

KNOWLEDGE ON ORGANIC MANURE AND CROP RESIDUES MANAGEMENT IN HARYANA

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ABSTRACT

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes on the use of management practices in preference to the use of off-farm inputs. Organic farming is essentially an agriculture employing a knowledge/understanding of naturally occurring processes. Organic farming methods combine scientific knowledge and modern technology with traditional farming practices based on thousands of years of agriculture. The mean knowledge score was 49.19. Further analysis indicated that knowledge percentage about organic manures and crop residues in organic paddy farming was found 65.57 per cent and accorded second position in ranking order. The study brought to surface that 49.30 per cent of respondents had high level of knowledge followed by 36.00 per cent had medium level of knowledge about of organic manures and crop residues management. It is clear that knowledge level of farmers with respect to organic manures and crop residues management, 'time and quantity of farm yard manure required' ranked first with highest mean score of 1.73. Interesting to note that, 115 respondent farmers i.e.76.67 per cent possessed full knowledge. Further, 'selection and sowing time of green crop' was ranked second with the mean score of 1.35 and 'right method of farm yard manure application' ranked third (mean score of 1.34).

Keywords : *knowledge, organic manure, crop residues, organic paddy and management*

INTRODUCTION

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes on the use of management practices in preference to the use of off-farm inputs. Organic farming is essentially an agriculture employing a knowledge/understanding of naturally occurring processes. Organic farming methods combine scientific knowledge and modern technology with traditional farming practices based on thousands of years of agriculture. During the era of Green Revolution, introduction of high-yielding varieties, extension of irrigated areas, use of high analysis NPK fertilizers and increase in cropping intensity, propelled India towards self-sufficiency in food production. In the process, relative contribution of organic manures as a source of plant nutrients vis-à-vis chemical fertilizers declined substantially. An increase in resistance of insect pests to chemical pesticides has also been noticed. Health hazards associated with intensive modern agriculture, such as pesticides residues in food products and groundwater contamination are matter of concern. The occurrence of multi-nutrient deficiencies and

overall decline in the productive capacity of the soil due to no judicious fertilizer use, have been widely reported. Such concerns and problems posed by modern-day agriculture gave birth to new concepts in farming, such as organic farming, natural farming, biodynamic agriculture, do nothing agriculture, eco-farming, etc. The essential feature of such farming practices imply, i.e., back to nature.

Technological revolution in the field of agriculture has tremendously increased the agriculture production. The net impact by the revolution in agriculture has resulted in fast development on food processing industries all over the world. As a result of this rapid development, significant quantities of agricultural products are subjected to processing to make them suitable for consumption, increased storage stability, improved nutrition and sensory quality. Food industrialization has generated large quantity of food products, provided employment to large number of people and uplifted the economic status, at the same time; it generated waste in huge quantities causing environmental pollution. Pollution has not only scientific aspects but also sociological and economical, causing adverse impacts on human beings and its environment. The food wastes can be classified into

different categories, such as crop waste and residues; fruits and vegetables by-products; sugar, starch and confectionary industry by-products; oil industry by-products; grain and legumes by-products; distilleries and breweries by-products. Food industry wastes and by-products are geographically scattered comprising large volume and low nutritional value. Consequently, collection, transportation and processing cost of the by-products can exceed the selling price. If we could produce valuable products from food industry by-products through new scientific and technological methods, these by-products could be converted into products with a higher economic value than the main products. Different ways of utilization of by-products from food processing industry can be mainly classified into five categories, such as source for food/feed ingredients, as a carbon source for growing useful microorganisms, as fertilizer by composting, as a source for direct energy generation/biogas production and as a source for high value-added products. This chapter provides a brief discussion on the utilization of agro-processing wastes as a source of nutrients, phytochemicals, and fermentable substrate. Keeping In the view the above facts and importance of biofertilizers for the country as a whole and Haryana in particular, the present study was taken with following specific objective.

OBJECTIVE

To know the knowledge level of organic manuar and crop residues management in haryana

METHODOLOGY

Haryana being the important contributor state to the Basmati export of India was selected purposively. Three districts viz., Kaithal, Karnal and Kurukshetra were also purposively selected since these districts have maximum area as well as production of rice. Siwan, Karnal and Pehowa blocks were randomly selected from Kaithal, Karnal and Kurukshetra districts, respectively. From each selected block two villages Siwan and Kangthali from Siwan, Kachchwa and Kunjpura from Karnal, Seonsar and Kamoda from the Pehowa blocks were selected randomly. Further, from each

selected village, 25 farmers were selected randomly and in this way a total number of 150 respondents were interviewed to ascertain the constraints faced by them in organic paddy cultivation. The data were collected through a pretested well-structured personal interview schedule.

RESULTS AND DISCUSSION

Knowledge level of farmers with respect to organic paddy farming

It is evident from the data in Table 1 that slightly less than half of the farmers (48.00%) were falling in medium category followed by high knowledge level category farmers (35.33%), whereas about one-sixth of the farmers (16.67%) were having low level of knowledge of organic paddy farming practices. This implies that majority of respondents were having medium level of overall knowledge regarding organic paddy farming practices.

Table 1: Knowledge level of farmers with respect to organic paddy farming n = 150

Sr. No.	Category	Score range	Number	Percent
1	Low	22 – 37	25	16.67
2	Medium	38 – 54	72	48.00
3	High	55 – 70	53	35.33

A medium level of knowledge about organic farming had been reported by Kumar *et al.* (2014), Jaganathan *et al.* (2012), Bisen and Sharma (2013) and Meena *et al.* (2012) whereas, Rezvanfar *et al.* (2012) reported low level of knowledge.

District wise knowledge level of farmers with respect to organic paddy farming

Further analysis of knowledge level at district level (Table 2) indicated that among low level (40.00%) farmers belonged to Kurukshetra district, among medium level (40.28%) farmers belonged to Kaithal district and among high level (37.74%) farmers belonged to Karnal district.

Table 2: District-wise knowledge level of farmers with respect to organic paddy growing n = 150

Sr. No.	Category of Knowledge	Score range	No. of farmers	Kaithal (n=50)	Kurukshetra (n=50)	Karnal (n=50)
1	Low	22 – 37	25	7(28.00)	10(40.00)	8(32.00)
2	Medium	38 – 54	72	29(40.28)	21(29.17)	22(30.56)
3	High	55 – 70	53	14(26.42)	19(35.85)	20(37.74)

* Figures in the parenthesis are percentage

The analysis revealed that comparatively Karnal district farmers possess more knowledge on organic paddy farming practices. The farmers of Karnal district possessed

first position in each and every context. They seem to be very much progressive, innovative and cosmopolitan in nature and hence always ready to take risks. This might be possible

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due to better economic condition and that the Karnal city is geographically very well placed on one of the oldest and longest national highway and is near to the nation’s capital in comparison to the other two districts.

Knowledge level of farmers with respect to various aspects of organic paddy farming

Indepth analysis indicated that aspect wise knowledge ‘Vermicompost’ got the first rank with 77.17 percentage followed by organic manures and crop residues in organic paddy farming was found 65.57 per cent and

accorded second position in ranking order. The study brought to surface that 49.30 per cent of respondents had high level of knowledge, followed by 36.00 per cent had medium level and 14.70 per cent had low level of knowledge about use of organic manures and crop residues practices in organic paddy farming.

Knowledge regarding use of organic manures and crop residues found the same and second rank in the studies conducted by Suman (2012) and Naik (2006).

Table 3: Knowledge level of farmers with respect to various aspects of organic paddy farming n=150

Sr. No.	Aspect	Category	Score range	Frequency	Percentage	Mean Score	Percentage mean score	Rank Order
1	Knowledge about concept of organic paddy farming	Low	0.0 to 3.0	20	13.30	5.13	64.13	III
		Medium	3.1 to 5.0	51	34.00			
		High	5.1 to 8.0	79	52.70			
2	Use of organic manures and crop residues	Low	0.0 to 5.0	22	14.70	9.18	65.57	II
		Medium	5.1 to 10.0	54	36.00			
		High	10.1 to 14.0	74	49.30			
3	Use of bio fertilizers	Low	0.0 to 4.0	19	12.70	5.37	44.72	VI
		Medium	4.1 to 8.0	70	46.70			
		High	8.1 to 12.0	61	40.70			
4	Vermicompost	Low	0.0 to 2.0	27	18.00	4.51	75.17	I
		Medium	2.1 to 4.0	54	36.00			
		High	4.1 to 6.0	69	46.00			
5	Weed management	Low	0.0 to 4.0	24	16.00	7.67	63.89	IV
		Medium	4.1 to 8.0	75	50.00			
		High	8.1 to 12.0	51	34.00			
6	Pest management	Low	0.0 to 10.0	32	21.30	18.70	62.33	V
		Medium	10.1 to 20.0	69	46.00			
		High	21.1 to 30.0	49	32.70			

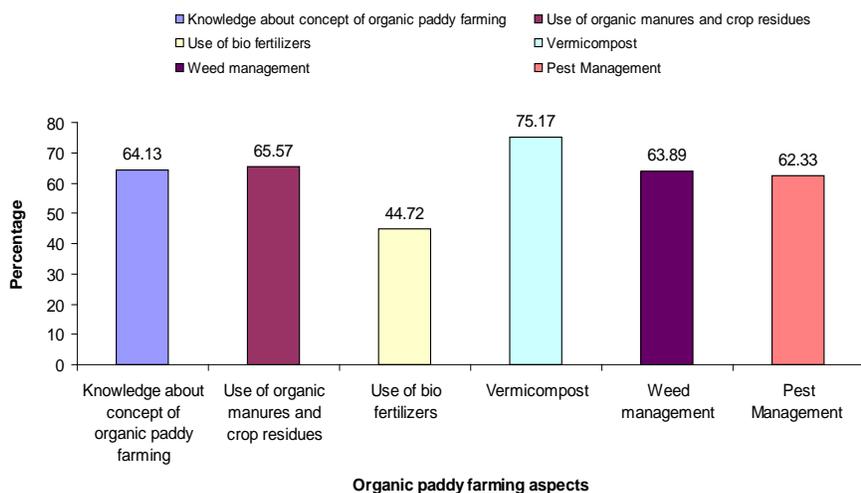


Fig. 1: Knowledge level of farmers with respect to various aspects of organic paddy farming

Knowledge level of farmers with respect to organic manures and crop residues

From the data presented in Table 4 it is clear that knowledge level of farmers with respect to organic manures and crop residues, ‘time and quantity of farm yard manure required’ ranked first with highest mean score of 1.73. Interesting to note that, 115 respondent farmers i.e.76.67 per cent possessed full knowledge. Further, ‘selection and sowing time of green crop’ was ranked second with the mean score of 1.35. These nutrient sources are required to supplement with soil in right amount with right nutrients at right time with right method of application under right moisture condition (30-40%) prior to 20-25 days to seeding/ planting for maximum benefits and nutrient mobilisation (Tewari and Pandey,). ‘Right method of farm yard manure application’ ranked third (mean score of 1.34) followed by ‘incorporation stage of green crop’, ‘accurate method of farm

yard manure preparation’ and ‘incorporation of crop residues in the soil’ were ranked fourth, fifth and sixth with a mean score of 1.30, 1.29 and 1.12, respectively. The recyclable crop residue like rice straw, wheat straw nodes and ground nut foliage produced higher yields. The seventh and the last ranked factor was ‘organic/solid waste management’ with mean score of 1.06. Every year, in India, 23-25 million tonnes of garbage is being generated continuously. The solid waste is in the form of agricultural waste, manure, food waste, food processing by products, paper, yard waste, plastic, polybags, sewage, industrial effluents, excreta, ashes and dust etc. The repertoire of agricultural waste consists of paddy straw, sugarcane baggasse, wheat straw, rice husk, groundnut shell, maize cobs, dung of cattle, droppings of sheep, goat, poultry etc. Agricultural waste is biodegradable and can be processed to prepare compost. Nearly two-fifth i.e. 38.67 per cent of farmers had no knowledge regarding solid waste management and its use in organic farming.

Table 4 : Knowledge level of farmers with respect to organic manures and crop residues

n=150

Sr. No.	Statements	Knowledge level			Total weighted score	Weighted mean score	Rank Order
		Full (%)	Partial (%)	No (%)			
1	Time and quantity of FYM required	115 (76.67)	29 (19.33)	6 (4.00)	259	1.73	I
2	Right method of FYM application	82 (54.67)	37 (24.67)	31 (20.67)	201	1.34	III
3	Accurate method of FYM preparation	78 (52.00)	38 (25.33)	34 (22.67)	194	1.29	V
4	Incorporation of crop residues in the soil	45 (30.00)	78 (52.00)	27 (18.00)	168	1.12	VI
5	Organic/solid waste management	67 (44.67)	25 (16.67)	58 (38.67)	159	1.06	VII
6	Selection and sowing time of green crop	73 (48.67)	56 (37.33)	21 (14.00)	202	1.35	II
7	Incorporation stage of green crop	69 (46.00)	57 (38.00)	24 (16.00)	195	1.30	IV

The findings of the study with regard to organic manures and farm yard manure are in line with Vahora et al. (2015) and Borthakur et al. (2015) who reported high knowledge regarding farm yard manure while Bisen and Sharma (2013) mentioned average knowledge of the farmers on organic manures.

CONCLUSION

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. Near about half of the farmers (48.00%) were medium level of knowledge of organic paddy farming practices whereas district level (40.00%) farmers belonged to Kurukshetra district were in low level

of knowledge. Aspect wise knowledge ‘Vermicompost’ got the first rank with 77.17 percentage. Knowledge level of farmers with respect to organic manures and crop residues, ‘time and quantity of farm yard manure required’ ranked first with highest mean score of 1.73. Interesting to note that, 115 respondent farmers i.e.76.67 per cent possessed full knowledge

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