CONSTRAINTS FACED BY FARMERS IN USE OF PRIVATE BIO-FERTILIZERS: A WAY FORWARD

ABSTRACT

The present study was conducted at Navsari district of South Gujarat. 120 respondents were selected for the study. Ex-post facto research design was used for the study. The bio-fertilizer refers to a formulation containing live bacteria that improve soil fertility by fixing atmospheric nitrogen, solubilizing phosphorus and other nutrients, and boosting plant development by releasing growth hormones. Because the concept is not new, the numerous benefits of bio-fertilizer led to its widespread application in sustainable agriculture. In this context private bio-fertilizers refers to the bio-fertilizers are the bio-fertilizers manufactured by private manufacturers or companies. The result of the study revealed that, Lack of technical knowledge about private bio-fertilizers was the major constraint followed, Non-availability of private bio-fertilizer locally at times when needed, lack of awareness about benefits of private bio-fertilizers etc. whereas, private bio-fertilizers should be available in time, bio-fertilizer usage can be increased if they are provided free of cost etc. are the suggestions given by the respondents.

Key words: Constraints, Farmers, Private Bio-fertilizers

INTRODUCTION

In India, a systematic study on bio-fertilizers was started by N. V. Joshi in 1920. Rhizobium was the first isolated from various cultivated legumes and this was followed by extensive research by Gangulee, Sarkaria and Madhok on the physiology of the nodule bacteria along with its inoculation for better crop production (Panda, 2011).

During the green revolution remarkable food production was noticed in which concern for sustainability was overlooked. Dependence on chemical fertilizers for future agricultural growth would mean further losses in soil quality and possibilities of water contamination. Modern agriculture involves usage of pesticides and chemical fertilizers with an essence of increasing the world's food production, as these serve as a fast food for plants causing them to grow more rapidly and efficiently. Continuous application of chemical fertilization leads to the decay of soil quality and fertility and might lead to the collection of heavy metals in plant tissues, affecting the fruit nutritional value and edibility (Farnia and Hasanpoor, 2015)

The term bio-fertilizer refers to formulation containing live microbes which helps in enhancing the soil fertility by fixing atmospheric nitrogen, solubilization of phosphorus and other nutrients and augmenting plant growth by producing growth hormones. Since the concept is not a new, multifarious advantages of bio-fertilizer leads to its wide applicability in sustainable agriculture.(Manashi,2017).

There are many private bio-fertilizers available in the market like ORGA-AZOTO, ORGA-AZOS, ORGA-RHIZO, ORGAMORE, AZODAWN, MYCODAWN, and RHIZODAWN, *etc*. manufactured by private manufacturers like Annadata organic biotech, Surat, Algrin microbial private ltd, Banakshata, Asiadawn biocare private ltd, Surat *etc*. And well renewed manufacturer GSFC ltd, Vadodara is producing three types of bio-fertilizers in the name of Sardar liquid bio-fertilizers. Along with these, major co-operatives like IFFCO is producing nitrogen fixing bio-fertilizers, phosphate solubilising bacteria (PSB) for phosphorus, potassium mobilizing bio-fertilizer (KMB) for potassium, zinc solubilizing bio-fertilizer (ZSB) for zinc and NPK liquid consortia for nitrogen, phosphorus & potassium. KRIBHCO is producing different types of bacterial strains of liquid bio-fertilizers namely, phosphorus solubilizing bacteria (PSB), potash mobilizing bacteria (KMB), zinc solubilizing Bacteria

(ZSB), liquid consortia NPK-1 (strains of azotobacter + PSB + KMB), liquid consortia NPK-2 (strains of azospirillum + PSB + KMB) and Liquid consortia NPK-3 (strains of rhizobium+ PSB +KMB).

In spite of being cost effective and eco-friendly in nature, farmers face several constraints in usage of Bio-fertilizers.

OBJECTIVE

(1) To find out the constraints faced by farmers in use of private bio-fertilizers.

(2) To seek the suggestions from the farmers to overcome constraints faced by them in use of private bio-fertilizers.

METHODOLOGY

The study was conducted in Navsari district of South Gujarat with *Ex-post facto* research design. All the 6 talukas of the Navsari district were covered under the study. Twelve villages were selected through proportionate random sampling. From each village ten respondents were selected through simple random sampling. Thus, the total respondents were 120. Constraints play a vital role in decision making, participation and adoption as well as in transfer of technology. To obtain better use of bio-fertilizers, it is very essential to minimize the constraints. Therefore, such constraints in use of bio-fertilizers should be studied carefully and efforts should be made to eliminate them. The information regarding constraints experienced by the respondents were collected by using closed ended questions and response about that aspect were recorded and summed up separately and converted into percentage. Later on, ranks were assigned.

RESULTS AND DISCUSSION

CONSTRAINTS FACED BY THE RESPONDENTS IN USE OF PRIVATE BIO-FERTILIZERS

The data related to constraints faced by the respondents are presented in table.1 and ranked as (I) lack of technical knowledge about private bio-fertilizers (79.16 %), (II) non-availability of private bio-fertilizer locally at times when needed (75.83 %), (III) lack of awareness about benefits of private bio-fertilizers (69.16 %), (IV) lack of guidance from extension personnel (65.00 %), (V) non-availability of private bio-fertilizers from all dealers (58.33 %), VI) results are not visible immediately (54.16 %), (VII) non-availability of extension literature on private bio-fertilizers usage (40.83 %), (VIII) negative attitude of neighboring farmers (36.66%), (IX) poor shelf life of private bio-fertilizers (31.66 %) and (X) non-availability of good quality private bio-fertilizers (26.66 %).

Table1: Constraints faced by the respondents (n=120)

Sr. No.	Constraints	Frequency	Percentage	Rank
1.	Lack of technical knowledge about private Bio-fertilizers	95	79.16	I
2.	Non-availability of private bio-fertilizer locally at times when needed	91	75.83	II
3.	Lack of awareness about benefits of private Bio-fertilizers	83	69.16	III
4.	Lack of guidance from extension personnel	78	65.00	IV
5.	Non-availability of private Bio-fertilizers from all dealers	72	58.33	V
6.	Results are not visible immediately	65	54.16	VI
7.	Non-availability of extension literature	49	40.83	VII

	on private Bio-fertilizers usage			
8.	Negative attitude of neighboring farmers	44	36.66	VIII
9.	Poor shelf life of Bio-fertilizers	38	31.66	IX
10.	Non-availability of good quality private Bio-fertilizers	32	26.66	X

This finding is partly in conformity with findings of Chaudhary and Chauhan (2016)

SUGGESTIONS GIVEN BY RESPONDENTS TO OVERCOME THE CONSTRAINTS

Suggestion refers as solution about constraints which can be used to overcome or to minimize them. In order to enhance use of private bio-fertilizers, it is essential to seek the opinions of the respondents who were directly involved in application. Hence, all respondents were requested to offer their valued suggestions for eliminating the constraints. The frequency for each suggestion was calculated and converted into percentage. Later on, rank was assigned. The suggestion receiving high percentage was considered as an important suggestion and the suggestion receiving low percentage considered as less important suggestion.

The data related to suggestion given by the respondents are presented in the Table.2 and ranked as (I) private bio-fertilizers should be available in time (82.50 %), (II) bio-fertilizers usage can be increased if they are provided free of cost (74.16 %), (III) private bio-fertilizers should be available in village (65.00 %), (IV) extension activities like exhibition, demonstration, kisanmelas *etc.* should be organized to improve awareness among farmers (54.16 %),(V) bringing awareness and motivate the farmers regarding use of private bio-fertilizers (40.83 %) and (VI) extension literature in simple local language on private bio-fertilizers usage should be provided (28.33 %).

Table 2: Suggestions given by the respondents to overcome the constraints (n=120)

Sr. No.	Suggestions	Frequency	Percentage	Rank
1.	Private Bio-fertilizers should be available in time	99	82.50	I
2.	Bio-fertilizer usage can be increased if they are provided free of cost	89	74.16	II
3.	Private Bio-fertilizers should be available in village	78	65.00	III
4.	Extension activities like exhibition, demonstration, kisan melas etc. should be organized to improve awareness among farmers	65	54.16	IV
5.	Bringing awareness and motivate the farmers regarding use of Private bio-fertilizers	49	40.83	V
6.	Extension literature in simple local language on Private bio-fertilizers usage should be provided	34	28.33 %	VI

This finding is in conformity with those of Parihar (2017)

CONCLUSION

It can be concluded that the major constraints faced by respondents in use of Private bio-fertilizers were Lack of technical knowledge about Private bio-fertilizers was the major constraint followed by, Non-availability of Private bio-fertilizer locally at times when needed, lack of awareness about benefits of Private bio-fertilizers etc. whereas, Private bio-fertilizers should be available in time, bio-fertilizer usage can be increased if they are provided free of cost etc. are the suggestions given by the respondents to overcome the constraints faced by them. To increase the usage of private bio-fertilizers, It is suggested to organize specific extension programmes on Private bio-fertilizers, Forming co-operatives which provides bio-fertilizers, Conduct regular farmers meetings etc.

RECOMMENDATION/POLICY IMPLICATION

Farmers expressed some constraints which hinder in them use of Private bio-fertilizers like Lack of technical knowledge about private Bio-fertilizers, Non-availability of private bio-fertilizer locally at times when needed etc., Efforts should be made to lessen the magnitude of such constraints.

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