CONSTRAINTS FACED BY THE FARMERS IN ADOPTION OF PIT METHOD OF PREPARING FARM YARD MANURE

V. V. Prajapati[1], K .S. Patel [2] and M.A.Tunvar[3]

1 Principal, Polytechnic in Agriculture, SDAU, Deesa - 385535
2 & 3 Asstt. Professor, Polytechnic in Agriculture, SDAU, Deesa - 385535
Email : vvprajapati1963@gmail.com

ABSTRACT

FYM is one of the oldest manures used by the farmers in growing crops because of its easy availability and presence of all the nutrients required by the plants. FYM is one of the components of INM as it is a cheap and easily available source of organic nutrients. Integrating FYM with inorganic fertilizer gives good response to the crop. Application of this source of organic improves physical, chemical and biological condition of the soils. FYM can supply all the nutrients required by the plant, however with low quantity.The present study was conducted to know the knowledge and adoption of FYM preparation methods by the farmers. Constraints faced by them in adoption of pit method of farmers.This study was conducted in randomly selected two talukas viz., Deesa and Palanpur of Banaskantha district.Six villages were randomly selected from each selected taluka. From each selected village, 10 farmers were selected randomly making a sample of 120 respondents.The present study was confined to ex-post-facto research design. An interview schedule was developed according to the objectives of study and the data were collected through personal interview with 120 respondents. It is concluded that Majority of respondents adopted heap method (85.00 %), only 15.00 per cent respondents adopted pit method. Nearly fifty percent respondents were having knowledge about Watering of FYM pit for decomposition (57.50%), waste of chaff cutter/fodder cutter easily degradable than the normal method of farmers(54.16%) and furrow application is better than broadcasting of FYM(48.33%). Regarding constraints related to FYM preparation method it was observed that labour are not ready to take out the FYM from pit (95.33 %), high rate of labour (90 %), lack of knowledge regarding benefit of well decomposed FYM(86.66%), scarcity of labour in village(84.16 %), cost of JCB machine is not affordable (82.50 %) and non availability of JCB machine at village level (77.50 %) were the major constraints expressed by respondents.Nearly ninety percent of the respondents suggested that farmers should be trained regarding preparation of well decomposed FYM (91.66 %) and pit method should be demonstrated widely (87.50 %).

***Keywords**: constraints, knowledge,FYM*

INTRODUCTION

In India, Agriculture sector contributes 23 per cent share to the national income but day by day still it is going on decreasing. Even though large hectares of area are under cultivation in this country, the yield per hectare for many crops is lower than expected level. This is because of lack of adoption of new, improved practices, advanced techniques, use of non-productive soils, decreasing soil conditions etc. It is possible to increase yield per unit area by adopting new production technologies *viz.*, use of bio fertilizers, vermicomposting, organic farming, bio-control remedies, genetically modified crops etc (Diptesh and Chauhan, 2016).

In golden era of organic farmingIndia is the largest producer of the livestock in the global market with a livestock base of 512.05 million including 190.9 million cattle, 108.7 million buffalo, 65.06 million sheep and 135.17 million goat(as per 19th livestock census- 2012). The livestock population is projected to increase to 522 million by the year 2015. Animal husbandry plays a vital role in Gujarat's rural economy. As per livestock census 2012, total livestock population of Gujarat was 27.12 million.

FYM is one of the oldest manures used by the farmers in growing crops because of its easy availability and presence of all the nutrients required by the plants. FYM is one of the components of INM as it is a cheap and easily available source of organic nutrients. Integrating FYM with inorganic fertilizer gives good response to the crop. Application of this source of organic improves physical, chemical and biological condition of the soils. FYM can supply all the nutrients required by the plant, however with low quantity.

The present study was conducted to know the knowledge and adoption of FYM preparation methods by the

farmers. Constraints faced by them in adoption of pit method of farmers. The present study "Adoption pattern of methods of FYM preparation "was planned with the following specific objectives.

OBJECTIVES

(a) To study the knowledge level of farmers regarding FYM preparation methods

(b) To study the adoption level of FYM preparation methods by the farmers

(c) To know the constraints faced by the farmers in adoption of pit method of preparing FYM

(d) To seek the suggestions made by farmers regarding FYM preparing method

METHODOLOGY

The present study was conducted in randomly selected two talukas *viz.*, Deesa and Palanpur of Banaskantha district.Six villages were randomly selected from each selected taluka. From each selected village, 10 farmers were selected randomly making a sample of 120 respondents.

The present study was confined to ex-post-facto research design. An interview schedule was developed according to the objectives of study and the data were collected through personal interview with 120 respondents.

Table 1 : Name of selected villages

Name of selected Taluka	Name of selected villages	No. of villages
Deesa	Dama, Mahadevia, Khardosan, Malagadh, Kant, Ranpur	06
Palanpur	Songadh, Badarpura, Chadotar, Laxmipura, Jodanapura, Rampura	06

RESULTS AND DISCUSSION

Knowledge level of the farmers regarding methods of FYM preparation

Knowledge plays an important role in covert as well as overt behavior of an individual. Knowledge is pre-requisite to understand an idea or practice. With this in view, an attempt was made to study the farmers' knowledge about FYM preparation methods. For measurement of knowledge, an objective test was developed. List of the practices were enlisted and farmers were asked whether they know each of the practice in form of 'Yes' or 'No' with a score of '1'and '0' respectively. The data pertaining to this are presented in Table

Table 2 : Knowledge of the farmers regarding FYM preparation and its usefulness **n = 120**

Sr. No.	knowledge regarding FYM preparation and usefulness	Frequency	Percent	Rank
1	Animal dung should be collected with bedding materials(Straw, husk etc.)	38	31.66	IV
2	Animal urine should be collected separately.	12	10.00	XI
3	Watering of FYM pit is must for decomposition.	69	57.50	I
4	Waste of chaff cutter/fodder cutter is easily degradable than the normal method of farmers.	65	54.16	II
5	Animal urine can used as fertilizer/pest control.	10	08.33	XII
6	Primary, secondary and tertiary element are available in FYM.	16	13.33	IX
7	Nitrogen element present in FYM is volatile.	15	12.50	X
8	Four to five months are required for well decomposed FYM	37	30.83	V
9	Micro organisms decomposes FYM.	07	05.83	
10	The size of FYM pit should be 2.5m x 1.5m x 1.25m	06	05.00	XV
11	FYM can be enriched by adding different bioagents and chemical fertilizers.	05	04.16	XIV
12	FYM should be spread in the field during evening period.	20	16.66	VIII
13	About 4-6 tones well decomposed FYM can be prepared from single animal in a year.	22	18.33	IX
14	Furrow application is better than broadcasting of FYM.	58	48.33	III
15	In well decomposed FYM higher population of microorganism is observed	08	06.66	XIII
16	The FYM is to be buried in soil at optimum moisture	31	25.83	VI

Table 2 reveal that nearly fifty percent respondents were having knowledge about watering of FYM pit is must for decomposition (57.50%), waste of chaff cutter/ fodder cutter easily degradable than the normal method of farmers(54.16%) and furrow application is better than broadcasting of FYM(48.33%). Remaining respondents were found having low knowledge about; animal dung should be collected with bedding materials(31.66 %), four to five months are required for well decomposed FYM(30.83%), the FYM should be buried in soil at optimum moisture(25.83 %), FYM is to be spread in the field during evening period (16.66 %), , nearly 4-6 tones are well decomposed can be prepared from single animal in a year (18.33 %), primary, secondary and tertiary elements are available in FYM(13.33%), nitrogen element present in FYM is volatile(12.50 %).

Methods of adoption of FYM preparation

There are two main methods of FYM preparation.

(1) Pit method

This method is commercially adopted by farmers usually in which pits of 2.5m x 1.5m x 1.25m dimensions are prepared, which are filled in layers by the mixture of dung, urine and litter up to about 50 cm above ground level, the top is nicely filled, pits is covered by dry soil and then plastered by mud paste. After 150 to 180 days of plastering FYM is being well prepared. Usually 10-12 tones of FYM had been obtained/pit or every animal gives out about 5 to 6 tones FYM/year.

(2) Heap Method

Most commonly used by the farmers. Every day sweepings, cow dung and litter are collected and heaped at any fixed place. After about 6 to 9 months, the rotten manure is used. According to an estimate, about 30 to 35% N_2, 20 to 25% P_2O_5 & 4-6% potassium are lost during preparation of manure due to leaching, washing and volatilization.

Table 3: Distribution of respondents according to their adoption of FYM preparation methods

n = 120

Sr. No.	FYM preparation methods	Number	Percent
1	Heap method	102	85.00
2	Pit method	18	15.00

Table 3 indicate that majority of respondents adopted heap method (85.00 %) while remaining 15.00 percent respondents adopted pit method in FYM preparation.

Constraints faced by the respondents in adoption of pit method of FYM

Constraints in adoption of new technology never end. However, they can be minimizing. As far as the constraints confronting the farmers in adoption of pit method of FYM is concerned, there are certain circumstances, which restrict the adoption of improved technology.

Table 4: Constraints faced by the respondents in adoption of pit method of FYM **n = 120**

Sr. No.	Constraints	Number	Percent	Rank
1	Lack of space/land available for pit	35	29.16	VII
2	Scarcity of labour	101	84.16	IV
3	High rate of labour	108	90.00	II
4	Labour are not ready to take out the FYM from pit	115	95.83	I
5	Non availability of JCB machine at village level	93	77.50	VI
6	Cost of JCB machine is not affordable	99	82.50	V
7	It become difficult to work JCB machine due to moisture around pit	20	16.66	IX
8	Due to high moisture at bottom FYM form clots	32	26.66	VIII
9	Lack of knowledge regarding benefits of well decomposed FYM.	104	86.66	III

So far as the constraints related to FYM preparation method it was observed that labour are not ready to take out the FYM from pit (95.33 %), high rate of labour (90 %), lack of knowledge regarding benefit of well decomposed FYM(86.66%), scarcity of labour in village(84.16 %), cost of JCB machine is not affordable (82.50 %) and non availability of JCB machine at village level (77.50 %) where the major constraints expressed by the respondents. The next important constraint were: lack of space /land available for pit (29.16 %), due to high moisture at bottom FYM form clots (26.66 %) and it become difficult to work JCB machine due to moisture around pit (16.66 %).

Suggestions regarding FYM preparation method

An attempt has been made to know the suggestions of the respondent to overcome the various problem faced by them in adoption of FYM methods. The respondent was requested to offer them valuable suggestions for solving the problem faced by them in adoption of FYM methods.

Table 5 : Distribution of respondents according to their suggestions regarding FYM preparation method n = 120

Sr. No.	Suggestions	Number	Percent	Rank
1	JCB machine should be purchase in group on hire basis	72	60.00	V
2	Co-operative society should purchase JCB and other equipment for farmers on hire basis	90	75.00	IV
3	Technical knowhow regarding benefits of decomposed FYM needs to be spread	95	79.16	III
4	The farmers should be trained regarding preparation of well decomposed FYM	110	91.66	I
5	Pit method should be demonstrated widely	105	87.50	II
6	Government should make modal FYM pit in each village	62	51.66	VII
7	Government should ban to make heap of FYM in open side(particularly at Road side)	68	56.66	VI

Table 5 show that nearly ninety percent respondent suggested the farmers should be trained regarding preparation of well decomposed FYM (91.66 %) and Pit method should be demonstrated widely (87.50 %). The suggestion: technical knowhow regarding benefits of decomposed FYM needs to be spread(79.16 %), Co-operative society should purchase JCB and other equipment for farmers on hire basis (75.00 %), JCB machine should be purchase in group on hire basis (60 %), Government should ban to make heap of FYM in open side(particularity Road side)(56.66 %), technical knowhow regarding benefits of decomposed FYM needs to be spread(79.16 %) and Government should make model FYM pit in each village (51.00 %) was offered as important suggestion

CONCLUSION

Majority of respondents adopted heap method (85.00 %), only 15.00 per cent respondents adopted pit method. Nearly fifty percent respondents were having knowledge about Watering of FYM pit for decomposition (57.50%), waste of chaff cutter/fodder cutter easily degradable than the normal method of farmers(54.16%) and furrow application is better than broadcasting of FYM(48.33%). Low knowledge was observed in statements viz; In well decomposed FYM, higher population of microorganism is observed(6.66 %), The decomposition is activity of microorganism(5.83 %), the size of FYM pit should be 2.5m x 1.5m x 1.25m (5.0 %) and FYM can be enriched by adding different cultures and chemical fertilizers (4.16 %). Regarding constraints related to FYM preparation method it was observed that labour are not ready to take out the FYM from pit (95.33 %), high rate of labour (90 %), lack of knowledge regarding benefit of well decomposed FYM(86.66%), scarcity of labour in village(84.16 %), cost of JCB machine is not affordable (82.50 %) and non availability of JCB machine at village level (77.50 %) were the major constraints expressed by respondents. Nearly ninety percent of the respondents suggested that farmers should be trained regarding preparation of well decomposed FYM (91.66 %) and pit method should be demonstrated widely (87.50 %).

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