26.88)	117 (73.12)
14	Insect-pest control	14 (8.75)	72 (45.00)	74 (46.25)	18 (11.25)	103 (64.38)	39 (24.37)
15	Disease control	23 (14.37)	110 (68.75)	27 (16.88)	20 (12.50)	119 (74.38)	21 (13.12)
16	Harvesting stage	0 (0.00)	45 (28.12)	115 (71.88)	0 (0.00)	58 (36.25)	102 (63.75)

Figures in parentheses indicate the percentage

Non-beneficiaries:

The knowledge of turmeric cultivation of selected non-beneficiaries was assessed and presented in Table 3. The data reveals that majority of the respondents had full knowledge about improved cultivation practices like useful method of planting (86.25%), recommended varieties (81.25%), ploughing and field preparation (75.62%), irrigation management (73.13%), inter-cropping (71.88%), harvesting time and methods (63.75%), earthing up operation (51.88%), recommended seed rate (51.25%), recommended spacing and application of FYM (41.88%), balance dose of fertilizers (38.75%), seed treatment (30.00%), insect-pest management (24.37%), disease management (13.12%) and mulching (1.88%).

However, it was observed that the majority of the respondents had partial knowledge of improved cultivation practices like disease management (74.38%), insect-pest management (64.38%), balance dose of fertilizers (61.25%), seed treatment (60.62%), recommended spacing and application of FYM (58.12%), recommended seed rate (48.75%), earthing up operation (48.12%), harvesting time and methods (36.25%), inter-cropping (28.12%), irrigation management (26.88%), ploughing and field preparation (24.38%), chemicals for weed control (21.88%) and method of planting (13.75%).

It was also found that the majority of the respondents had no knowledge about improved cultivation practices like mulching (98.12%), chemical for weed control (74.37%), recommended variety (18.75%), disease management (12.50%), insect-pest management (11.25%), seed treatment (9.38%).

3.2 Comparison between beneficiaries and non-beneficiariesfarmers with respect to their knowledge regarding improved turmeric cultivation practices

The data presented in Table 4 reveals the difference between beneficiaries and non-beneficiaries respondents regarding turmeric cultivation. The calculated 'Z' value for field preparation was 0.801 which was found to be non-significant. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is accepted. Hence it can be concluded that there is no difference between beneficiaries and non-beneficiaries with respect to field preparation.

The calculated 'Z' value for improved variety was 2.904 which was found to be significant at 1 per cent level of probability. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is rejected. Hence, it can be concluded that there is significant difference between beneficiaries and non-beneficiaries regarding improved variety.

The calculated 'Z' value for seed rate was 1.983 which was found to be significant at 5 per cent level of probability. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is rejected. Hence, it can be concluded that there is significant difference between beneficiaries and non-beneficiaries in relation to seed rate.

The calculated 'Z' value for method of planting was 1.035 which was found to be non-significant. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is accepted. Hence, it can be concluded that there is no difference between beneficiaries and no-beneficiaries regarding method of planting.

Table 4: Comparison between beneficiaries and non-beneficiariesfarmers with respect to their knowledge regarding improved turmeric cultivation practices

Sl. No.	Practices	Mean value		'Z' value
		Beneficiaries	Non-beneficiaries	
1	Field preparation	1.794	1.756	0.801
2	Improved variety	1.825	1.625	2.904**
3	Seed rate	1.612	1.513	1.983*
4	Method of planting	1.900	1.863	1.035
5	Spacing	1.450	1.419	0.562
6	Seed treatment	1.450	1.206	3.677**
7	Earthing up	1.569	1.519	0.896
8	Inter-cropping	1.738	1.719	0.375
9	Mulching	0.088	0.038	1.984*
10	Application of FYM	1.544	1.419	2.248*
11	Application of fertilizers	1.575	1.388	3.406**
12	Chemicals for Weed control	0.319	0.294	0.394
13	Water management	1.744	1.725	0.372
14	Insect-pest control	1.375	1.131	3.552**
15	Disease control	1.025	1.006	0.310
16	Harvesting stage	1.713	1.638	1.412

**0.01 level of probability
*0.05 level of probability

The calculated 'Z' value for spacing was 0.562 which was found to be non-significant. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is accepted. Hence, it can be concluded that there is no difference between beneficiaries and non-beneficiaries in relation to spacing.

The calculated 'Z' value for seed treatment was 3.677 which was found to be significant at 1 per cent level of probability. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is rejected. Hence, it can be concluded that there is significant difference between beneficiaries and non-beneficiaries regarding seed treatment.

The calculated 'Z' value for earthing up was 0.896 which was found to be non-significant. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is accepted. Hence, it can be concluded that there is no difference between beneficiaries and no-beneficiaries with respect to earthing up.

The calculated 'Z' value for inter-cropping was 0.375 which was found to be non-significant. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is

accepted. Hence, it can be concluded that there is no difference between beneficiaries and no-beneficiaries in relation to inter-cropping.

The calculated 'Z' value for mulching was 1.984 which was found to be significant at 5 per cent level of probability. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is rejected. Hence, it can be concluded that there is significant difference between beneficiaries and non-beneficiaries with respect to mulching.

The calculated 'Z' value for application of FYM was 2.248 which was found to be significant at 5 per cent level of probability. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is rejected. Hence, it can be concluded that there is significant difference between beneficiaries and non-beneficiaries regarding application of FYM.

The calculated 'Z' value for Application of fertilizers was 3.406 which was found to be significant at 1 per cent level of probability. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is rejected. Hence, it can be concluded that there is significant difference between beneficiaries and non-beneficiaries regarding application of fertilizers.

The calculated 'Z' value for chemicals of weed control was 0.394 which was found to be non-significant. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is accepted. Hence, it can be concluded that there is no difference between beneficiaries and no-beneficiaries with respect to chemical of weed control.

The calculated 'Z' value for water management was 0.372 which was found to be non-significant. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is accepted. Hence, it can be concluded that there is no difference between beneficiaries and non-beneficiaries in relation to water management.

The calculated 'Z' value for insect-pest control was 3.552 which was found to be significant at 1 per cent level of probability. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is rejected. Hence, it can be concluded that there is significant difference between beneficiaries and non-beneficiaries regarding insect-pest control.

The calculated 'Z' value for disease control was 0.310 which was found to be non-significant. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is accepted. Hence, it can be concluded that there is no difference between beneficiaries and no-beneficiaries regarding disease control.

The calculated 'Z' value for harvesting stage was 1.412 which was found to be non-significant at 5 per cent level of probability. Thus the earlier stated null hypotheses that there is no difference between beneficiaries and non-beneficiaries is accepted. Hence, it can be concluded that there is no difference between beneficiaries and no-beneficiaries regarding harvesting stage.

The data presented in Table 4 reveals that out of total, 74.38 per cent of the respondents had medium knowledge about turmeric cultivation, followed by 20.00 per cent had low and 5.62 per cent of them had high knowledge level.

In case of beneficiaries, 73.12 per cent of the respondents had medium knowledge level, followed by 19.38 per cent had low knowledge and 7.50 per cent of them had high knowledge level.

4. CONCLUSION

It was found that out of a total 74.38 ~~per cent~~percent of the respondents had medium knowledge about turmeric cultivation, followed by 20.00 ~~per cent~~percent had low and 5.62 ~~per cent~~percent of them had a high knowledge level. In the case of beneficiaries, 73.12 ~~per cent~~percent of the respondents had a medium knowledge level, followed by 19.38 ~~per cent~~percent~~had~~ having low knowledge and 7.50 ~~per cent~~percent of them ~~had~~ having a high knowledge level.Similarly, in the case of non-beneficiaries, 75.62 ~~per cent~~percent of the respondents had medium knowledge, followed by 20.63 ~~per cent~~percent had low and 3.75 ~~per cent~~percent of them had a high knowledge level. According to practice wise, it was also found that both~~type~~ types of respondents (beneficiary and non-beneficiary)possessed maximum knowledge regardingthe method of planting ~~of~~ turmeric ~~crop~~crops, respectively. Similarly, the least knowledge was possessed about the mulching of turmeric ~~crop~~crops.

REFERENCES

1. Aglawe, D.D., Lairenlakpam, M. and Kokate, D.S. Constraints faced by farmers in adoption of turmeric production technology. Guj. J. Ext. Edu. 2014; 25(2): 215-217.
2. Anantkawlas, M. B. A study of turmeric processing and its export from India. Research front. 2014; 2(3): 51-56.
3. Anonymous, Department of Horticulture, Raipur, C.G., 2014.
4. Anonymous, Horticulture Statistics Division, Department of Agriculture, Cooperation & Farmer Welfare, Ministry of Agriculture & Farmer Welfare, Government of India, New Delhi, 2015.
5. Anonymous. Indian Horticulture Database. National Horticulture Board, Ministry of Agriculture, Government of India, New Delhi, 2013.
6. Babu, N., Shukla, A.K., Tripathi, P.C. and Prusty, M. Traditional Cultivation Practices of Turmeric in Tribal Belt of Odisha. Journal of Engineering Computers & Applied Sciences. 2015; 4(2): 52-57.
7. Badhe, D.K. and Saiyad, A. S. A study on knowledge level of recommended production technology among brinjal growers of Anand district of Gujarat. Agriculture Update. 2011;6(3&4): 116-117.
8. Bheemudada, A.B., and Natikar, K.V. A study on knowledge level of farmers about the ginger cultivation practices and constraints in adoption of improved practices. J. Farm Sci., 2016; 29(1): 133-134.
9. Chavai, A.M., Yamgar, A.S. and Barange, P.K. Adoption behavior of turmeric growers about Post Harvest Technology. International Journal of Tropical Agriculture. 2015; 33(4): 3533-3536.
10. Dipak, A.D. Technological gap in turmeric production technology. M. Sc. (Agri.) Thesis, Mahatma Phule Krishi Vidyapeeth, Rahuri, 2012.

Comment [R1]: This reference does not appear in the text

Comment [R2]: This reference does not appear in the text

Comment [R3]: This reference does not appear in the text

11. Gaikwad, A.B., Shinde, S.B. and Kolgane, B.T. Knowledge of extension personnel about horticultural recommendations on selected fruit crops. Agriculture Update. 2011;6(3&4): 155-160.
12. Gupta, B.K., De, D. and Raha, P. Extent of knowledge of vegetable growers about the side effects of pesticides. Indian Journal of Extension Education. 2010; 46(3&4): 38-42.
13. Kamble, K.J. and Soni, S.B. A study of improving turmeric processing. Karnataka J. Agric. Sci., 2009; 22(1): 137-139.
14. Karpagam, C. Critical analysis of adoption behavior of turmeric cultivators in Tamil Nadu State. Internat. J. agric. Sci., 2006; 2(2): 526-528.
15. Kiruthika, N. The economics of production of turmeric in India: a case study of Erode district of Tamil Nadu. Journal of Innovative Research and Solutions. 2013; 1(1): 123-30.

Comment [R4]: This reference does not appear in the text

Comment [R5]: This reference does not appear in the text