



Research Article

Assessment of knowledge levels of organic and conventional cotton farmers

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ARTICLE CHRONICLE :

Received:
03.03.2012;
Revised :
03.07.2012;
Accepted:
04.08.2012

SUMMARY : The present study was conducted in Karimnagar district of Andhra Pradesh state. Ex-post facto research design was followed. Sixty organic and sixty inorganic cotton farmers were selected for the study. A knowledge test was developed with 45 items to collect the data from the respondent farmers on organic cotton farming. For response analysis, these 45 items were grouped into four broad categories such as conversion and certification requirements (items 9), land preparation, biomass development, sowing and weed management (items 9), plant protection (items 18), and harvesting and post harvest management (items 9). The findings of the study indicated that majority of organic cotton farmers had high (75 %) level of knowledge, contrary to this, majority of conventional cotton farmers had low (43 %) level of knowledge. With regard to the knowledge level on selected organic practices- conversion and certification requirements of organic cotton were ranked first and the practices of plant protection was ranked last by the organic cotton farmers. Whereas, the conventional cotton farmers ranked the practices of land preparation, biomass development, sowing and weed management as first and the practices of certification and conversion requirements was ranked last.

How to cite this article : Prashanth, P., Reddy, M. Jagan Mohan and Rao, I. Sreenivasa (2012). Assessment of knowledge levels of organic and conventional cotton farmers. *Agric. Update*, 7(3&4): 171-174.

KEY WORDS:

Organic cotton farming, Level of knowledge, Organic cotton growers

BACKGROUND AND OBJECTIVES

Knowledge is the accumulation of facts generated through periodical scientific testings. The body of knowledge generated over a period of time leads to formation of theory. Any theory should clearly spell out the reasons for the effects in its domain. Knowledge is the pre-requisite or basic input to reap good dividends from any profession. Among all cash crops, cotton enjoys a prominent position as it provides livelihood for over 60 million people both from the farming sector and industry. It is a principal commercial crop in India and is playing a pivotal role in the national economy. Cotton is an important crop for many developing countries, as a source of income for its growers and as a source of foreign exchange.

Indian certified organic cotton production is 15 per cent of the total world production and it is about 37 per cent of the Asian production. Organic cotton leads among the products exported (16,500 MT). In Andhra Pradesh cotton is an

important cash crop and grown over an area of about 18.21 lakh ha (DOA, A.P., 2010-11). Karimnagar district is one of the major cotton producing districts of the state occupying highest area and production under organic cotton. The exorbitant amounts of chemicals are used to arrest the pest population in the crop. In recent years farmers are gradually oriented to cultivate the cotton crop on organic mode realizing the adverse effects of inorganic farming. Assessing the knowledge of various organic practices by these cotton growers shall facilitate in designing the programmes for quick promotion of organic farming in the district. Keeping this in view, the present paper focuses on finding out the level of knowledge of organic cotton practices by the organic and conventional cotton farmers.

RESOURCES AND METHODS

The state of Andhra Pradesh and the Telangana region were selected purposively for

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the study. The district Karimnagar of Telangana region was selected randomly. Ex-post facto research design was followed. A sample of 60 organic and 60 conventional cotton practicing farmers from six villages of two Mandals of the district were selected randomly. The level of knowledge of organic and conventional cotton was measured with the help of a farmers knowledge test exclusively developed for the study. The test comprised of 45 items on organic cotton farming. An interview schedule was used to collect the data from the respondent farmers. To measure the level of knowledge of organic and conventional cotton farmers, they were asked to reply different questions about the conversion and certification requirements, plant protection, land preparation, biomass development, sowing and weed management, harvesting and post harvest management. The response of respondents on each statement was measured on two point continuum. The selected knowledge test items were arranged under different types as correct/incorrect, multiple choice and fill up the blanks. The correct response to each test item was given a score of 'one' and incorrect response a score of 'zero', that the knowledge score of a respondent is the summation of scores of correctly answered items out of total test items. The scores so obtained under various questions were summed up. On the basis of the total score obtained, the respondents were categorized into three classes *i.e.* low, medium and high level of adoption. After recording the responses from the respondents on all the items (45) of knowledge on organic cotton practices, the items were grouped into four categories. Based on the responses obtained on the items, mean score was calculated for each category, accordingly knowledge percentage and rank was obtained. Under each category, the respondents were classified into three groups *i.e.* low, medium and high in terms of frequency and percentage. The category wise knowledge percentage was also calculated on the basis of following formula:

$$\text{Mean score for each category} = \frac{\text{Obtained total score in that category}}{\text{Number of respondents}}$$

$$\text{Knowledge percentage} = \frac{\text{Obtained total score}}{\text{Total score}} \times 100$$

Table 1 : Distribution of organic and conventional cotton farmers based on their level of knowledge

Category	Organic (n=60)			Conventional (n=60)		
	Low (0-15)	Medium (16-30)	High (31-45)	Low (0-15)	Medium (16-30)	High (31-45)
Frequency	6	9	45	26	24	10
Percentage	10.00	15.00	75.00	43.00	40.00	16.67

Table 2 : Difference between level of knowledge of organic and conventional cotton farmers

Sr. No.	Respondent category	Size of the sample	Mean	S.D.	'Z' value
1.	Organic	60	35.08	7.661	16.0827*
2.	Conventional	60	21.45	9.985	

* indicates significance of value at P=0.05

OBSERVATIONS AND ANALYSIS

A perusal of the results in Table 1 depicts that majority (75.00%) of the organic cotton farmers had high level of knowledge followed by medium (15.00%) and low (10.00%). The results were in confirmation with Shiraj (2001) and Subhash Chander (2002). Whereas, majority (43.00%) of the conventional cotton farmers had low level of knowledge followed by medium (40.00%) and high (16.67%). The results were in confirmation with the findings reported by Sarthak Chowdhury and Prabuddharay (2010).

Knowledge of organic and conventional cotton farmers on organic cotton practices:

It is evident from the Table 2 that calculated 'Z' value (16.0827) was greater than table 'Z' value at 0.01 level of probability. So, the Null hypothesis was rejected and hence it could be concluded that there exists a significant difference between mean knowledge scores of organic and conventional farmers.

Distribution of organic cotton farmers based on knowledge score:

To ascertain the level of knowledge possessed by the organic cotton farmers in different organic cotton practices, the selected organic cotton cultivation practices were divided into four categories (Table 3). In each category, the respondents were grouped into low, medium and high knowledge groups based on the obtained scores in each category by using class interval technique. The results are presented in Table 3 and their inferences drawn as under.

The analysed data in Table 3 revealed that, 80.33 per cent of the respondents belonged to high level of knowledge group about conversion and certification requirements of organic cotton farming followed by medium (11.66%) and low (5.00%). The mean score obtained was 7.82 and the knowledge percentage attained was 84.97, hence this category was accorded first position in order.

Regarding land preparation, biomass development,

sowing and weed management, it was observed that 66.66 per cent of the farmers were found in high level of knowledge group followed by 26.66 per cent fell in medium level and 6.66 per cent were under low group. The mean score obtained was 6.47 and the knowledge percentage obtained was 80.33, hence this category was accorded second position in order.

The study further indicated that 68.50 per cent of the respondents had high level of knowledge regarding plant protection, followed by medium (23.30%) whereas, 8.32 per cent respondents had low level of knowledge. The mean score obtained was 12.35 and the knowledge percentage obtained was 68.61, hence this category was accorded fourth position in order. This is in conformity with Dinesh *et al.* (2010) and Latha Madhavi (2002).

Regarding, harvesting and post harvest management, it was observed that 54.00 per cent of the farmers were found in high, whereas, 25.00 per cent fell in low and only 21.00 per cent farmers had medium level of knowledge. The mean score

obtained was 5.65 and the knowledge percentage attained was 70.63, hence this category was accorded third position in order (Table 3).

It can, therefore be concluded that majority of the organic cotton farmers had high level of knowledge on organic cotton practices.

The knowledge level of organic cotton practices by the organic cotton farmers are high. This trend might be resulted due to the fact that organic cotton farmers are involved in applying and practising the organic farming techniques in cotton cultivation in contrast to this the conventional cotton farmers were not habituated to the organic farming.

The results obtained from item analysis of organic cotton practices make the sense that organic cotton farmers had high level of knowledge of conversion and certification practices whereas they had low level of knowledge on harvest and post harvest practices. This can be justified based on the fundamental principle that a cotton farmer should take up the

Table 3 : Distribution of organic cotton farmers on the basis of knowledge score

(n = 60)

Sr. No.	Organic cotton practices (categories)	Groups	Score range	Frequency	Percentage	Mean score	Knowledge percentage	Rank
1.	Conversion and certification requirements (Items 9)	Low	5-6	3	5.00	7.82	84.97	I
		Medium	7-8	7	11.66			
		High	9-10	50	80.33			
2.	Land preparation, biomass development, sowing and weed management (Items 9)	Low	4-5	4	6.66	6.47	80.33	II
		Medium	6-7	16	26.66			
		High	8-9	40	66.66			
3.	Plant protection (Items 18)	Low	3-6	5	8.32	12.35	68.61	IV
		Medium	7-10	14	23.30			
		High	11-14	41	68.50			
4.	Harvesting and post harvest management (Items 9)	Low	3-5	15	25.00	5.65	70.63	III
		Medium	6-8	13	21.00			
		High	9-11	32	54.00			

Table 4 : Distribution of conventional cotton farmers on the basis of knowledge score

(n=60)

Sr. No.	Organic cotton practices (categories)	Groups	Score range	Frequency	Percentage	Mean score	Knowledge percentage	Rank
1.	Conversion and certification requirements (Items 9)	Low	0-2	37	61.66	3.98	44.26	IV
		Medium	3-5	16	26.66			
		High	6-8	7	11.66			
2.	Land preparation, biomass development, sowing and weed management (Items 9)	Low	2-3	32	53.33	5.71	57.16	I
		Medium	4-5	20	33.33			
		High	6-7	8	13.33			
3.	Plant protection (Items 18)	Low	3-5	16	26.66	8.4	46.66	III
		Medium	6-8	32	53.33			
		High	9-11	12	20.00			
4.	Harvesting and post harvest management (Items 9)	Low	2-3	26	43.33	3.88	48.54	II
		Medium	4-5	28	46.66			
		High	6-7	6	10.00			

organic cotton cultivation by converting his field compulsory with the period of 3 years of conversion period and produce the cotton which can meet the certification standards of various agencies, hence the knowledge on this practice are high.

Understanding the intricacies involved in non-pesticidal management of pest population, the biological pest control measures is very complex and difficult even though they may be practiced not with much difficulty, hence the knowledge level of organic cotton farmers on these aspects is very low. The land preparation and sowing are the basic cultivation practices easily understood and usually practiced by all the cotton growers.

To ascertain the level of knowledge possessed by the conventional cotton farmers in different organic cotton practices, the selected organic cotton cultivation practices were divided into four categories (Table 4). In each category, the respondents were grouped into low, medium and high knowledge groups based on the obtained scores in each category by using class interval technique. The results are presented in Table 4 and their inferences drawn as under.

Distribution of conventional cotton farmers based on knowledge score:

The analysed data contained in Table 4 revealed that, 61.66 per cent of the respondents belonged to low level of knowledge group about conversion and certification requirements of organic cotton farming followed by medium (26.66%) and high (11.66%). The mean score obtained was 3.98 and the knowledge percentage was 44.26, hence this category was accorded fourth position in order. The same result was generated by Subhash Chander (2002) and Savitha (2009).

Regarding land preparation, biomass development, sowing and weed management, it was observed that 53.33 per cent of the farmers were found in low level of knowledge group followed by 33.33 per cent which fell in medium and only 13.33 per cent farmers had high level of knowledge. The mean score obtained was 5.71 and the knowledge percentage obtained was 57.16, hence this category was accorded third position in order.

The study further indicated that, 53.33 per cent of the respondents had medium level of knowledge regarding plant protection, followed by low (26.66%) whereas, 20.00 per cent of the respondents had high level of knowledge. The mean score obtained was 8.4 and the knowledge percentage obtained was 46.66, hence this category was accorded third position in order.

Regarding, harvesting and post harvest management, it was observed that 46.66 per cent of the farmers were found in medium, whereas, 43.33 per cent fell in low and only 10.00 per

cent farmers had high level of knowledge. The mean score obtained was 3.88 and the knowledge percentage obtained was 48.54, hence this category was accorded second position in order. This is in line with the findings of Shiraj (2001).

It can, therefore be concluded that majority of the conventional cotton farmers had low level of knowledge on organic cotton practices.

Conclusion:

Majority of the organic cotton farmers had high level of knowledge on organic cotton practices. Whereas conventional cotton farmers had low level of knowledge on organic cotton practices. With regard to the knowledge level on selected organic practices- conversion and certification requirements of organic cotton were ranked first and the practices of plant protection was ranked least by the organic cotton farmers. Whereas the conventional cotton farmers ranked the practices of land preparation, biomass development, sowing and weed management as first and the practices of certification and conversion requirements was ranked least.

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