

## BIOCONTROL AGENTS

### VA Mycorrhiza

Inoculation with VA mycorrhizal fungi at the time of planting in the nursery or main field improves the growth and tolerance of crop against root pathogens, particularly *Phytophthora*, *Pythium*, *Rhizoctonia* and root nematodes of black pepper, cardamom, ginger, turmeric, cowpea, rice and transplanted vegetables.

### Trichoderma

*Trichoderma* spp. is a group of broad-spectrum antagonists effective against the quick wilt of pepper rhizome rot of cardamom and ginger.

Dry neem cake and cowdung are to be powdered and mixed to get a coarse texture and then moistened by sprinkling of *Trichoderma* spp. @ 1-2 kg per 100 kg of neemcake - cow dung mixture. After thoroughly mixing, cover it with a perforated polythene sheet or ordinary newspaper and keep it in shade for 4-5 days for multiplication. Again mix well and keep for three more days for further multiplication. This preparation is ready for incorporation in the soil. This *Trichoderma* incorporated neemcake-cow dung mixture can be used in the potting mixture in nursery beds and in the field; i.e. wherever cow dung is used as manure.

### Fluorescent pseudomonas

Fluorescent pseudomonas are a group of bacteria very effective against disease caused by species of *Phytophthora*, *Pythium*, *Rhizoctonia*, *Fusarium*, *Colletotrichum*, *Rhizoctonia* and *Xanthomonas* in various crop plants in the nursery as well as in the main field.

This is found highly effective for the management of foot rot and fungal pollu of black pepper, sheath blight and bacterial leaf blight of paddy, bacterial leaf spot and *Phytophthora* infestation in betel vine, bacterial wilt of solanaceous vegetables, bacterial leaf blight of anthurium and *Colletotrichum* and *Phytophthora* infestation in vanilla and rhizome rot of ginger. The organism significantly improves the growth and biomass production of crop plants.

#### Method of application

The talc-based formulation at 1-2% level may be used for soil drenching and spraying and seed treatment. Seedlings / cuttings are treated with *Pseudomonas* culture by dipping the root/tip of cuttings in slurry of *Pseudomonas* (250g in 750ml for 20 minutes).

#### Rate of application

1. seed treatment - 10g/kg of seed (paddy).
2. Seedling dip – 250 g in 750 ml for 20 minutes.
3. Main field application – 2.5kg/ha. In 50-62.5kg of compost. Time of application is 10-35 DAT for transplanted crop and 50 DAS for broadcast crop.
4. Spraying – 20g/litre.