



Dynamics of biofertilizers in North Karnataka

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ABSTRACT

Biofertilisers are low cost and high value agriculture inputs playing a vital role in maintaining the sustained agriculture production. Looking at the importance, the study highlighted present trends of biofertilisers production, demand, supply and their gap and utilization pattern of biofertilisers. A total sample of ninety farmers and thirty dealers / retailers were randomly selected from fifteen villages in selected Talukas. The data were subjected to compound growth rate (CGR) and tabular analysis. The results revealed that there was a growing trend of biofertilisers production with 2.52 per cent CGR and the entire district showed deficit supply of biofertilisers with -112.53 tonnes of gap in supply. Utilization pattern of biofertilisers showed that agricultural assistants were the major source of information (27.78%) for availability of biofertilisers and usage was concentrated more in case of pulse production. Jaggery solution treatment, mixed with compost and seedling dip methods were extensively adopted methods of biofertilisers application.

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INTRODUCTION

Biofertilisers are universally recognized to contain agriculturally important, beneficial and viable microorganisms capable of mobilizing nutritionally important elements from non-usable through biotic process. They are cost effective and renewable source of plant nutrients and can play supplemental role to chemical fertilizers. They constitute an essential facet of Integrated Plant Nutrient Supply (INPS) System – an integration of chemical, organic and biological sources of plant nutrients. In this way, they are effective for sustaining productivity as well as soil health (Gupta, 1983). The government of India and various State governments have been making constant and serious efforts to propagate use of biofertilisers for the last decades. However, even after efforts for such long period, performance has been rather dismal.

On the basis of the cultivated area of the country and standard seed treatment method, NBDC has estimated potential demand as high as 763272 MTs of biofertilisers. The high side,

potential demand has been estimated by other agencies like Biotech Consortium of India Limited (BCIL), Department of Agriculture and Co-operation (DOAC), Govt. of India and Fertilizers Association of India (FAI). However, based on the agro-climatic conditions and response areas, DOAC and FAI have worked out an achievable potential demand of about 50000 MTs by the 2011 AD, which has to be achieved. For this purpose, area having assured rainfall, irrigation, soils with organic matter and well managed farm practices should be given priority for biofertilizes use. Thus, the consumption level should reach 50000 MTs by the year 2011 at the incremental rate of 4000 tonnes per year.

In the recent past, private sector participation in production of biofertilisers has grown at a very high pace. Production has gone up from 2.5 tonnes in 1992-93 to 5584 tonnes in 2000-01. Accordingly, the number of firms engaged in biofertilisers has also gone up from 35 in 1992-93 to 122 in 2000-01.

Looking at the emerging importance and

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growing consciousness of farmers towards organic farming and use of biofertilizers in the study area, it was thought important to study the different aspects concerned with usage of biofertilizers by the farmers with the specific objectives : to analyze the demand, supply and their gap for biofertilizers in the study area and to study the utilization pattern of biofertilizers in the study area.

METHODOLOGY

This study was conducted in Athani, Belgaum and Gokak Talukas of Belgaum district of Karnataka state. The entire district exhibits distinctive feature in terms of land use pattern, cropping pattern and agricultural practices at the same time this district provides greater potential to use biofertilizers.

The primary as well as the secondary data for the study are pertaining to year 2002-03. Thus, data covering the production trend of biofertilizers in Karnataka demand / supply of biofertilizers in the study area from various institutions and agencies involved in the production of biofertilizers. The data pertaining to utilization pattern of biofertilizers were elaborated from the primary respondents like farmers, dealers spread in the entire district.

Analytical tools like tabular analysis was used to assess the utilization pattern and compound growth rate was used to analyze the production trend of biofertilizers in the state.

RESULTS AND ANALYSIS

The findings of the present study have been presented under following heads:

Demand and supply of biofertilizers in the study area:

Production trend of biofertilizers in Karnataka:

Production of biofertilizers in Karnataka over a period of time (1992-1993 to 2001-2002) is represented in Table 1. It is clear that the production of biofertilizers in 1995-96 was 515.62 tonnes, then it gained a momentum in 1996-97 with 796.48 tonnes, 826.17 tonnes (1997-98), 1128.19 tonnes (1998-99), 940.00 tonnes (1999-2000), 604.95 tonnes (2000-01) and 1145.2 tonnes in 2001-02. However, the magnitude of the growth trend of biofertilizers in Karnataka was relatively good with 2.52 per cent of compound growth rate. This is mainly because of adoption of technology initiated in the year 1995-96 and during 2000 severe draught situation prevailing in the state has led to less production of biofertilizers in the state.

Table 1 : Production trend of biofertilizers in Karnataka

Sr. No.	Years	Production (tonnes)
1.	1992-93	NA
2.	1993-94	NA
3.	1994-95	NA
4.	1995-96	515.62
5.	1996-97	796.48
6.	1997-98	826.17
7.	1998-99	1128.19
8.	1999-2000	940.00
9.	2000-01	604.95
10.	2001-02	1145.20
	CGR (%)	2.52

Source: Agricultural Commissionerate Office, Bangalore
NA-Not available

Gap in demand and supply of biofertilizers in the study area:

Supply of biofertilizers in the study area compared with demand in selected Talukas of Belgaum district are presented in Table 2. It is clear from the table that there was a large gap between supply and demand in Athani Taluk (-37.37 tonnes) followed by Gokak (-17.17 tonnes) and there was a good supply of biofertilizers in Belgaum Taluk as compared with its average demand of 31.67 tonnes. The reason attributed are the good marketing network at the district centre and Athani, Gokak Talukas have higher demand because larger area comes under cropping as compared to Belgaum Taluk.

In the district of Belgaum there was higher deficit (-112.53 tonnes) in supply of biofertilizers as compared to its total demand of 226.23 tonnes.

Table 2 : Gap in demand and supply of biofertilizers in the study area (2002-03)
(Qty. in tones)

Sr. No.	Talukas	Supply	Demand	Gap
1.	Athani	12.31 (10.82)	46.68 (20.63)	-37.37
2.	Belgaum	45.24 (39.79)	32.94 (14.56)	+12.30
3.	Gokak	20.68 (18.18)	37.85 (16.73)	-17.17
	District total	113.70 (100)	226.23 (100)	-112.53

Note: Figures in parenthesis indicate percentage to the district total
+ Surplus
- Deficit

The utilization pattern of biofertilisers in the study area:

Sources of information for biofertilisers availability:

Sources of information regarding the availability of biofertilisers to the farmers are presented in Table 3. The results revealed that the most of the farmers came to know about the availability of suitable biofertilisers from Agricultural Assistants (27.78%) followed by company sales officers (22.22%), dealers / retailers (8.89%), progressive farmers (11.11%), Agricultural Universities Officials (13.33%), advertisement (7.78%), friends (5.56%) and other sources of information which accounted to only 3.33 per cent.

Particulars	Frequency	Percentage
Agricultural Assistants (Agril. Dept / RSKs)	25	27.78
Company Sales Officers	20	22.22
Agricultural Universities	12	13.33
Progressive Farmers	10	11.11
Dealers / Retailers	8	8.89
Advertisements	7	7.78
Friends / Relatives	5	5.56
Others	3	3.33

The results revealed that Agricultural Assistants are the main sources of information (27.78%) as the establishment of Raitha Samparka Kendras at each hobli level made Agricultural Assistants quite accessible to the farmers. This is followed by company sales officers (22.22%) as they intended to increase their sales and profit.

Purchase pattern of biofertilisers by the farmers:

It is noticed from Table 4 that 63.33 per cent of the farmers perceived that the biofertilisers were not easily available and 36.67 per cent perceived its availability easily. This is mainly because of marketing network has not yet reached the farmers doorstep. Regarding the certified / standardized quality of biofertilisers, 86.67 per cent of farmers were not aware about the certified / standardized quality of biofertilisers while purchasing and 13.33 per cent of farmers were aware about the different qualities of biofertilisers. Lack of technical knowledge about the biofertilisers is the attributed reason. In case when they are going to purchase biofertilisers, 85.55 per cent of respondents purchased at the time of sowing, 8.89 per cent purchased after sowing and 5.56 % purchased at the time of land preparation. This was because of their convenience at the time of purchase of seed material.

About the purchase act of biofertilisers, 72.22 per cent of respondents purchased the product along with other inputs, 23.33 per cent purchased the intended product only and 4.44 per cent perceived that they bought the product at doorstep by the distributor. This shows that there was no proper market network to distribute the biofertilisers at farmer's doorstep.

Utilization pattern of biofertilisers in different cropping enterprises:

Table 5 indicates the utilization of awareness of biofertilisers among different cropping enterprises. It is clear that the biofertilisers utilization was more in case of pulse production (68.38%) followed by oilseeds (61.00%), cereals (50.00%), fruits and plantation crops (32.22%), commercial crop (18.88%), vegetables (16.66%) and other

Particulars	Frequency of positive respondents	Per cent
Are biofertilisers available easily?		
Yes	33	36.67
No	57	63.33
Whether you purchase certified / standardized biofertilisers?		
Yes	12	13.33
No	78	86.67
Time of purchase of biofertilisers		
At the time of land preparation	05	05.56
At the time of sowing	77	85.55
After sowing	08	08.89
How you brought biofertilisers?		
Buy intended product only	21	23.33
Along with other product	65	72.22
Purchase at door step	04	04.44

Table 5 : Utilization pattern of biofertilisers in different cropping enterprises

Cropping enterprises	Frequency farmer used	Percentage*
Pulse	62	68.38
Oilseeds	55	61.00
Cereals	45	50.00
Fruits and plantation crops	29	32.22
Commercial crops	17	18.88
Vegetables	15	16.66
Other crops and plant	22	24.44

*There were multiple respondents for utilization in each enterprise

crops accounted to about 24.44 per cent. This may be because of availability of particular strains suitable to that crop and package of practices as given by the distributors of biofertilisers.

Factors influencing the use of biofertilisers:

Different factors influencing the use of biofertilisers, calculated by raking method, are presented in Table 6. It is revealed that the sustained soil fertility was most perceived factor (81.11%) followed by reduced cost of cultivation (73.33%), high quality of produce (61.11%) and environmental concern (57.70%). Availability of technical know-how (54.44%), lower resource base (46.70%), easy availability (26.70%), persuasion by progressive farmers / agencies (45.60%), easy method of application (38.80%) and incentives by government / agencies (18.80%) were rated as the other influential factors for use of biofertilisers.

Table 6 : Factors influencing use of biofertilisers

Particulars	Frequency	Percentage
Sustained soil fertility	77	81.11
Reduced cost of cultivation	66	73.33
High quality of produce	55	61.11
Environmental concern	52	57.70
Technical know-how availability	49	54.44
Lower resource base	35	46.70
Easy availability	24	26.70
Persuasion by progressive farmers / agencies	41	45.60
Easy method of cultivation	35	38.80
Incentives by government/ agencies	17	18.80

Application pattern of biofertilisers:

The method of adoption in utilization of biofertilisers is presented in Table 7. It is clear from the table that seed treatment with jaggery solution was practiced by 91.18

Table 7 : Biofertilisers application pattern

Method of application	Frequency of positive respondents	Percentage
Seed treatment		
With jaggery solution	62	91.18
With sugar solution	04	5.88
With water	02	2.94
Soil application		
Applied directly to soil	19	38.76
Mixed with compost	24	48.98
Mixed with other fertilizers	06	12.24
Liquid form		
Seedling dip	17	70.83
Fertigation method	07	29.17

per cent of farmers, seed treatment with sugar solution by 5.88 per cent. Because jaggery is easily available and very few used sugar solution and seed treatment by simply wetting with water accounts for 2.94 per cent. In case of soil application, 38.76 per cent of the respondents applied directly to soil, while 48.98 per cent applied by mixing it with compost and 12.24 per cent applied it by mixing with other fertilizers. This may be lower to additional cost. In liquid form usage, seedling dip method was practiced by 70.83 per cent and fertigation method by 29.17 per cent of farmers. This may be because of their convenience with availability of water and as per the package of practices. Patil and Pandey (1981 and 1982) studied the demand for phosphatic and nitrogenous fertilizers in Indian agriculture.

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