DiTera - A BIOLOGICAL ALTERNATIVE FOR SUPPRESSION OF PLANT NEMATODES

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DiTera (also known as ABG-9008) is a fermentation composition discovered at Abbott Laboratories in 1987. The product is produced by the fermentation of a hyphomycete fungus, Myrothecium spp. originally isolated from a cadaver of the soybean cyst nematode, Heterodera glycines. Abbott Laboratories holds a U.S. patent on this product; patents have also been granted in several other countries. The active ingredient is a microbial composition containing fermentation solids and solubles of the fungus.

DiTera kills nematodes on contact and, depending on its concentration, inhibits hatching of plant parasitic nematode eggs. DiTera has been shown to be active against several economically important nematode genera including but not limited to root-knot (Melodiogyne) spp., cyst (Heterodera spp.), lesion (Pratylenchus spp.), the burrowing nematode (Radopholus similis), Sting nematode, (Belonolaimus longicaudatus, stubby root (Trichodorus spp.), lance (Hoplolaimus spp.), stunt (Tylenchorhynchus spp.) and the citrus nematode (Tylenchulus semipenetrans). A unique property of DiTera is that it has not shown any activity against any of the free-living or insect parasitic nematode species tested.

DiTera and its liquid formulation, DiTera ES, are now registered as a Category III biological nematicides under the US-EPA's microbial guidelines. In addition, the two formulations are also registered in the state of California and several other states. DiTera is mostly soluble in water and hence can be applied as a suspension in water or can be applied around the root zone of plants. The product can be incorporated into the soil either mechanically or with water, prior to planting, at emergence or as a post-plant treatment. This material is not expected to pose any significant risk to health or the environment. The technical material is exempt from the requirement of a tolerance on all agricultural commodities.

Field evaluations using DiTera showed that this product provided commercially acceptable levels of control of economically important nematode species on the key vegetable crops tested e.g. carrots, potatoes, cole crops etc. at a use rate of 25 - 50 Kgs/Hectare on a broadcast basis; the results were comparable to the chemical standards used. These studies were carried out in cooperation with several key University extension staff and contract research

laboratories. Significant enhancement of crop yield was associated with the reduction in nematode population.

Current efforts at Abbott Laboratories are directed at the development of commercially acceptable formulations and fine-tuning the application parameters; preliminary studies on the efficacy of this product on perennial crops including grapes and citrus are also encouraging. Recently initiated studies in key international markets have also indicated potential use for this product on bananas, grapes, and citrus.

Due to the specific nature of this product, DiTera is expected to play an integral role in pest management in combination with other non-chemical methods including soil solarization, steam sterilization, organic amendments and other cultural means of control. The conventional approach to nematode control involving near-absolute reduction in population using fumigants such as Methyl Bromide may have to be viewed differently while developing biological alternatives such as DiTera, which provide effective environmentally-compatible options while managing nematode populations below an economic threshold level. It is expected that once commercialized, DiTera can be a significant part of an integrated system in managing plant diseases caused by nematodes