

# IMPACT OF COMPOST IN BIOLOGICAL CONTROL OF PLANTS DISEASES

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# INTRODUCTION

**A major problem associated with MB fumigation and other soil sterilization procedures is that most beneficial microorganisms, such as mycorrhizae, biocontrol agents and plant growth promoting microorganisms, are also destroyed. The “biological vacuum” left after sterilization typically is filled within days after treatment by microorganisms that recolonize the soil.**



# Introduction Cont.

**Whether harmful or beneficial microorganisms predominate after soil sterilization is determined by any of several environmental factors prevailing at that time**



# Introduction Cont.

Evidence was obtained which implicated MB as a potent contributor to ozone depletion. For this reason, it is scheduled to be phased out by 2005 under the Montreal Protocol.



# Disease Suppressive Compost As Alternatives

- Woody plants requiring mycorrhizae for growth performs much better.
- *Rhizctonia solani* (pathogen) of many crops, usually is not controlled during the first few weeks.
- Compost has a long term curing effect
- Integrated approach to root disease control has become quite effective



# Emphasis On Biological Alternatives To MB

- One approach is to substitute MB with another less problematic but effective fumigant.
- A second is to inoculate sterilized soil with beneficial microorganisms after treatment.
- To replace sterilization procedures with soil organic matter management that provides control-animal manure, green manure, and compost.

# Utilizing Biocontrol Agent

- Unlike MB which can be successfully used when pathogens have reached population that cause major losses-compost typically suppress or eradicate pathogens slowly and over a long period of time.
- Application should be well before pathogen reach population reach capable of causing losses.



# Suggestions

- Inoculations of mature composts with biocontrol agents has improved the consistency as well of the spectrum of disease suppression.
- Isolates of several *Trichoderma* spp. Can provide effective control and even better if applied in combination of several bacterial biocontrol agents.





# Conclusions

- The loss of MB and our increased awareness of environmental problems caused by inadequate solid waste practices promises to provide a boost to the utilization of organic amendments in agriculture.

