



## **Introduction, Definition, Importance and Benefits of Biofertilizers**

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### ***Introduction***

According to an estimate 240 million tonnes of food grains will be required to feed about one billion expected populations by 2000 AD in India and to achieve this milestone, a sizable quantity of mineral fertilizers will be required. The total fertilizer requirements of our country would be 23 million tonnes as against the present consumption level of 13 million tonnes per annum. The problem is so acute that it is beyond any single type of nutrient source to accept the challenge of appropriate nutrient supply. Integrated use of all the sources such as mineral fertilizers, organic manures, biofertilizers, etc. is the only alternate for improving soil fertility.

The use of organic manures and mineral fertilizers is in practice but use of biofertilizer in agriculture is not very popular. Hence, there is a need to make its use popular. The increased cost of fertilizer production coupled with progressively increasing use of chemical fertilizers particularly needed by HYV (High Yielding Varieties) are adding to the cost of cultivation of crops and causing nutritional enhancement in Indian agriculture. Recent energy crisis, rapid depletion of non-renewable energy sources like naphtha, natural gas, sulphur, etc. their production also releases pollutants, nutrient potential from all organic sources in India is over 19 million ton/year which is adequate requirement to meet 70 per cent of the projected nutrient requirement for the decade ending 2000 A.D

Nutrient need of growing plant can be met through a number of sources. The major sources of plant nutrient are minerals fertilizer, organic manure, recycled waste and byproduct, biological nitrogen fixation (BNF), natural minerals and to lesser extent nutrient recycled through irrigation water and precipitation. These supplement major plant nutrients and the plant productivity for sustainable agriculture. They are important and cost-effective inputs in agriculture, plantation and commercial crops. Microbial inoculants/biofertilizers on their application multiplies in rhizosphere soil and benefit the growing crops. If the soil conditions are favorable, the populations of added microorganism are built up in the rhizosphere of plants and frequent application of microbial inoculants can be avoided. They are inexpensive and help in reducing the consumption of chemical fertilizers. The cost of production of biofertilizer is low and so is the selling price. On nutrient basis, one ton of Rhizobium inoculants is equivalent to 100 tonnes of inorganic fertilizer It has now become possible to meet a large part of our total nitrogen demand through proper husbandry of BNF (Biological Nitrogen Fixation) by micro-organism (bio-fertilizers) in crop production systems. Bio-fertilizers are capable of providing an economically viable level for achieving the ultimate goal of enhanced productivity.

### ***Definition***

Biofertilizer' is a substance which contains living microorganisms which, when applied to seed, plant surfaces, or soil, colonizes the rhizosphere or the interior of the plant and promotes growth by increasing the supply or availability of primary nutrients to the host plant. Biofertilizers (BF) (microbial nutrients) are the products containing living cells of different types of microorganisms which have an ability to mobilize nutritionally important

