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Assessment of the level of knowledge and attitude of farmers towards organic farming

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Abstract

Level of Knowledge and Attitude of Farmers to a great extent may affect adoption of Organic farming. The present study was designed to assess the Level of Knowledge and Attitude of Farmers of Almora District of Uttarakhand towards Organic Farming. Organic farming helps in raising income and employment for farmers and hence agrarian economy; through improvement in agricultural productivity and sustainability in agricultural production. For the purpose of the study 200 beneficiaries of organic farming were randomly selected to analyze farmers' knowledge level and attitude towards organic farming. The findings of the study were as follows: Majority of 71.50 percent beneficiaries were having high level of knowledge towards organic farming. Majority 51.50 percent of beneficiaries were having most favorable attitude towards organic farming whereas 29.50 percent beneficiaries had favorable attitude towards organic farming and only 19.00 percent beneficiaries had least favorable attitude towards organic farming.

Keywords: Level of knowledge, attitude, farmers, Almora district, organic farming

Introduction

Knowledge is defined as the set of concepts, meanings, skills and routines developed over time by individuals and groups through processing of information. Once the knowledge is acquired, it also brings about changes in overt behavior such as adoption. Knowledge level of farmers refers to the information they posses in respect of organic farming practices Perception of farmers towards organic farming is the process of how they use their senses to interpret and respond to organic farming. Attitudes are a key part of behaviour and are important for understanding how farmers behave and perceive organic farming.

Organic farming is the manifestation of the traditional environment stewardship of the people of Uttarakhand (Chipko Movement), providing a meaningful expression in the form of economic growth. Eighty percent of farmers in Uttarakhand practice organic farming by default in rain fed conditions. This practice has been the source of food security for small and marginal farmers in terms of safe, multiple and nutritious food. The state, because of its diverse topography has an immense potential to develop cultivation of herbs and medicinal plants through organic farming. However this remains untapped because of lack of serious efforts

Organic farming was the original type of agriculture and has been practiced for thousands of years. For example, forest gardening, a fully organic food production system which dates from prehistoric times, is thought to be the world's oldest and most resilient agro ecosystem. Organic farming in India is experiencing at real boom-when considering the number of farmers turning to organic practices. A large number of farmer groups, NGOs, development agencies and government bodies promoting organic farming in one way or the other. Whole villages and even state governments (as in the case of the states of Uttaranchal and Mizoram) have declared that they want to convert to organic farming.

Organic Food Products are commodities produced without the use of any kind of chemicals/inorganic agriculture inputs. Organic Farming systems stress on natural bio cycles, crop rotations, use of natural resources for production and pest management. These systems also apply natural laws like lunar and solar rhythms.

To address the issue of maintaining crop yield through sustainable agricultural practices, the Government proposes to promote organic farming methods, combining modern technology with traditional farming practices like green manuring, biological pest control and weed management. A large number of terms are used as an alternative to organic farming *viz*. biological agriculture, ecological agriculture, bio-dynamic, organic-biological agriculture and natural agriculture. According to the National Organic Standards Board of the US Department of Agriculture (USDA) the word 'Organic' has the following official definition: "An ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on the minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony."

Organic farming in India received attention after launching of National Project on Organic Farming (NPOF) in 2004-05.

Area under organic farming was 42,000 hectares during 2004-05 which had increased to 1.08 hectares by March 2010. Area under wild forest harvest collection was 3.40 million hectares. Thus total area under organic certification process by March, 2010 was 4.48 million hectares which was 25 fold increase in last 6 years. Organic farming is being promoted under National Project on Organic Farming (NPOF), National Horticulture Mission (NHM) and Rashtriya Krishi Vikas Yojana (RKVY). India produced around 3.88 million MT of certified organic products which includes edible products along with organic cotton fiber, garments, cosmetics, functional food products, body care products, etc. India exported 86 items in the year 2010-11 with the total volume of 69837 MT. the export realization indicated a growth of 33 per cent (157.22 million US $) over the previous year. Chief importers of Indian organic products are EU, US, Australia, Canada, Japan, Switzerland, South Africa and Middle East.

The technology is also playing a major role in the participation and interest of the farmers like extension parts, level of the information sources, exposure to the mass media, positive attitude and of course the extent of the knowledge level (Jaganathan *et al*., 2009) [2]. Results obtained will be ensured food security, enhanced viability of farming, and restored ecological balance (Sahu *et al*., 2021) [5]. Organic farming can accelerate the agro-economy of India but there is no utmost level of knowledge related to specific organic farming (Sharma *et al*., 2016) [7]. Thus, organic farming could help in raising income and employment through improvement in agricultural productivity and sustainability in agricultural production.

Objectives

1. To prepare demographic profile of Beneficiaries of Organic Farming
2. To study the Level of Knowledge and Attitude of Farmers towards Organic Farming

Review of Literature

Ankit Singh, *et al*. (2024) [1] concluded that majority of the organic farmers were having positive attitude for organic farming showing positive disposition and reflects their belief in benefits and sustainability of organic practices. Most of the farmers faced barriers like improper marketing facilities for the produce, which shows significant challenges faced by farmers is lack of efficient channels to sell their organic produce. Inadequate marketing infrastructure hinders their ability to reach consumers effectively. Access to accurate information is crucial for optimizing soil health and crop productivity. Lastly, inadequate availability of organic input (vermi-compost, bio-fertilizer) was found.

Kumar U. (2023) [12] in a study revealed that 95% of respondents have positive perception towards organic farming. Also, 8 out of 10 variables selected, affects respondents perception towards organic farming. There were significant relationships ($p \leq 0.05$) between respondents' age, educational, income, farm size, Investment, and government subsidies, high income, safety and healthy, high yield, Cost of produces and perception of organic farming.

Rajendran N, *et al*. (2016) [4] vote count analysis reveals that variables implying economic motivation and facilitation regularly explain farmers' behaviour. In addition, a new finding emerged, in which factors inferring higher learning and superior management capacity provided further indicators to adoption. In particular, the training that provided by non-governmental organizations and rural institutions complements change agents (ie public extension services). While this finding is novel, more research is required to generate better understanding of farmer reaction to bundled SAPs, particularly dynamic ones (ie private standards) in which farm business sustainability depends upon good agricultural practices being implemented.

Surekha, Jhansilakshmi, *et al*, (2012) [11] pointed out that India has tremendous potential to become a major of organic rice in the international market. During 2008-2009, around 5630 MT of organic basmati rice was exported from India through APEDA. Considering the importance of organic farming and to generate comprehensive scientific research data, field experiments were conducted for five years (2004-05 to 2009-10) covering ten crop seasons on a deep black clay vertisol (Typic pellustert) at the Directorate of rice Research farm, to compare organic and conventional farming systems with fine quality rice varieties. During the first two years, Kharif grain yields in plots with inorganic fertilizers were superior to those with organics by 15-20 per cent. However, during later years, grain yield improved in organic plots to parity with those with inorganics. During rabi, plots with inorganics were superior in grain yield to those with organics for the first four years but both the systems were on par during the fifth year. Organic system significantly improved the soil quality and the sustainability index of the soil was maximum with organics (1.63%) compared to inorganics (1.33) after 4 years of study. Benefit cost ratio was less with organics (by 26%) compared to inorganics in the first year which improved with organics over inorganics (by 22%) at the end of the fourth year.

Subramani M.R (2012) [8] stated that India plans to bring in changes to the National Project on Organic Production (NPOP) in line with standards set by the United Nations body on organic products. It will also include livestock, aquaculture and textiles as part of organic production process. The NPOP is recognized as the national accreditation body for organic products in the country and is under the Agricultural and Processed Food Products Export Development Authority (APEDA).

Sahu, R. P., Singh, R. J., & Singh, K concluded that majority farmers were found in the range of high level of knowledge of organic farming practices. The wide knowledge gapes are in the areas of organic farming practices like use of HaNPV, use of trichocards, use of bio-pesticides and use of NADEP compost. The farmers need to be made well aware about the use of such practices so that the basic concept of organic farming and its application part could be familiar to the farmers.

Materials and Methods

The study was conducted in Kumaon division of Uttarakhand state. Almora district is a district in the Kumaon division of Uttarakhand state, India. There are 11 blocks in Almora district. These are Bhaisiya Chhana, Bhikiyasain, Chaukhutiya, Dhauladevi, Dwarahat, Hawalbag, Lamgara, Sult, Syaldey, Takula and Tarikhet.

Among these 11 blocks Dwarahat and Sult block will be selected randomly. Ten villages from Dwarahat and Sult block were randomly selected. A total of approximately 200 farmers (20 beneficiaries of Uttarakhand organic commodity board) from each village) were randomly taken as sample.

Twenty (20) beneficiaries form ten (10) villages from Dwarahat and Sult block were selected randomly with the help of tippet random number method for the present study. Personal interview method will be undertaken and the data will be collected with the help of pre-structured interview schedule.

Keeping in view the objectives of the study, a structured interview schedule to assess the level of knowledge and attitude was prepared. While formulating questions for the researcher had secured the help and technical guidance from available literatures, scientists and technical staff. The schedule was pre-tested to select the mistakes and short falls and to achieve clarity and practicality of the schedule by interviewing few farmers. The pre-tested interview was examined and necessary modifications were made in the light ambiguities and difficulties experienced in pre-testing of schedule. The modified schedule was used for final data collection.

Data were collected through face to face contact method. Selected farmers were contacted at their homes or on their farms as per availability of the farmers. For early and quick approach with selected farmers, the help of World Vision Workers was taken. Before actual seeking of information, farmers were acquainted with aims and objectives of the present study. The pre-tested interview schedule was then used. For data collection 200 beneficiaries of organic farming were interviewed.

Results and Discussion

Table 1: Age Wise Distribution of Respondents

S. No.	Age group in year	Beneficiaries	
		Frequency	Percent (per cent)
1	20-30	22	11.00
2	31-40	71	35.55
3	41-50	40	20.00
4	51-60	55	27.50
5	Above 61	12	6.00
	Total	200	100

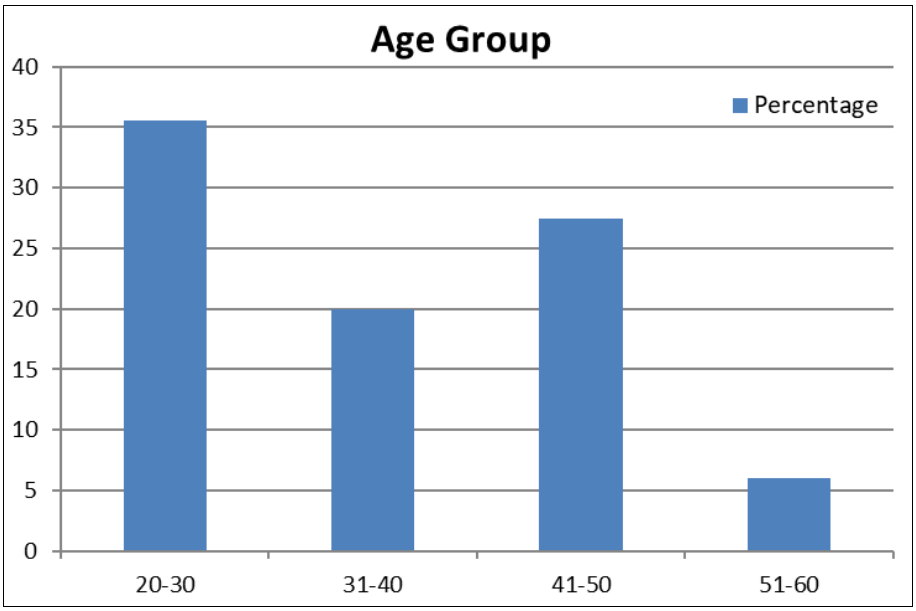

Fig 1: Age Wise Distribution of Respondents

It is evident from the table above and figure that 35.55 per cent beneficiaries were in age group of 31 to 40 years while 27.50 per cent beneficiaries were in age group of 51 to 60 years. 20.00 per cent beneficiaries were in age group of 41 to 50 years whereas 11 per cent beneficiaries were in age group of 20 to 30 years. There were 6.00 percent beneficiaries, who were in age group of above 61 years.

Table 2: Education Wise Distributions of Respondents

S. No.	Education	Beneficiaries	
		Frequency	Percent (per cent)
1	Illiterate	34	17.00
2	Up to Primary School	80	40.00
3	UP to Junior High School	15	7.50
4	High School	56	28.00
5	Intermediate	11	5.50
6	Graduate and above	4	2.00
	Total	200	100

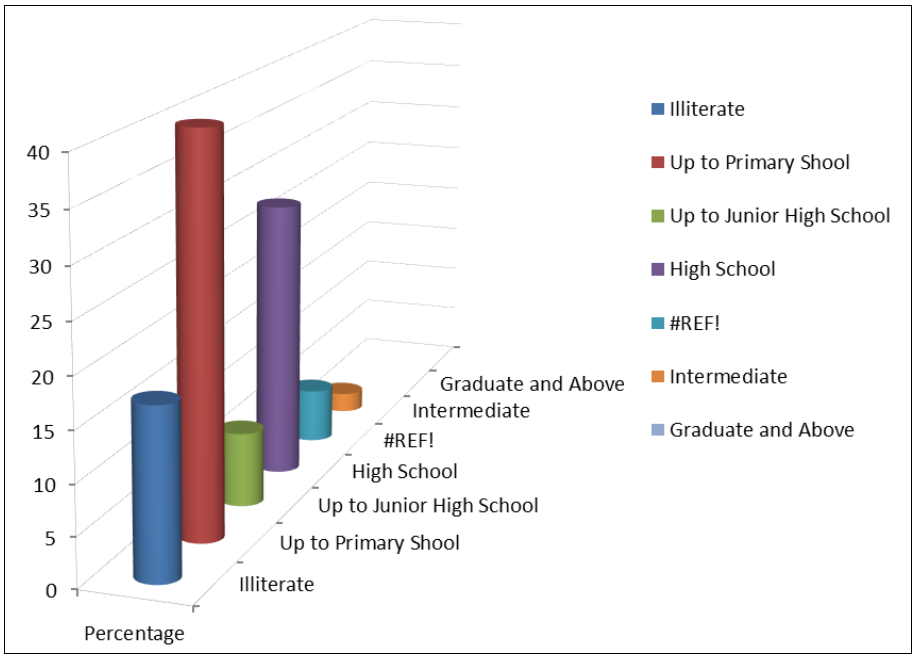

Fig 2: Education Wise Distributions of Respondents

It is clear from the above table and figure that majority of 40.00 per cent beneficiaries were educated up to primary school 28.00 per cent beneficiaries were educated up to High School level while 17.00 per cent of beneficiaries were illiterate. 7.50 per cent beneficiaries were educated up to Junior High School level whereas 5.50 per cent beneficiaries were educated up to Intermediate level. Only 2.00 per cent beneficiaries were educated up to graduate level.

Table 3: Occupation Wise Distributions of Respondents

S. No.	Occupation	Beneficiaries	
		Frequency	Percent
1	Farming	173	86.50
2	Farming + Business	15	7.50
3	Farming + Service	5	2.50
4	Farming + Caste occupation	7	3.50
	Total	200	100

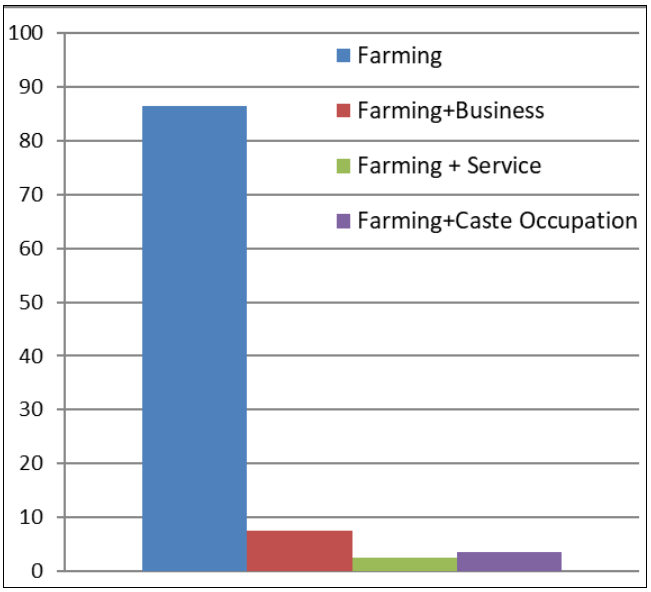

Fig 3: Occupation Wise Distributions of Respondents

It is evident from the above table and figure that majority of beneficiaries were engaged in farming occupation only. Data incorporated in the above table clearly shows that 86.50 per cent beneficiaries were having farming as their occupation while 7.50 per cent beneficiaries were having farming + business as their occupation 3.50 per cent beneficiaries were having farming + caste occupation as their occupation while 2.50 per cent beneficiaries were having farming + service as their occupation.

Table 4: Annual Income Wise Distributions of Respondents

S. No.	Annual income (Rs.)	Beneficiaries	
		Frequency	Percent (per cent)
1	Up to 30,000	141	70.50
2	30,001 – 50,000	38	19.00
3	50,001 and above	21	10.50
	Total	200	100

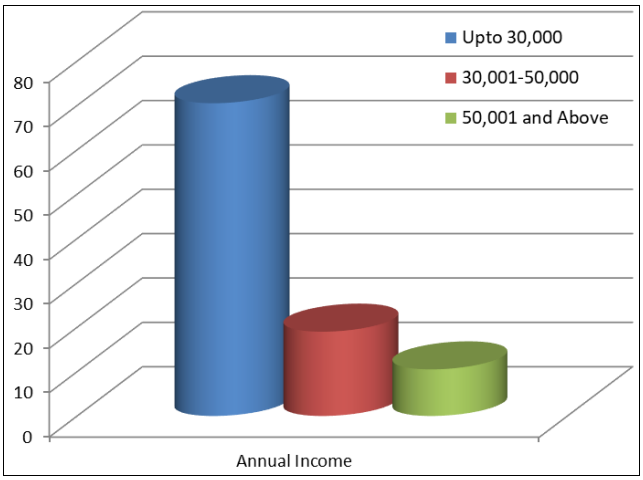

Fig 4: Annual Income Wise Distributions of Respondents

The findings present in the above table and figure clearly show that majority of the beneficiaries, 70.50 per cent had annual income up to Rs. 30,000 followed by the 19.00 per

cent beneficiaries, having annual income between Rs. 30,001 – 50000. 10 percent of the beneficiaries had annual income of 50,000 and above.

Table 5: Attitude wise distributions of the respondents regarding organic cultivation

S. No.	Particulars	Rating		
		Agree	Disagree	Undecided
1.	Organic crop is source of additional income	118 (59.00)	51 (25.50)	31 (15.50)
2.	Organic farming helps to raise the standard of the farmers	119 (59.50)	70 (35.00)	11 (5.50)
3.	Organic farming is risky	113 (56.50)	53 (29.50)	34 (17.00)
4.	Organic farming involves high initial cost than other crops	119 (59.50)	48 (24.00)	33 (16.50)
5.	Organic produce has a nutritional value	119 (59.50)	49 (24.50)	32 (16.00)
6.	Organic farming is highly specified hence only technical and qualified farmers can adopt this.	34 (15.12)	67 (29.77)	99 (55.12)
7.	Organic crop cultivation is most economic hence every farmer should adopt it.	28 (12.44)	45 (20.00)	127 (67.55)
8.	Farmers can get good returns, if proper methods of cultivation are followed.	47 (20.88)	33 (14.66)	120 (64.45)
9.	Organic farmers are encouraged by the government	35 (15.55)	40 (17.78)	125 (66.67)
10.	Incentive on Organic farming provided by the government is relatively low.	25 (11.12)	55 (24.45)	120 (64.45)
11.	There is no proper marketing facilities to sell the organic produce	17 (7.55)	33 (14.66)	150 (77.78)
12.	Agriculture dept experts do not give technical advice on organic farming	19 (8.44)	55 (24.45)	126 (67.12)
13.	Government is not helping the farmers to export the organic produce	47 (20.88)	39 (17.34)	92 (61.78)
14.	Contribution of Govt. of India in the development of Organic crop is negligible	34 (15.12)	74 (32.88)	92 (52.00)
15.	Government do not provide any help for proper marketing facilities	81 (36.00)	62 (27.55)	54 (36.45)
16.	Organic farmers are financed by bank or other credit institutions	65 (28.88)	73 (32.44)	62 (38.66)
17.	More labour is required for cultivation of organic	77 (34.22)	69 (30.66)	54 (35.12)
18.	Middleman takes more commission	80 (35.55)	55 (24.45)	65 (40.00)
19.	Block official is not well responsive with organic farmers	54 (27.00)	42 (21.00)	104 (52.00)
20.	Organic way of cultivation is becoming popular	78 (39.00)	63 (31.50)	59 (29.50)
21.	The progress in your village is due to organic farming	16 (8.00)	21 (10.50)	163 (81.50)
22.	Extension workers are not aware of farmers' problems	84 (42.00)	75 (37.50)	41 (20.50)
23.	Organic farming is very exhaustive	69 (34.50)	52 (26.00)	79 (39.50)
24.	Access loan for organic farming is a complicated process	75 (37.50)	86 (43.00)	39 (19.50)
25.	Interest rate charged by bank on loan is high	42 (21.00)	54 (27.00)	104 (52.00)
26.	By adopting the suggestions of researchers, farmers may get high yield	77 (38.50)	84 (42.00)	39 (19.50)
27.	Organic farming is the most economic hence every farmer should accept it	42 (21.00)	54 (27.00)	104 (52.00)
28.	Organic farming is helping to raise standard of only big farmers	77 (38.50)	84 (42.00)	39 (19.50)

Figures in parenthesis indicate percentage

The results presented here suggest that under current circumstances, large-scale conversion to organic farming by dry stock farmers within the next five years is uncertain, but nevertheless farmers' considerable interest in going organic. It appears that farmers do not have strong opinions about organic farming. Therefore an increase in information mainly focused on promoting organic farming as a profitable alternative to conventional farming could have a positive impact on the tendency for conversion. Future conversion to organics is most likely to be financially driven, but nevertheless the farmers' perception that only rich people can afford to buy organic food remains a barrier and considerations might be given towards approaches that might alter this mindset.

The results from the study indicate that organic farmers express diverse attitudes towards adoption of organic farming in Uttarakhand, India. They were asked to assess the importance of 28 statements providing, so, inputs for the analysis of attitudes for adoption in the three points scale. Farmers in general consider that producing organically, to a great extent, conserves natural resources, that organic fertilizers used during production are safe and do not affect human nor animal health, finally that it consists of the best way towards sustainable farming. Furthermore, growing organically make them feel proud of their work. Besides that, they believe that the role of government is very important in promoting organic farming by providing subsidy for certification and also in creating the proper conditions for markets for their organic produce. However, farmers tend to agree less with the statements that organic farming costs were higher than on chemical farming. On the contrary, it was held that it improves crop productivity and it gives more profit than conventional farming. In addition, they don't completely agree with statements asserting that government support for marketing organic, the will of retailers and consumers to pay premium prices and organic farming in the country will gain more importance in the near future.

Table 6: Distribution of the respondents according to their overall attitude level

S.N.	Level of Attitude	Beneficiaries
1.	Least favorable	38 (19.00)
2.	Favorable	59 (29.50)
3.	Most favorable	103 (51.50)
	Total	200 (100.00)

Figures in parenthesis indicate percentage

From the above table it is clear that majority 51.50 percent beneficiaries were having had most favorable attitude towards organic farming whereas 29.50 percent beneficiaries had favorable attitude towards organic farming and only 19.00 percent beneficiaries had least favorable attitude towards organic farming.

Table 7: Distributions of respondents according to their knowledge regarding organic farming

S.N.	Statements	Beneficiaries	
		Know	Don't know
1.	Organic cultivation is practice of using organic waste, biological system of nutrient mobilization along with use of crop residues, animal manures by avoiding inorganic manures and fertilizers	147 (73.50)	53 (26.50)
2.	Converted area for organic and with the intention to continue for organic production shall not be switched back to use chemicals	187 (93.50)	13 (6.50)
3.	While selecting the varieties for organic farming, emphasis should be given to multiple resistance / tolerance to major pests of that locality	146 (73.00)	54 (27.00)
4.	Timely sowing or planting is important to avoid pest incidence in organic farming	183 (91.50)	17 (8.50)
5.	Use of organic fertilizers in organic cultivation, the soil quality will be improved and is better for the environment	183 (91.50)	17 (8.50)
6.	Incorporating waste from livestock production with the other resources available within the farm to produce Farmyard manure is a most important element in nutrient management in organic production	139 (69.50)	61(30.50)
7.	Production in organic system helps to maintain and improve the soil health by strengthening its organic base	168 (84.00)	32 (16.00)
8.	Daincha is the commonly used and ideal in situ Green manure crop for fields	172 (86.00)	28 (14.00)
9.	Before sowing/ transplanting, the seed/seedlings are kept submerged with application of bio-agents for 30 minutes	108 (54.00)	92 (46.00)
10.	Utilization of botanical formulations especially neem formulations is an eco-friendly method controlling pest in organic production system	143 (71.50)	57 (28.50)

Figures in parenthesis indicate percentage

The above table indicates that farmers' Knowledge about the organic farming is the medium tends to high may be due to the participation the farmers in many extension activities such as training courses, workshops and field days in aspects the organic farming. It may be concluded that majority farmers were found in the range of high level of knowledge of organic farming practices. The wide knowledge gapes are in the areas of organic farming practices like use of HaNPV, use of trichocards, use of bio-pesticides and use of NADEP compost. The farmers need to be made well aware about the use of such practices so that the basic concept of organic farming and its application part could be familiar to the farmers.

About 86 percent of them knew that quality of soil could be improved by applying vermi compost and concept of organic farming. About two third of them knew about quantitative difference in yield after applying organic manure, cluster bean and Dhaincha as green manuring crops and bio-fertilizer as an organic input.

Table 8: Distribution of the respondents according to their overall knowledge level

S.N.	Level of Knowledge	Beneficiaries
1.	Low (0-3)	28 (14.00)
2.	Medium (4-8)	29 (14.50)
3.	High (above 9)	143 (71.50)
	Total	200 (100.00)

Figures in parenthesis indicate percentage

From the above table it is clear that majority of 71.50 percent beneficiaries were having high level of knowledge towards organic farming. 14.50 percent beneficiaries possessed medium level of knowledge while 14.00 percent beneficiaries had low level of knowledge towards organic farming.

Conclusion

- Majority of 35.55 per cent beneficiaries were in age group of 31 to 40 years while 27.50 per cent beneficiaries were in age group of 51 to 60 years. 20.00 per cent beneficiaries were in age group of 41 to 50 years whereas 11 per cent beneficiaries were in age group of 20 to 30 years. There were 6.00 percent beneficiaries, who were in age group of above 61 years.
- Majority of 40.00 per cent beneficiaries were educated up to primary school
- Majority of beneficiaries were engaged in farming occupation only, 86.50 per cent beneficiaries were having farming as their occupation
- Majority of the beneficiaries, 70.50 per cent had annual income up to Rs. 30,000
- Majority of 71.50 percent beneficiaries were having high level of knowledge towards organic farming.
- Majority 51.50 percent of beneficiaries were having most favorable attitude towards organic farming whereas 29.50 percent beneficiaries had favorable attitude towards organic farming and only 19.00 percent beneficiaries had least favorable attitude towards organic farming.

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