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A study on knowledge and constraints faced by the farmers in utilization pattern of bio-fertilizers in major crops of Krishna district

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Abstract

A study was conducted in Krishna district of Andhra Pradesh. A total of 120 farmers were randomly selected from adopted villages of KVK to assess the knowledge and constraints faced by the farmers in utilization pattern of bio-fertilizers. The findings of the research revealed that majority (65.83 per cent) of the respondents had medium level knowledge, followed by 20.00 per cent of them having low level of knowledge and 14.16 per cent of the respondents had high level of knowledge on bio fertilizers more than half (91.66 per cent) farmers reported non availability of bio fertilizers locally at times when needed is the major constraint and More than half (85.84 per cent) of the farmers suggested to bio-fertilizers should be available in time at local level.

Keywords: Bio-fertilizers, farmers' knowledge, utilization pattern, constraints, Krishna district, Andhra Pradesh

1. Introduction

In India the availability and affordability of fossil fuel based chemical fertilizers at the farm level have been ensured only through imports and subsidies. Today, bio-fertilizers have emerged as a highly potent alternative to chemical fertilizers due to their eco-friendly, easy to apply, non-toxic and cost effective nature. Also, they make nutrients that are naturally abundant in soil or atmosphere, usable for plants and act as supplements to agrochemicals. Long term use of bio-fertilizers proves to be economical, eco-friendly, more efficient, productive and accessible to marginal and small farmers with respect to chemical fertilizers. The need for the use of bio-fertilizers in present situation is arising primarily for two reasons. First, because to have an increased crop productivity to feed our ever increasing population increased use of chemical fertilizer is necessary and second, because increased usage of chemical fertilizer leads to damage in soil health and raises other environmental hazards. In India, government has been trying to increase the application of biofertilizers along with modern agrochemicals. This study will help to study the knowledge of the farmers in using of bio-fertilizers.

2. Materials and Methods

The present study was conducted in three mandals of Krishna District namely Mopidevi, Thotlavalluru and Movva selected on the basis of maximum use of biofertilizers. From each of selected mandal, two villages were randomly selected from

the list of villages covered in the use of biofertilizers. From each selected village, 20 farmers were selected randomly and treated as respondents for present study. Hence, collectively 120 respondents were selected for the study. An ex-post facto research design was used for the study, and the statistical tools employed for data analysis included mean, standard deviation, frequency, and percentage.

3. Results and Discussion

3.1 The knowledge level of farmers regarding the use of bio-fertilizers

It was observed from Table-1 that majority (65.84 per cent) of the respondents had medium level knowledge, followed by 20.00 per cent of them having low level knowledge and 14.16 per cent of the respondents had high level knowledge.

Table 1: Classification of the respondents according to their overall knowledge

Category (Score)	Respondents (n=120)	
	Frequency	Percentage
Low level (Up to 23)	24	20.00
Medium level (Between 24 to 46)	79	65.84
High level (46 and above)	17	14.16

3.1.1 Knowledge about types of biofertilizers

It is observed from [Table-2] that majority of the respondents had knowledge on type of bio fertilizer used PSB 91.66 per cent), Rhizobium (81.66 per cent), Azotobacter (67.50 per

cent), Acetobacter (65.00 per cent) and Azospirillum (52.50 per cent), respectively.

3.1.2 Knowledge about forms of biofertilizers

Majority (84.16 per cent) of the respondents had knowledge about powder forms of biofertilizers and 76.66 per cent of the respondents had knowledge about liquid form of biofertilizers.

3.1.3 Knowledge about sources of biofertilizers availability

It is observed from [Table-2] that majority of the respondents had knowledge about sources of biofertilizers availability are Krishi Vigyan Kendras (90.84 per cent), Research stations (81.66 per cent), Agriculture Department (70.84 per cent), Agriculture colleges (66.66 per cent), Agri. Service centres (57.50 per cent), Fertiliser Dealers (55.84 per cent) and Agriculture universities (45.84 per cent).

3.1.4 Knowledge about methods of biofertilizers application

It is observed from [Table-2] that majority of the respondents had knowledge about methods of bio fertilizer application through water (drip) (87.50 per cent), seed treatment (85.00 per cent), application through FYM (84.16 per cent), seedling dipping (79.16 per cent) and application through soil (40.84 per cent) respectively.

3.1.5 Knowledge about time of biofertilizers application

Majority (80.83 per cent) of the respondents had knowledge about before sowing and 79.17 per cent of the respondents had knowledge after sowing application of biofertilizers.

3.1.6 Knowledge about dose of biofertilizers application

Majority (87.50 per cent) of the respondents had knowledge about dose of biofertilizers application through irrigation water and 84.16 per cent had knowledge about dose of biofertilizers application through seed treatment, while more than half (70.84 per cent) had knowledge about dose of soil application with FYM and less than two third (52.50 per cent) of the respondents had knowledge about dose of biofertilizers through seedling dipping.

3.1.7 Knowledge about care and management of biofertilizers

Majority (87.50 per cent) of the respondents had knowledge about use of biofertilizers before expiry date followed by (84.16 per cent) of the respondents had knowledge about biofertilizers must be kept in a cool place away from sunlight, (81.66 per cent) of the respondents had knowledge about maintain proper soil moisture at the time of bio fertilizer application, (79.17 per cent) of the respondents had knowledge about seeds treated with biofertilizers must be shade dried before sowing and (76.66 per cent) of the respondents had knowledge about biofertilizers should not be mixed with pesticides and fungicides.

Table 2: Classification of the respondents according to their knowledge about biofertilizers

S. No.	Particulars		Knowledge			
			Yes		No	
			F	%	F	%
1.	Types of Biofertilizers.	Rhizobium	98	81.66	22	18.34
		Azotobacter	81	67.50	31	52.50
		P.S.B.	110	91.66	10	08.34
		Azospirillum	63	52.50	57	47.50
		Acetobacter	78	65.00	42	35.00
2.	Forms of Biofertilizers.	Liquid	92	76.66	28	23.34
		Powder	101	84.16	19	15.84
3.	Sources of Biofertilizers Availability	Agricultural Universities	55	45.84	65	54.16
		Agricultural Colleges	80	66.66	40	53.34
		Agriculture Department	85	70.84	35	29.16
		Agri. Service centres	69	57.50	51	42.50
		Krishi Vigyan Kendras	109	90.84	11	09.16
		Fertiliser Dealers	67	55.84	53	44.16
		Research stations	98	81.66	22	18.34
4.	Methods of Biofertilizers application	Seed treatment	102	85.00	18	35.00
		Soil application	49	40.84	71	59.16
		Application through water (Drip)	105	87.50	15	12.50
		Application through FYM	101	84.16	19	15.84
		Seedling dipping	95	79.16	25	20.84
5.	Time of application	Before sowing	97	80.83	23	19.17
		After sowing	95	79.17	25	20.83
7.	Dose of Biofertilizers application	Seed treatment: 25gm./kg seed	101	84.16	19	15.84
		Seedling dipping: 10gm./lit.	63	52.50	57	47.50
		Through water (Drip) 2 lit./Acre.	105	87.50	15	12.50
		Soil application: 2 kg. in 50 kg. FYM mixture.	85	70.84	35	29.16
8.	Biofertilizers must be kept in a cool place away from sunlight		101	84.16	19	15.84
9.	Biofertilizers should not be mixed with pesticides and fungicides.		92	76.66	28	23.34
10.	Maintain proper soil moisture at the time of bio fertilizer application.		98	81.66	22	18.34
11.	Use of Biofertilizers before expiry date.		105	87.50	15	12.50
12.	Seeds treated with biofertilizers must be shade dried before sowing		95	79.17	25	20.83

3.2 Constraints faced by the farmers in use of biofertilizers

It is observed from [Table- 3] that majority of the respondents (84.16%) expressed that the lack of local availability of

biofertilizers at the time of need was the major constraint and it was ranked first (I), whereas lack of guidance from extension personnel was considered the minor constraint and ranked eighth (VIII).

Table 3: Constraints faced by the farmers

S. No.	Constraints	F	%	Rank
1	Low shelf life of biofertilizers	85	70.84	III
2	Lack of local availability of biofertilizers during the time of need	101	84.16	I
3	Immediate growth response in crops is not noticeable as with chemical	80	66.66	IV
4	Lack of availability of literature on bio fertilizer usage	63	52.50	VI
5	Complicated process of bio fertilizer usage	53	44.16	VII
6	Lack of subsidies on biofertilizers	98	81.66	II
7	Lack of guidance from extension personal	42	35.00	VIII
8	Lack of confidence towards different bio fertilizer practices	67	55.84	V

3.3 suggestions by the farmers in use of biofertilizers

It is observed from [Table- 3] that the respondents expressed and ranked the following suggestions: timely availability of biofertilizers at the local level (Rank I), awareness campaigns for the popularization of biofertilizers (Rank II), proper guidance on the use of biofertilizers (Rank III), technical training on biofertilizers to be provided by extension agencies

(Rank IV), subsidy on biofertilizers (Rank V), distribution of printed literature in simple local language by the Department of Agriculture, University, and Krishi Vigyan Kendra (Rank VI), and provision of better marketing facilities for crops produced using biofertilizers (Rank VII and VIII), respectively.

Table 4: Suggestions to overcome constraints

S. No.	Suggestions	F	%	Rank
1.	Bio-fertilizers should be available in time at local level	110	91.66	I
2.	Subsidy on bio-fertilizers	80	66.66	V
3.	Technical training related to biofertilizers should be imparted by extension agencies.	78	65.00	VI
4.	Awareness campaign on popularization of bio-fertilizers	105	87.50	II
5.	Proper guidance about use of bio-fertilizers	98	81.66	III
6.	The Department of Agriculture, the University, and Krishi Vigyan Kendra can distribute printed literature in simple local language.	69	57.50	VII
7.	Assured quality of bio-fertilizers from production units	95	79.16	IV
8.	Provision of better marketing facilities for crops produced using bio-fertilizers	55	45.84	VIII

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