CONSTRAINTS FACED BY THE GROUNDNUT FARMERS IN ADOPTION OF ORGANIC FERTILIZERS

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ABSTRACT

India is one of the largest producers of oilseeds in the world and occupies an important position in the Indian economy. Groundnut is cultivated in India in all seasons. Organic fertilizers are the end product obtained from conversion of various organic wastes. It is used as supplements to chemical fertilizers leads to maximize the yield of the crop. The study was carried out at Junagadh district of Gujarat state in the year 2018. Multi-stage random sampling was used to select the samples for the study. The data were collected by personal interview method. Garrett's ranking technique was used to identify the factors affecting adoption of organic fertilizers. From the study, it was concluded that major constraints faced by the farmers are socio-psychological and technological constraints.

KEY WORDS: Constraints, Garrett's ranking technique, Groundnut, Organic farming

INTRODUCTION

In India, agriculture is the largest sector of economic activity. It provides food, raw materials and the employment to a very large proportion of the population. The national output depends on the output in agriculture, as it is one of the most dominating sectors in India. India is one of the largest producers of oilseeds in the world and occupies an important position in the Indian agricultural economy. In India, groundnut is cultivated largely in *kharif* season (June to October) under rainfed conditions with low input use and high pressure of insect-pests and diseases including weeds, hence, the productivity is low. In *rabi* season (November to March), the crop is grown on residual moisture in rice fallows with protective irrigation or in river bed areas. Summer groundnut (Feb-May) grown under assured irrigation is generally practiced with high input application with low pressure of insect-pests, diseases and weeds, hence, the productivity is quite high. In *kharif* 2017, all India acreage was 41,52,500 hectares. Five states *viz*., Gujarat, Andhra Pradesh, Karnataka, Maharashtra and Rajasthan jointly accounted for 34,74,100 hectares, i.e. 83.7 per cent of the national acreage (Anonymous, 2017). Organic manure was originally for denoting materials like cattle manure and other bulky organic substances that were applied to land, with the object of increasing the production of crops. Therefore, manures are defined as the plant

and animal wastes which are used as sources of plant nutrients. The role of organic fertilizer in agriculture is indirect. Organic fertilizer is an essential element for the growth of microorganisms in the soil, and is decomposed into inorganic fertilizer as the microorganisms grow. The rate of decomposition of organic fertilizer into inorganic fertilizer is strongly affected by the soil temperature, water content and pH (degree of acidity) as well as the characteristics of the microorganism ecosystem (Kozai and Niu, 2016).

Objectives of the study

- To find out the problems faced by farmers in adopting organic fertilizers

Limitation of the study

- The study was limited to Junagadh district only.
- The sample size for the survey was limited i.e. 120 farmers which may not represent the whole district.
- Results were derived from the base of the personal interview so there is a chance of inconsistency.
- The study was conducted on the basis of knowledge and understanding of the researcher.

METHODOLOGY

Selection of sample

The data for the study were collected from primary sources. Multi-stage sampling procedure was followed in selecting the sample of groundnut farmers. Junagadh district of Gujarat state was selected purposively, as it is one of the major pocket areas of groundnut crop. Four talukas of Junagadh district Keshod, Mendarda, Vanthali, Visavadar and three villages in each taluka were also selected randomly. Five exclusive users of organic fertilizers and five exclusive users of chemical fertilizers were selected purposively in each village and hence, total 120 groundnut growers were selected for the study purpose.

Garrett's ranking technique

The Garrett's ranking technique was used to rank the constraints faced by farmers in adoption of organic fertilizers (Zalkuwi *et al.,* 2015). The respondents were asked to rank the factors that affect their functioning. The orders of merit, thus, given by the respondents were converted into ranks by using the following formula:

$$\text{Per cent position} = \frac{100\ (R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = *Rank given for* i^{th} *factor by the* j^{th} *individual.*

N_j = *Number of factors ranked by the* j^{th} *individual.*

The per cent position of each rank, thus, obtained was converted into scores by referring to the table given by Garrett and Woodworth in (1969). For each factors, the scores of individual respondents was added together and divided by the total number of the respondents for whom scores was added. These mean scores for all the constraints were arranged in descending order; the constraints were ranked accordingly.

ANALYSIS AND INTEPRETATION

Factors affecting adoption of organic fertilizers:

Knowledge constraints faced by farmers

The knowledge constraints faced by groundnut farmers in adoption of organic fertilizers have been revealed from the survey and are shown in Table 1. Lack of knowledge in farmers about different organic fertilizer is ranked first with mean score 56.28, which shows that it is the main knowledge constraint in adoption of organic fertilizers by farmers followed by lack of proper training about organic farming (54.03), inadequate knowledge of filed functionaries about organic farming (50.10), lack of skill about important methods of compost making (48.39), inadequate

circulation of organic farming literature in the rural area (48.39) and lack of awareness about the concentration, time and method of organic fertilizers application (45.64). Chothe and Borkar (2000) also observed that more number of respondents (61.33%) in Nagpur district of Maharashtra had the problem of lack of knowledge about biofertilizers.

Socio-psychological constraints faced by farmers

The socio-psychological constraints faced by groundnut farmers in adoption of organic fertilizers have been revealed from the survey and are shown in Table 2. Farmers perceive that chemical fertilizers are more effective than organic fertilizers and is ranked first with mean score 60.78, which shows that it is the main Socio-psychological constraint in adoption of organic fertilizers faced by farmers followed by organic fertilizer are not used by fellow farmers in village (57.36), low creditability of source of organic fertilizers (54.91), lack of motivation from extension agencies (54.33) and application of organic fertilizers is not permitted in farmer's culture (51.62). Jangid et al. (2012) also reported "Increase in labour due to being time consuming and slow process" (57.33 MPS), an important constraints in adoption of organic fertilizers.

Economic constraints faced by farmers

The economic constraints faced by groundnut farmers in adoption of organic fertilizers have been revealed from the survey and are shown in Table 3. Large numbers of labours are required for the application of organic fertilizers is ranked first with mean score 51.59, which shows that it is the main economic constraint in adoption of organic fertilizers by farmers followed by required organic fertilizers are not available at reasonable price (51.45), Lack of purchasing power of farmers to buy organic fertilizers (51.40), lack of subsidy (51.38), uncertainty and risk prevail in organic farming (49.13) and extra land is needed for growing green manure crops (46.87). Jangid et al. (2012) also studied the economic constraints and reported that "Low credibility of source from purching compost and biofertilizers" (66.66 MPS) and "Farmers think that chemical fertilizers are more effective than biofertilizers" (56.66 MPS) were important constraints in organic fertilizers adoption.

Technological constraints faced by farmers

The technological constraints faced by groundnut farmers in adoption of organic fertilizers have been revealed from the survey and are shown in table 4.30. The rank is given using Garrett's ranking method. Lack of spare time for applying organic fertilizers during sowing period is ranked first with mean score 56.37 which shows that it is the main technological constraint in adoption of organic fertilizers by farmers followed by lack of technical information and skill about the organic fertilizers application (50.03), the seed coat is removed during seed treatment with organic fertilizers solution, resulting in poor germination (48.90), in case of high-temperature, organic fertilizers application is not successful (48.61), poor application of organic fertilizers due to unfavorable pH (47.89) and in case of problematic soil (acidic, saline, and alkaline) the bio-fertilizers cannot be used due to decrease in its efficiency (45.41). Jangid *et al.* (2012) also reported the "Lack of technical information and skill about the biofertilizers application" (86.33 MPS), as the biggest constraint with high intensity by the whole respondents as indicated by first rank in adoption of organic fertilizers.

CONCLUSION

The constraints are categorized into different groups and identified main constraints faced by the farmers *i.e.* lack of knowledge of farmers about different organic fertilizers, farmers perceive that chemical fertilizers are more effective than organic fertilizers, a large number of

labours are required for application of organic fertilizers and lack of spare time for applying organic fertilizer at sowing period.

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Table 1: Knowledge constraints faced by farmers

(n=120)

Sr. No.	Factors	Total	Average Score	Rank
1	Lack of skill about important methods of compost making.	5861	48.84	4
2	Lack of awareness about the concentration, time and method of organic fertilizers application.	5477	45.64	6
3	Inadequate knowledge of filed functionaries about organic farming.	6012	50.10	3
4	Lack of proper training about organic farming.	6501	54.03	2
5	Lack of knowledge in farmers about different organic fertilizer.	6754	56.28	1
6	Inadequate circulation of organic farming literature in the rural area.	5667	48.39	5

Table 2: Socio-psychological constraints faced by farmers

(n=120)

Sr. No.	Factors	Total	Average Score	Rank
1	Farmers perceive that chemical fertilizers are more effective than organic fertilizers.	7294	60.78	1
2	Organic fertilizers are not used by fellow farmers in the village.	6883	57.36	2
3	Lack of motivation from extension agencies.	6520	54.33	4
4	Low creditability of source of organic fertilizers.	6589	54.91	3
5	Application of organic fertilizers is not permitted in farmer's culture.	6194	51.62	5

Table 3: Economic constraints faced by farmers

(n=120)

Sr. No.	Factors	Total	Average Score	Rank
1	Uncertainty and risk prevail in organic farming.	5917	49.13	5
2	Large numbers of labours are required for the application of organic fertilizers.	6191	51.59	1
3	Extra land is needed for growing green manure crops.	5624	46.87	6
4	Lack of subsidy.	6166	51.38	4
5	Required organic fertilizers are not available at reasonable price.	6174	51.45	2
6	Lack of purchasing power of farmers to buy organic fertilizers.	6168	51.40	3

Table 4: Technological constraints faced by farmers

(n=120)

Sr. No.	Factors	Total	Average Score	Rank
1	Lack of technical information and skill about the organic fertilizers application.	6003	50.03	2
2	In case of problematic soil (acidic, saline, and alkaline) the bio-fertilizers cannot be used due to a decrease in its efficiency.	5449	45.41	6
3	Poor application of organic fertilizers due to unfavorable pH.	5747	47.89	5
4	In case of high-temperature, organic fertilizers application is not successful.	5833	48.61	4
5	Lack of spare time for applying organic fertilizer at sowing period.	6764	56.37	1
6	The seed coat is removed during seed treatment with an organic fertilizer solution, resulting in poor germination.	5868	48.90	3

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