

Topic: **BIOFERTILIZERS: QUALITY CONTROL AND MARKETING**

Subject: Botany

M.Sc. (Semester II), Department of Botany  
Course: MBOTCC- 5: Biofertilizer technology; Unit – V

Dr. Saumya Srivastava  
Assistant Professor,  
P.G. Department of Botany,  
Patna University,  
Patna- 800005

Email id: [sonata906@gmail.com](mailto:sonata906@gmail.com)

“The Bio-fertilizers are large population of viable cells of effective strains of specific nitrogen fixing bacteria that can either be supplied through carrier based powder form or in liquid formulations for use in farming. Bio fertilizers production technology includes many steps starting from isolation of bacteria, selection of suitable effective strain, preparation of mother or seed culture, inoculants production, carrier preparation and their mixing etc., followed by curing, packaging, storage and dispatch.

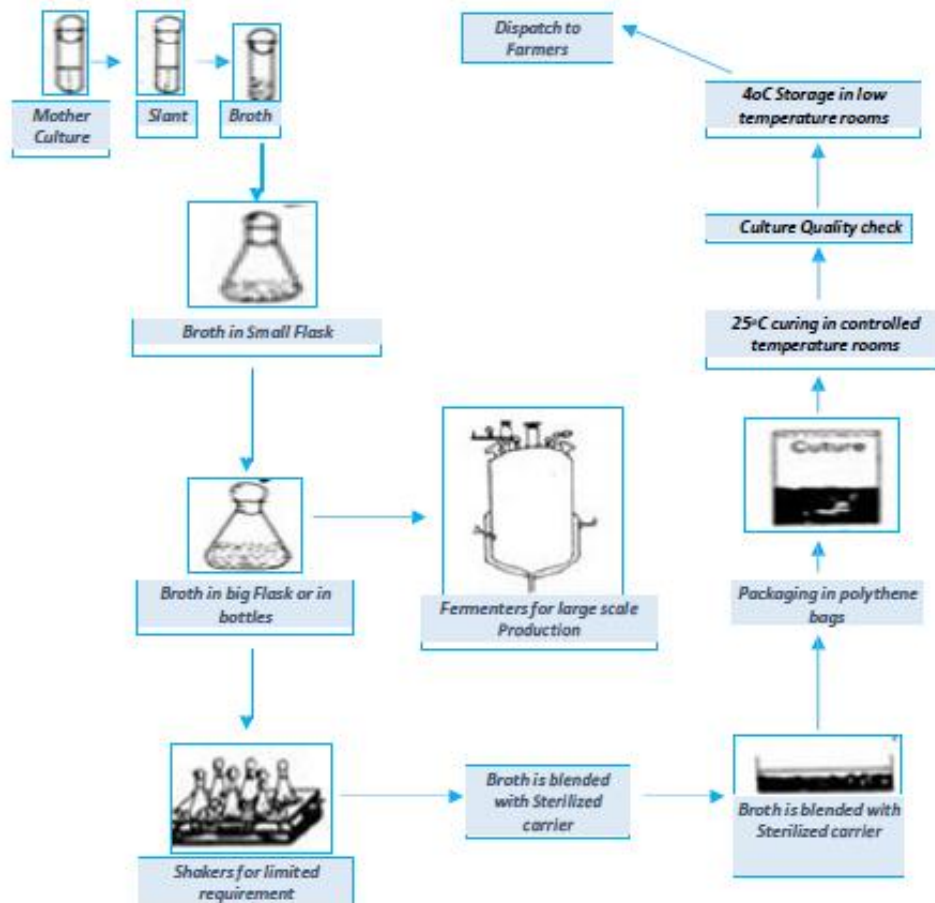


Fig. 1. Flow chart for production of Bio Fertilizer

### **Quality Checking**

The microbial count of the inoculants has to be checked at the time of manufacturing. The viable cell count in the inoculants should be maintained as per ISI specifications.

### **Storage**

The inoculants shall be stored by the manufacture in a cool place away from direct heat preferably at a temp of 15°C and not exceeding 30°C +/- 2°C for six months. For long survival of microorganisms the bottles need to be stored below 33°C temp.

### **Quality Control**

Though there are BSI standards for two species viz. *Rhizobium* (IS: 8268-1976 and *Azotobacter* (IS: 9138-1979), there is no systematic quality certification system and monitoring mechanism. It is entirely an internal arrangement and voluntary system as of now. As the products being living microorganisms, the quality checkup, certification batch-wise even if it is internal is highly essential. Each unit should have lab infrastructure and plans/arrangements for the same. Each unit, therefore should have the following facilities:

- Adequate microbiological lab and qualified microbiologist.
- Sampling and testing at various stages of production, including the quality of raw materials.
- Specify on the packets all the contents and cell counts. The source of mother culture and the strain name should also be mentioned.
- The unit should fix their quality certificate and batch number, pack the products in proper packing material.
- Store the products in cooler places till they are sold to farmers.
- Ensure to have aseptic conditions, cleanliness and contamination free production lines and housing.
- Preferably use automatic and closed systems.

As per BIS specifications, certain tests are required to be conducted, like no. of cells, colony character, reaction etc. Cell number at the time of manufacture should not be less than 10<sup>8</sup> and 10<sup>7</sup> per gram of carrier material, respectively for *Rhizobium* and *Azotobacter*. Similarly, the number of cell count and permissible contamination at expiry dates are also specified.

As certification arrangements are not in place at present, legislation for quality monitoring and accredited labs for testing may be needed in future to ensure proper quality and promote these products.

## **Marketing Plan / Strategy**

### Field demonstration

The farmers do what they see because 'Seeing is believing' and therefore result as well as method demonstration are very effective tools in promoting biofertilizer usage. The producers may synergize their efforts on this front as bio-fertilizers are new and it is very crucial to show the impact of bio-fertilizer usage to farmers and educate them the economics /returns. Therefore a demonstration farm may be developed jointly, at different locations, defining a catchment area, which could be shown to farmers at different crop stages.

### Market Segmentation & Product Positioning

The segmentation is primarily dividing market into various groups of buyers. First of all the organic producers will be the most important buyers as organic production without bio fertilizers will not be possible. Among non-organic producers, the market can be segmented by "specific crop grower (Fruits/ Vegetable/Oilseed/ Pulses/Sugarcane/Cereals), institutional buyers (Cane/ Tea/ Coffee/ cotton/ oilseeds/pulses federations & research-farms, SFCL, Agro-industries etc).

Bio fertilizers can be easily positioned as environment friendly growth enhancer manure with long term benefits such as enrichment of soils, similarly other benefits for example: (a) "Save cost through reduced dosage of chemical fertilizers"(b) "Improves resistance power against disease" (c) "Enhance sugar recovery percent in sugarcane" etc. need to be highlighted.

### Pricing

Being price sensitive input, the pricing needs to be kept at penetrative level, slightly lower than the competitors. However, real advantage to the units will come from reduction in logistics costs being near to the consuming areas.

### Publicity & Training

The POS (Point of Sales) material giving details of proper method of application must be made available to all dealer/ distributors and also needs to be ensured that product is displayed visibly. To deploy Extension Executives for promoting bio fertilizers with constant visits and developing a close connect with farmers and undertaking demonstrations with its replication in nearby villages.

### Marketing Linkages

With the promotion of alternate sources of nutrition management, there is already awareness among the farmers related to bio fertilizer and it is becoming popular gradually. Now Bio fertilizers of many brands are readily available in the market through the regular dealer/ distributor network. So it is not very difficult to promote the appropriate crop specific products manufactured inside any state. Moreover these products will have added advantage of lower transportation and marketing cost. The marketing of the products can therefore be done through

the existing marketing network. The farmer co-operatives and farmer groups can also be contacted for bulk selling.

### Marketing Challenges & Options in bio-fertilizer business

In spite of being cost effective input, the Bio-fertilizers have not been accepted by the farmers completely till now. Some of the reasons/constraints for low acceptance of Bio-fertilizer are narrated below. However, the “Liquid form” has overcome few limitations and has provided opportunities for Marketers.

- a) Bio-fertilizers are live microorganisms which dies in case of high temperature.
- b) The **shelf life** of bio-fertilizer is limited to 6-12 months in powder form.
- c) The Bio-fertilizers are used before sowing and delay in dispatches leads to inventory carry over and expiry of product.
- d) Some of the bio-fertilizer are crop specific as well as location specific and therefore its efficacy does not remain same at different locations due to difference in agro-climatic conditions & soil ediphic factors.
- e) Soil characteristics like high nitrate, low organic matter, less available phosphate, high soil acidity or alkalinity, high temperature as well as presence of high agro- chemicals or low micro-nutrients contribute to failure of inoculants or adversely affect its efficacy.
- g) Supply of Sub-standard or spurious material by some of the manufacturers also adversely affect the credibility of the Bio-fertilizers, being a new product.
- h) Some firms are selling organic manures as Bio-fertilizers. Some organizations mention shelf life as two years/one year despite norm of maximum 3- 6 months.
- j) Lack of awareness of the farmers regarding benefits of bio-fertilizer.
- k) There is no magic effect of bio-fertilizer & its impact is not visible in standing crop and therefore farmer is not convinced with the benefits of bio-fertilizer use.”<sup>1</sup>

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<sup>1</sup> Source: bio-fit.eu/q9

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