

## Specification of Bio fertilizer

### 1 Rhizobium

SI no.	Characters	Requirement	Actual status
(i)	Base	Carrier based* in form of moist/dry powder or granules, or liquid based	
(ii)	Viable cell count	CFU minimum $5 \times 10^7$ cell/g of powder, granules or carrier material or $1 \times 10^8$ cell/ml of liquid.	
(iii)	Contamination level	No contamination at $10^5$ dilution	
(iv)	pH	6.5-7.5	
(v)	Particles size in case of carrier based material.	Following Sieve sizes should be selected Powder form - 0.15-0.212mm Solid form – 4mm	
(vi)	Moisture percent by weight, maximum in case of carrier based.	30-40%	
(vii)	Efficiency character	Should show effective nodulation on all the species listed on the packet.	

\***Type of carrier:** The carrier materials such as peat, lignite, peat soil, humus, wood charcoal or similar material favouring growth of organism.

### 2 Azotobacter

SI no.	Characters	Requirement	Actual status
(i)	Base	Carrier based* in form of moist/dry powder or granules, or liquid based	
(ii)	Viable cell count	CFU minimum $5 \times 10^7$ cell/g of powder, granules or carrier material or $1 \times 10^8$ cell/ml of liquid.	
(iii)	Contamination level	No contamination at $10^5$ dilution	
(iv)	pH	6.5-7.5	
(v)	Particles size in case of carrier based material.	Following Sieve sizes should be selected Powder form - 0.15-0.212mm Solid form – 4mm	
(vi)	Moisture percent by weight, maximum in case of carrier based.	30-40%	
(vii)	Efficiency character	The strain should be capable of fixing at least. 10 mg of nitrogen per g of sucrose consumed.	

\***Type of carrier:** - The carrier material such as peat, lignite, peat soil, humus, wood charcoal or similar material favouring growth of the organism.

### 3 Azospirillum

SI no.	Characters	Requirement	Actual status
(i)	Base	Carrier based* in form of moist/dry powder or granules, or liquid based	
(ii)	Viable cell count	CFU minimum $5 \times 10^7$ cell/g of powder, granules or carrier material or $1 \times 10^8$ cell/ml of liquid.	
(iii)	Contamination level	No contamination at $10^5$ dilution	
(iv)	pH	6.5-7.5	
(v)	Particles size in case of carrier based material.	Following Sieve sizes should be selected Powder form - 0.15-0.212mm Solid form – 4mm	
(vi)	Moisture percent by weight, maximum in case of carrier based.	30-40%	
(vii)	Efficiency character	Formation of white pellicle in semisolid Nitrogen free bromothymol blue media.	

\*Type of carrier:-The carrier material such as peat, lignite, peat soil, humus, wood Charcoal or similar material favouring growth of the organism.

### 4 Phosphate solubilising Bacteria

SI no.	Characters	Requirement	Actual status
(i)	Base	Carrier based* in form of moist/dry powder or granules, or liquid based	
(ii)	Viable cell count	CFU minimum $5 \times 10^7$ cell/g of powder, granules or carrier material or $1 \times 10^8$ cell/ml of liquid.	
(iii)	Contamination level	No contamination at $10^5$ dilution	
(iv)	pH	6.5-7.5 for moist/dry powder, granulated carrier based and 5.0 – 7.5 for liquid based	
(v)	Particles size in case of carrier based material.	Following Sieve sizes should be selected Powder form - 0.15-0.212mm Solid form – 4mm	
(vi)	Moisture percent by weight, maximum in case of carrier based.	30-40%	
(vii)	Efficiency character	The strain should have phosphate solubilising capacity in the range of minimum 30%, when tested spectrophotometrically. In terms of zone formation, minimum 5mm solubilisation zone in prescribed media having at least 3mm thickness.	

\*Types of Carrier:-The carrier material such as peat, lignite, peat soil, humus, wood Charcoal or **similar** material favouring growth of the organism.

## 5 Mycorrhizal Bio fertilizers

SI no.	Characters	Requirement	Actual status
i.	Form/base	Fine Powder/ tablets/ granules/ root biomass mixed with growing substrate	
ii.	Particle size for carrier based powder formulations	90% should pass through 250 micron IS sieve (60 BSS)	
iii.	Moisture content percent maximum	8 -12	
iv.	pH	6.0 to 7.5	
v.	Total viable propagates/ g of product, minimum	100/g of finished product	
V.	Infectivity potential	80 infection points in test roots/g of mycorrhizal inoculum used	

### Part-B

#### Tolerance limit of Bio fertilizers

- a. In case of Rhizobium, Azotobacter, Azospirillum and Phosphate solubilizing bacteria, the total viable counts shall not be less than  $1 \times 10^7$  CFU/g of carrier material in the form of powder or granules or  $5 \times 10^7$  CFU/ml in case of liquid formulations during the entire period of shelf life.
- b. In case of Mycorrhizal Bio fertilizers, the viable propagules shall not be less than 100/g of carrier material
- c. In case of any other form of bio fertilizer not mentioned in the above categories, the product should have a  $1 \times 10^7$  cells/gm of powder, granules, OR  $1 \times 10^8$  cells/ml of liquid.
- d. Shelf life of 6 months when stored at temperatures  $25^{\circ}\text{C} - 30^{\circ}\text{C}$ .