

FARMERS' PERCEPTION AND KNOWLEDGE REGARDING INTEGRATED NUTRIENTS MANAGEMENT IN SABARKANTHA DISTRICT OF GUJARAT

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ABSTRACT

The objective of sustainable agriculture is; successful management of resources, to satisfy the changing human needs, maintain or enhance the quality of environment and conserve natural resources. Ex-post facto research design was used for the study. Three talukas viz., Vadali, Idar and Himmatnagar were randomly selected for the study. Five villages and ten dealers were randomly selected from the each taluka. Thus, total fifteen villages were selected, and each selected village, ten farmers were randomly selected, which includes a final sample size of 150 farmers. The data were collected by personal contact method with the help of structured interview schedule and collected data were coded, classified, tabulated and analysed in the light of objectives and in order to make the findings realistic for drawing meaningful interpretation. The statistical tools such as frequency, percentage, mean and standard deviation were used for the study. The finding of the study indicated that the perception of farmers regarding Integrated Nutrient Management (INM) in sequential order was studied and found that it helps to improve physical, chemical and biological properties of the soil (93.33 %), maintain soil fertility in the long run (89.33 %), minimize deterioration of soil, water and ecosystem (86.67 %), INM increase organic matter in the soil (85.33 %) and reduce the use of chemical fertilizers (84.00 %). The majority (70.67 per cent) of farmers had utilized medium knowledge level regarding INM.

Keywords: INM, natural resources, nutrient cycle, sustainability, ecosystem

INTRODUCTION

One of the most important challenge the humanity is facing today is to conserve/sustain natural resources, including soil and water, for increasing food production and protecting the environment. As the world population grows, stress on natural resources increases, making it difficult to maintain food security. Long term food security requires a balance between increasing crop production, maintaining soil health and environmental sustainability. Integrated Nutrient Management refers to the maintenance of soil fertility and plant nutrient supply at an optimum level for sustaining the desired productivity through optimization of the benefits from all possible sources of organic (farm yard manures, poultry manures, crop residues, green manures), inorganic and biological (bio-fertilizers etc.) components in an integrated manner, appropriate to each farming situation in its ecological, social and economic possibilities.

Application of imbalanced and/or excessive nutrients lead to declining nutrient use efficiency making fertilizer consumption uneconomical and having adverse effects on

atmosphere and groundwater quality causing health hazards and climate change.

In order to meet the food demands of a rising population in the first decade of 21st century, farmers must manage nutrients and soil fertility in an integrated way, required yield increases of major crops cannot be attained without ensuring that plants have an adequate, balanced supply of nutrients. This balance will not be achieved until "nutrient cycles" are better understood, an issue that government should address by establishing testing and monitoring system. Therefore, it will felt necessary to carry out the investigation entitled "Farmers perception and knowledge regarding Integrated Nutrients Management in Sabarkantha district of Gujarat".

OBJECTIVES

- (1) To know the perception of farmers regarding Integrated Nutrients Management
- (2) To study the knowledge level of farmers regarding Integrated Nutrients Management

METHODOLOGY

The ex-post facto research design was used for the study. Sabarkantha district was purposively selected for the present study because it is progressive in diversified agriculture, hence it required the use of various manures and fertilizers. The district comprises 8 talukas, out of which three talukas viz.; Vadali, Idar and Himmatnagar were randomly selected for the study. List of the villages from each taluka was obtained from the taluka panchayat office. From the list, five villages from each taluka were randomly selected for the study. Total 15 villages were randomly selected for the study. A list of the farmer of each selected village was obtained from concerned village level worker and secretary. Ten farmers from each village were randomly selected for the study. Thus, total 150 farmers were selected for the study.

For measuring perception about integrated nutrient management of farmers, teacher made perception test was constructed. Then, the test was administered to respondents for obtaining their responses. The test consisted of sixteen statements. The response of the farmers was obtained against each item of two continuum agree and disagree. Later on frequency of each item was counted and converted

into percentage and ranks were assigned. For measuring knowledge about recommended Integrated Nutrient Management of farmers, teacher made knowledge test was constructed. Then, the test was administered to respondents for obtaining their responses. Each correct answer was given one score and zero was given for incorrect answer. The score consisted about 91 items. So that one can obtain maximum 91 score and minimum 0 score. The score on each item was then added to arrive at total knowledge score of a respondent. The knowledge index was calculated and the respondents were classified into three categories on the basis of mean and standard deviation.

RESULTS AND DISCUSSION

Farmers’ perception regarding Integrated Nutrients Management

Perception is the process whereby an individual receives stimuli through the various senses and interprets them. The teacher made test was constructed and response of farmers was obtained. The result of the perception was shown in the Table: 1

Table 1 : Distribution of respondent according to their perception regarding INM

n=150

Sr. No.	Statement	Frequency	Per cent	Rank
1	INM helps to improve physical, chemical and biological properties of the soil	140	93.33	I
2	INM maintain soil fertility in the long run	134	89.33	II
3	INM minimize deterioration of soil, water and ecosystem	130	86.67	III
4	INM increase organic matter in the soil	128	85.33	IV
5	INM reduce the use of chemical fertilizers	126	84.00	V
6	INM increase fertilizer use efficiency	123	82.00	VI
7	INM enhance plant growth and agricultural sustainability	121	80.67	VII
8	INM increasing the proper balanced use of mineral fertilizers	118	78.67	VIII
9	INM enhance productivity and yield	100	66.67	IX
10	INM discourage environmental pollution	95	63.33	X
11	INM reclaiming acidic and saline soil	84	56.00	XI
12	INM helps in increasing water holding capacity of the soil	78	52.00	XII
13	INM conserved the natural resources	72	48.00	XIII
14	INM for crop production is costly and labour intensive	64	42.67	XIV
15	INM improve the quality of product in crop production	60	40.00	XV
16	INM promoting carbon sequestration	57	38.00	XVI

The data presented in Table 1 showed that the farmers’ perception regarding Integrated Nutrients Management in sequential order was, INM helps to improve physical, chemical and biological properties of the soil (93.33 %), INM maintain soil fertility in the long run (89.33 %), INM minimize deterioration of soil, water and ecosystem

(86.67 %), INM increase organic matter in the soil (85.33 %) and INM reduce the use of chemical fertilizers (84.00 %) were ranked first, second, third, fourth and fifth, respectively. Whereas, INM increase fertilizer use efficiency (82.00 %), INM enhance plant growth and agricultural sustainability (80.67 %), INM increasing the proper balanced use of

mineral fertilizers (78.67 %), INM enhance productivity and yield (66.67 %) and INM discourage environmental pollution (63.33 %) were ranked sixth, seventh, eighth, ninth and tenth, respectively. The remaining *viz.*, INM reclaiming acidic and saline soil (56.00 %), INM helps in increasing water holding capacity of the soil (52.00 %), INM conserved the natural resources (48.00 %), INM for crop production is costly and labour intensive (42.67 %), INM improve the quality of product in crop production (40.00 %) and INM promoting carbon sequestration (38.00 %) were ranked eleventh, twelfth, thirteenth, fourteenth, fifteenth and sixteenth, respectively.

From the above results it can be concluded that INM helps to improve physical, chemical and biological properties of the soil, INM maintains soil fertility in the long run, INM minimizes deterioration of soil, water and ecosystem, INM increases organic matter in the soil, INM reduce the use of chemical fertilizers, INM increases fertilizer use efficiency, INM enhance plant growth and agricultural sustainability, INM increasing the proper balanced use of mineral fertilizers; this with the major perception of the farmers regarding Integrated Nutrients Management.

Farmers' knowledge level regarding Integrated Nutrients Management

In the present study knowledge refers to know-how about Integrated Nutrients Management possessed by the farmers. It was therefore thought necessary to obtain information from the farmers about the knowledge they possessed about Integrated Nutrients Management practices. The data regarding level of knowledge are given in Table 2.

Table 2 : Distribution of respondent according to knowledge n=150

Sr. No.	Knowledge level	Frequency	Percent
1	Low (below 54.64)	23	15.33
2	Medium (54.65 to 60.71)	106	70.67
3	High (above 60.71)	21	14.00
Mean=57.68		S.D.=3.04	

It is clear from the data presented in Table 2 that more than two-third (70.67%) of farmers had medium level of knowledge regarding Integrated Nutrients Management followed by 15.33 per cent and 14.00 per cent who had low level and high level of knowledge about Integrated Nutrient Management.

On the basis of results, it can be concluded that a great majority (84.67 %) of the respondents were found with medium to high level of knowledge about Integrated Nutrient Management of farmers. The probable reason for above finding might be due to their education, and medium level of utilization of information sources.

These findings are being supported by the reports of Jat (2010), Melkunde (2013), Patoliya (2013) and Dodiya (2015).

CONCLUSION

The major perception of the farmers regarding Integrated Nutrients Management were; INM helps to improve physical, chemical and biological properties of the soil, INM maintains soil fertility in the long run, INM minimizes deterioration of soil, water and ecosystem, INM increases organic matter in the soil, INM reduce the use of chemical fertilizers, INM increases fertilizer use efficiency, INM enhance plant growth and agricultural sustainability, INM increasing the proper balanced use of mineral fertilizers. The great majority (84.67 %) of the respondents were found with medium to high level of knowledge about Integrated Nutrient Management

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