DMDS – 2003 Field Trials in California

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Dimethyl Disulfide (DMDS) is a new potential alternative to Methyl Bromide. It does not have an Ozone Depletion Potential. DMDS can be applied preplant through drip or soil injection.

DMDS is a naturally occurring plant product and is also produced commercially from acid natural gas. Other industrial uses are:

- In oil refineries as a sulfiding / pre-sulfiding agent to activate the catalysts of hydrotreating units.
- In the petrochemical industry to reduce the number of decoking operations.
- In production of fine chemicals, as a chemical intermediate.
- In metallurgy for its anti-corrosion properties.

2002 Studies

Lab and small plot studies were performed on DMDS to evaluate the efficacy on various pathogenic fungi and plant parasitic nematodes. In these studies DMDS was shown to be an effective fungicide and nematicide. At a rate of 270 to 525 pounds per acre, DMDS was found to control Verticillium dahlie, Sclérotinia sclérotiorum, Sclerotium rolfsii, Rhizoctonia solani and Phytophthora cactorum.

2003 Studies

Field studies were performed to evaluate strawberry yields from preplant application of a DMDS chloropicrin mixture and phytotoxicity of trees to post plant application of DMDS.

In the strawberry trials, a 400 lb/acre rate of a 50/50 mixture of DMDS and chloropicrin applied through drip resulted in a 50% increase in yield over the untreated check, along with increased fruit size, and fewer culls. It also out performed treatments with chloropicrin EC and methyl bromide/chloropicrin (57:43).

Because of the potential for post plant nematode control in perennial tree crops, phytotoxicity from post plant application of 200, 400 and 800 lbs./acre DMDS was tested in almonds, peaches, pluots, cherries, walnuts and grapes. An application rate equivalent to 200 lbs/acre resulted in no apparent phytotoxicity to all species, except the almonds. There was a growth response in peaches and grapes at the lower rates of 200 and 400 lbs./acre and no phytotoxicity in grapes at the highest rate of 800 lbs./acre.

TRICAL will be performing additional field trials to further evaluate DMDS.