Eco- Friendly Approach - Integrated Plant Nutrient Management component of Organic Farming

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Abstract:

Organic farming has the potential to provide benefits in terms of environmental protection, conservation of non-renewable resources and improved food quality. All though the green revolution in India has undoubtedly changed the scenario of food grain production. The organic farming systems have attracted increasing attention over the last one decade because they are perceived to offer some solutions to the problems currently besetting the agricultural sector. India has a potential of compost, which could provide large quantity of plant nutrients. There is scope of human and animal refuse into valuable organic manure directly or through bio-conservation. The approach of integrated plant nutrient management (IPNM) component is mainly advocated for sustainable agriculture. It has played an important role in maintaining and improving the soil health status, stabilizing productivity of crops, reducing the pollution of environment and food material used for consumption. This paper discussed the need for organic farming in India in relation with integrated plant nutrient management component of organic farming.

Keywords:
organic farming, green revolution.

Introduction:

Sustainable agriculture is necessary to attain the goal of sustainable development. Sustainable development has caught the imagination and action all over the world for more than a decade. Organic farming is one of the several approaches found to meet the objective of sustainable agriculture (A.Kaur and G.Kaur, 2014). Department of Agriculture has launched a massive programme on transferring organic farming technology to the farmers in all states of the country. The considerable achievement in accepting organic farming technology was made by the farmers (Garg R.B.L; 2006). But these technologies, still, could not have been acquired with sufficient knowledge and adopted in desired level by the farmers. Keeping this in view, the study has been undertaken with the following objectives:

1.To assess and evaluate the factors which may facilitate the adoption of organic farming in the country.

3.To assess the level of knowledge of the farmers regarding integrated plant nutrient management component of organic farming.

2.To find out the relationship between level of knowledge and socio-economic and psychological characteristics of the farmers.

Materials and Methods:

The study was conducted in Chhindwara District which comprises of 10 blocks. Out of them, two blocks were purposively selected for the study in which a massive programme of organic farming technology was disseminated by Department of Agriculture. From each block, two villages were, again, selected on the basis of programme of organic farming was already carried out by the Department of Agriculture. Thus, a total of 4 organic farming villages were selected for the study. A list of the farmers in each selected villages was prepared with the help of extension officials. Allocation of respondents from each village was carried by proportionate method. From the list of farmers of each village 30 farmers (10 small, 10 medium and 10 big) were selected by using simple random method. Thus, a total of 120 respondents were selected for the study. The d ata were collected through personal interview with the help of pre-tested interview schedule and analyzed by applying suitable statistical tools for drawing the inferences.

To assess the knowledge level of the respondents an inventory of various practices of integrated plant nutrient management component was prepared. The weight age of '2' for complete knowledge, '1' for partial knowledge and zero for no knowledge of each practice was assigned. The total score obtained by each respondent from all the practices was the knowledge score of an individual. The knowledge score of an individual respondent was calculated by using knowledge index.

$$\textbf{\textit{Knowledge index}} = \frac{\textit{Max. Knowledge score obtained by individual respondent}}{\textit{Maximum obtainable knowledge score}} \textbf{X 100}$$

The levels of knowledge of respondents were classified into three groups i.e. low, medium and high by using quartile method of statistics.

Result and discussion:

1. Knowledge about practices of IPNM component of organic farming.

The Knowledge of different components presented in Table-1 reveal that average knowledge of all practices was found 86.25 percent. There was hundred percent ,knowledge observed in selection of go^{0}d seed, seed-inoculation and application of FYM from pits followed by 91.67%, 90.83% and 88.33% knowledge in use of bio-gas slurry, application of vermi-compost, use of Mathka Khad. and use of *Amrit Sanjeeani* respectively, whereas, percentage of knowledge was found to be minimum in raising green manure and incorporation (83.33), application of Nadep compost (79.16), and *In Situ* incorporation of crop residue (76.67). There was also poor Knowledge in use of *Amrit Pani* (73.33%) and use of Azola & blue green algae component (65.00%).

2. Extent of knowledge about IPNM Practices.

It is clear from Table- 2 that majority of respondents 51.67 percent

had medium knowledge, 27.50 percent had low knowledge and 20.83 percent had high knowledge. The distribution of farmer category wise data shows that maximum respondents in category of medium farmers (60%) were having medium knowledge, where as less than 50percent respondents in large farmer category was found high Knowledge level. In order to find out the association of farmer category with level of knowledge X^2 value indicated that there was significant and fair association between level of knowledge and farmer category regarding IPNM practices of organic farming.

3. Relationship between characteristics and Knowledge level.

In order to find out the relationship between knowledge of the respondents about practices of organic farming with selected socio-economic and psychological characteristic the zero-order correlation coefficients 'r' were worked out and presented in Table- 3. The result of correlation analysis is indicated that the characteristics namely education, social contact annual income. Exposure to training, information seeking behavior, attitudes towards IPNM and motivation were positively and significantly related with knowledge level of the respondents about IPNM practices at 0.01 probability level, where as, remaining characteristics of the respondents like, age, occupation, mass-media exposure and innovativeness did not show any relationships with their knowledge level of the respondents regarding IPNM practices of organic farming. The above findings are somewhat similar to findings reported by Bhairamkar et. al. (2004) and Bhat et. al. (2005) .

Table. 1-Knowledge of the respondents regarding different practices of IPNM component of organic farming.

Sr.No.	Practices of IPNM Component	Farmers having knowledge about practices of IPNM	
		Frequency	Percentage
1.	*In Situ* incorporation of crop residue	92'	76.67
2.	Selection of good seed	120	100.00
3.	Seed inoculation	120	100.00
4.	Application of FYM from pits	120	100.00
5.	Application of Nadep compost	95	79.16
6.	Raising green manure and incorporation	100	83.33
7.	Application of vermin compost	109	90.83
8.	Use of bio-gas slurry	110	91.67
9.	Use of *Amrit Pani*	88	73.33
10.	Use of *Amrit Sarijeevani*	104	86.67
11.	Use of Mathka khad	106	88.33
12.	Use of *Azola*& blue green algae	78	65.00
	Average percentage		86.25

Table. 2-Level of Knowledge of respondents regarding IPNM Practices of organic forming.

Level	Small farmer	Medium farmer	Large farmer	Total
Low Knowledge(Score less than 48)	15 (37.50)	II (27.50)	7 (17.50)	33 (27.50)
Medium Knowledge(Score 48-72)	22 (55.00)	24 (60.00)	16 (40.00)	62 (51.67)
High Knowledge(Score above 72)	3 (7.50)	5 (12.50)	17 (42.50)	25 (20.83)
Total	40	40	40	120

Table. 3-Zero-order correlation coefficient between socio-economic and psychological characteristics and level of knowledge of respondents regarding IPNM practices of organic farming.

Sr. No.	Characteristics	'r' Value
1.	Age	-0.1966
2.	Education	0.5719 **
3.	Social Contact	0.3109 **
4.	Occupation	0.1778
5.	Annual income	0.3925 * *
6.	Exposure to training	0.5983 **
7.	Mass-media exposure	0.1652
8.	Information seeking behavior	0.3109 **
9.	Innovativeness	0.1930
10.	Attitude towards IPNM	0.4316 **
11.	Motivation	0.3144 **

**** Significant at 0.01 probability level.**

Conclusion:

Due to very little accessible information on economics and efficieny of organic farming in India an attempt is made to assess it in different crops and states. In general, organic farming is a production system which has low productivity levels, needs more labor, require low energy inputs, proper knowledge of nutrient level required and has a changing net income levels along with selling prices (Coelli T. et al., 2002; Dahama A.K. 2002; Rathi A.K., et al., 2005). The study reveals that out of twelve selected practices of integrated plant nutrient management component the knowledge was higher in case of selection of good seeds, seed inoculation, application of FYM from pits, use of bio- gas slurry, application of vermi-compost, use of Mathka Khad and use of *Amrit Sanjeevani* and lower level of knowledge was found in case of

green manure and incorporation, *In Situ* incorporation of crop residue, use of *Amrit Pani,* use of *Azola* and blue green algae practices. It was found that less than 50 percent large farmers had more knowledge about selected practices of IPNM component. The selected maximum characteristics were having positive relationship with knowledge level (Bhairamkar M.S; et al., 2004; Bhat S.H., et al., 2005; Tzouvelekas V; et al., 2002a) These characteristics emerged to be important variables. It can be concluded that if these characteristics increase or manipulate by any means that will lead to improve the knowledge level of the farmers regarding integrated plant nutrient management practices of organic farming. However, further studies are necessary to conform there roles.

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