Research Article

Trends in Adoption of Biofertilizers at Field Level in Saharsa District of Bihar

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Abstract

The present study was conducted with 120 randomly selected farmers in six villages of Saharsa district of Bihar and data were collected through personal interview method. Collected data were analyzed by using appropriate statistical methods for the interpretation of data. The study revealed that majority of the farmers (60%) have lack of awareness regarding knowledge of bio-fertilizes. The others major constraints noticed were lack of technical support, non-availability of biofertilizers and lack of awareness regarding crop specific usages of bio-fertilizers.

Keywords: Constraints, Adoption, Bio-fertilizers, Farmers

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Introduction

Economic survey report 2018-19 reveals that agriculture contribute 14-39% of the national income and is seems to be decreasing every year. Though there are large area of land under cultivation the yield per acre area is declining. The injudicious application of chemical inputs in agriculture over the year has been the major reason behind the steady reduction in agriculture input. The indiscriminate use of chemical fertilizers resulted in the depletion of soil quality, mortality of microorganisms and reduction in the water retention capacity of soil. Excessive application of nitrates and phosphate in the soil has accelerated the acidity of the soil and contaminated the ground water and the ecosystem. Furthermore, the consumption of crops produced by the use of chemical fertilizers causing serious health issue. Organic movement has started in various part of world to mitigate the damage caused by chemical fertilizers and restore the natural condition of the soil and ecosystem. The organic movement are focused on promoting the knowledge, awareness and adoption of organic farming practices in which organic and biofertilizers are very important inputs.

Biofertilizers is a novel tool for agriculture because it provides eco-friendly organic input is more cost effective than chemical fertilizers. Biofertilizers symbiotically associated with plant roots through the utilization of microorganisms to convert complex organic material in simple compounds. There are different types of microorganisms which are used as biofertilizer namely *Rhizobia* and phosphate solubilising bacteria (PSB) which are commonly applied in microbial inoculants.

Biofertilizers add nutrients through the natural processes of nitrogen fixation, phosphorus solubilization, stimulating plant growth through the synthesis of growth promoting substances.

Research Methodology

For any social research involving farmers a unit of study a two-way direct communication between research and respondents is a must to build-up good rapport to ensure free and frank dialogue and to get satisfactory response from them. With this basic consideration in view Saharsa district of Bihar state was purposively selected for this study in factor of following reasons:

- Agriculture is the main occupation of Saharsa district
- It comes under the jurisdiction of Mandan Bharti Agriculture College, Agwanpur, Saharsa
- Investigator was able comes this area within time limit

All the six villages namely; Bara, Barahsher, Padampur, Purikh, Gandaul and Rakeapatti were selected. Twenty farmers from each village were selected randomly. Thus, total 120 respondents were selected from these six villages. The pre structured interview scheduled used to collect the data related to socio-economic and constraints faced by the farmers in adoption of bio fertilizers. The information collected was scored, tabulated, computed and analyzed to have necessary interpretations.

Results and Discussion

A study pertaining to constraints faced by the farmers in the utilization of biofertilizers was conducted using 120 farmers from six villages of Saharsa district of Bihar. The results obtained are presented in **Table 1**. The data presented in Table 1 revealed that 60.00 per cent respondents from the information constraints faced major constraints of lack of awareness among farmers regarding knowledge of biofertilizers followed by 58.33 per cent and 56.66 per cent of lack of technical support and non-availability of biofertilizers. Jain and Bhattacharya (2000) [1] also concluded that lack of relevant literature (68%) was the constraints in non-awareness of biofertilizers. Similar findings were also reported by Aragesan (1998) [2], Mercy Kutty (2001) [3] and Mercy *et al.,* (2000) [4]. Pathak and Christopher (2019) [5] also reported that majority of the respondents (62.50%) had lack of awareness regarding knowledge of biofertilizers. Similarly, Katole *et al.,* (2017) [6] reported that majority of the respondents (75.56%) do not have knowledge about biofertilizers and 60% of farmers face the problems of non-availability of biofertilizer in time before sowing. Srinivas and Bhalekar (2013) [7] conducted the study in Maharashtra state for ascertaining the constraints faced by the farmers in adoption of biofertilizer and reported great majority of respondents (85%) reported the lack of confidence towards various biofertilizers practices. It was apparent from the data presented in Table 1 that 54.16 per cent farmer's stated problem of lack of awareness regarding the crop specific usages of biofertilizers. Thomas and Nandhini (2019) [8] also reported that farmers faced uncertainty regarding lack of awareness regarding the crop specific usages of biofertilizers in the adoption of biofertilizers. Another important constraint reported by 53.33 per cent farmers was lack of technical knowledge regarding usages of biofertilizers. Bodake *et al.,* (2009) [9] also reported 43.33 per cent respondents faces the constraints of no timely guidance by agricultural department. 50.00 per cent of the farmers perceive the lack of government support and lack of subsidies for biofertilizers is constraints in adoption of biofertilizers. Neware *et al.,* (2014) [10] opined that the major limitations of biofertilizers were slow effect on crop growth, shorter self-life and handling difficult and pointed out that the central government and various state government had been promoting biofertilizers market both at the level of user-farmers and producer-investor through farm level promotion, extension programme and subsidies on biofertilizers. A next constraint expressed by 51.66 per cent of the respondents was lack of knowledge regarding seed treatment, use of jaggery agent, its quantity, method and use of jaggery during seed treatment. The important reasons for non-adoption of biofertilizers were poor or non-availability, non-visibility of results, unassured quality and lack of knowledge [11].

Table 1 Constraints faced by farmers in adoption of biofertilizers (N=120)

Sl. No.	Constraints	Frequency	Percentage	Rank
01.	Lack of awareness among the farmers regarding knowledge of biofertilizers	72	60.00	I
02.	Lack of technical support	70	58.33	II
03.	Non-availability of biofertilizers	68	56.66	III
04.	Lack of awareness regarding the crop specific usages of biofertilizers	65	54.16	IV
05.	Lack of technical knowledge regarding use of biofertilizers	64	53.33	V
06.	Lack of knowledge regarding seed treatment, use of jaggery as sticking agents and its quantity	62	51.66	VI
07.	Lack of government support and lack of subsidies for biofertilizers	60	50.00	VII

Conclusion

Realization of the adverse impact of chemical fertilizers on health, soil and ecosystem prompted the promotion of biofertilizers. As results of the awareness programmes and promotional activities conducted by government and other related agencies the promotion of farmers using biofertilizers has increased. But the adoption of these fertilizers is not uniformly spread across the farmers. The farmers are facing the number of constraints in the adoption of biofertilizers. Among the various constraints lack of awareness regarding knowledge of biofertilizer followed by lack of technical support and non-availability of biofertilizers are the major limiting factor for the adoption of biofertilizer. It proper promotional activities backed by financial support can be guaranteed to the farmers, biofertilizers will replace the harmful chemical fertilizers in the fields.

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