

## **CONSTRAINTS EXPERIENCED BY THE FARMERS IN ADOPTION OF INTEGRATED NUTRIENT MANAGEMENT**

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### **ABSTRACT**

*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. 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 major constraints faced by the farmers in adoption of INM (Integrated Nutrient Management) were; lack of technical knowledge / guidance, unavailability of FYM, high cost of fertilizers, non-availability of fertilizers when needed and lack of training. The suggestions given by the farmers to overcome the constraints faced by the farmers in adoption of INM were; manures and fertilizers should be provided at reasonable rate, adequate supply of fertilizers should be timely available, technical guidance should be provided, training programs on Integrated Nutrient Management should be organized by extension personnel.*

**Keywords:** nutrient management, constraints, suggestions, organic fertilizer

### **INTRODUCTION**

The main aim of sustainable agriculture is; successful management of resources, satisfy the changing human needs, maintain or enhance the quality of environment and conserve natural resources. Integrated nutrients management (INM) is an integral part of sustainable agriculture, which requires the management of resources in a way to fulfill the changing human needs without deteriorating the quality of environment and conserving vital natural resources.

Integrated Nutrient Management has three main objectives; First of all, the management of nutrients is meant to maintain the productivity of soil through balanced fertilization. That can be achieved in modern agriculture by applying a variety of fertilizers including mineral fertilizers combined with organic fertilizers of plant and animal origin, such as crop residues and farmyard manure. Another purpose of integrated nutrient management is to improve the soil nutrient budget/nutrient stock. Thirdly, integrated nutrient

management also aims at improving the efficiency of the nutrients that are applied. Thus, farmers can minimize and limit losses as well as limit the environmental impacts of their agricultural activities which is one of the basic requirements of sustainability in agriculture.

In order to meet the food demands of a rising population in the first decade of 21<sup>st</sup> 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.

### **OBJECTIVES**

- (1) To identify the constraints faced by the farmers in adoption of INM

- (2) To seek suggestions to overcome the constraints faced by the farmers in adoption of INM

**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.

The constraints were operationalized defined as

**Table 1: Distribution of respondent according to constraints faced by them**

**n=150**

Sr. No.	Constraints	Frequency	Percent	Rank
1	Lack of technical knowledge / guidance	141	94.00	I
2	Unavailability of FYM	140	93.33	II
3	High cost of fertilizers	135	90.00	III
4	Non availability of fertilizers when needed	132	88.00	IV
5	Lack of training	128	85.33	V
6	High price of FYM	125	83.33	VI
7	Lack of finance	121	80.67	VII
8	Unavailability of literature	110	73.33	VIII
9	Lack of knowledge regarding bio fertilizers	100	66.67	IX
10	Lack of skilled labour	92	61.33	X
11	Lack of subsidy	85	56.67	XI
12	Scarcity of water	78	52.00	XII
13	Poor quality of fertilizers	65	43.33	XIII

It is apparent from Table 1 that the most important constraints as perceived by the farmers in adoption of INM were; lack of technical knowledge / guidance (94.00 %) as the major constraint encountered to use the fertilizer followed by unavailability of FYM (93.33 %), high cost of fertilizers (90.00 %), non-availability of fertilizers when needed (88.00 %) and lack of training (85.33 %) respondents give second, third, fourth and fifth rank, respectively. Whereas, high price of FYM (83.33 %), lack of finance (80.67 %), unavailability of literature (73.33 %), lack of knowledge regarding bio fertilizers (66.67 %) and lack of skilled labour (61.33 %) were ranked sixth, seventh, eighth, ninth and tenth, respectively.

The remaining constraints viz.; lack of subsidy (56.67 %), scarcity of water (52.00 %) and poor quality

of fertilizers (43.33 %) were ranked eleventh, twelfth and thirteenth, respectively. Though the department of agriculture and other organizations publish booklets, leaflets and folders on improved package of practices, specific extension literature on fertilizer use is very much limited.

**RESULTS AND DISCUSSION**

**Constraints faced by the farmers in adoption of INM**

The respondents were asked to give the constraints faced by them in use of INM. The information collected was tabulated and frequency and percentage for each constraint was calculated, then, the ranks were assigned to the constraints. The responses of the respondents with regards to the constraints are presented in Table 1.

These findings are supported by the reports of Zechernitz (2010), Sidram et al. (2011), Thorat (2012) and Desai (2013).

**Suggestions offered by the farmers to overcome the constraints faced by them**

An attempt was made to ascertain suggestions from farmers to overcome various constraints faced by them in adoption of INM. The respondents were requested to offer

their valuable suggestions against difficulties faced by them are presented in below Table 2. in adoption of INM. The suggestions offered by the farmers

**Table 2 : Suggestions given by the farmers to overcome the constraints faced by them**

**n=150**

Sr. No.	Suggestions	Frequency	Percent	Rank
1	Technical guidance should be provided	145	96.67	I
2	Manures and fertilizers should be provided at reasonable rate	140	93.33	II
3	Training programmes on Integrated Nutrient Management should be organized by extension personnel	130	86.67	III
4	Adequate supply of fertilizers should be timely available	125	83.33	IV
5	Strong marketing network for fertilizers availability should be developed in the village	120	80.00	V

The data given in Table 4.17 revealed that the major suggestions offered by the farmers to overcome the constraints associated with the recommended in adoption of INM in sequential order were; Manures and fertilizers should be provided at reasonable rate (93.33 %), Adequate supply of fertilizers should be timely available (83.33 %), Technical guidance should be provided (96.67%), Training programmes on Integrated Nutrient Management should be organized by extension personnel (86.67 %) and Strong marketing network for fertilizers availability should be developed in the village (80.00 %) were ranked first, second, third, fourth and fifth, respectively.

These findings were supported by the reports of Patel (2010) and Desai (2013).

**CONCLUSION**

The major constraints faced by the farmers in adoption of INM were; lack of technical knowledge / guidance, unavailability of FYM, high cost of fertilizers, Non availability of fertilizers when needed, lack of training, high price of FYM , lack of finance, unavailability of literature and lack of knowledge regarding bio fertilizers.

The suggestions given by the farmers to overcome the constraints faced in adoption of INM were; Manures and fertilizers should be provided at reasonable rate, Adequate supply of fertilizers should be timely available, Technical guidance should be provided, Training programs on Integrated Nutrient Management should be organized

by extension personnel and Strong marketing network for fertilizers availability should be developed in the village.

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