ESSENTIAL OILS AND MELOCON FOR MANAGING LESION NEMATODE ON EASTER LILIES

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Easter lily bulbs for greenhouse forcing are produced in Del Norte County, California; and Curry County, Oregon, USA. Lesion nematode, *Pratylenchus penetrans*, infestation of roots seriously affects growth of field-grown bulbs. During two consecutive years of field trials, commercially prepared formulations of essential oils, and of a nematode parasitic fungus were compared to an untreated control, and a chemical standard combination of 1,3-dichloropropene (Telone II, Dow AgroSciences, Indianapolis, IN), plus metam sodium (Vapam, Amvac, Los Angeles, CA) [FU] applied pre-plant followed by Thimet at-planting, to determine their value in improving plant health in the presence of lesion nematode. Three essential oil products from USAgriTech (Paso Robles, CA): 1) Duogard, 2) EF400 All Purpose Fungicide, 3) EF300 All Purpose Insecticide; and Cinnamite (Mycotech, Butte, MT) were tested as pre-plant dips to bulblet planting stock. MeloCon (the fungus *Paecilomyces lilacinus*, Certis, Columbia, MD) was tested at two rates as a soil treatment applied at-planting. The essential oils and MeloCon were tested either alone, in combination with Thimet at-planting, at planting following FU, or in combination with Thimet at planting following FU. The organophosphates Ethoprop (Mocap, Amvac, Los Angeles, CA), and Fosthiazate (Nemathorin, Syngenta International AG, Basel, Switzerland) were also tested either alone, at a reduced rate combined with a reduced rate of Thimet, or in combination with Thimet and FU. Each trial consisted of the same 28 treatments. Logistics did not permit testing all products in all combinations. Trials were statistically evaluated at P=0.05. In both trials, 13 treatments consistently had a greater bulb circumference at harvest than the control, and six treatments had a greater foliage weight at harvest than the control. In consecutive years, four treatments had healthier appearing roots than the control, and two treatments produced larger stem bulblets than the control. Nine treatments consistently had lower levels of lesion nematode within roots at harvest than the control. The new products tested show promise for use in integrated pest management (IPM) programs for management of lesion nematode on field grown Easter lily bulbs.