SUPPRESSIVE SOILS FOR NEMATODE CONTROL IN TOMATO PRODUCTION, 1996.

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A field site previously used for tomato and peanut production was noted to have a large number of second-stage juveniles of the peanut root-knot nematode, *Meloidogyne arenaria* race1, encumbered with endospores of *Pasteuria penetrans*. *P. penetrans*, which is a bacterial spore forming parasite specific to nematodes, is believed to have great potential as a biological nematicide of important plant-parasitic nematodes. However, the organism cannot be cultured on defined media, thus mass production and inoculation of nematode infested soil is not possible. It may be possible, however, to amplify the bacterium on its natural host to suppressive levels. The objectives were to test this hypothesis by planting crops susceptible and tolerant to *M. arenaria*, and to determine the suppressiveness of the soil at this site to *M. arenaria*. The main plots included seven crops, peanut cv. Florunner, egg plant cv. classic, soybean cvs. Pioneer 9761 and Pioneer 9711, field corn cv. Pioneer 304C, sweet corn cv. Silver Queen, and okra cv. Clemson Spinless. Subplots included the application of 1,3-D at 187 liters/ha and cloropicrin at 376 kg/ha. With the exception of a few plots, root-knot nematode galling on the various crops was minimum. Between 33% and 100% of root-knot nematode females extracted from plant roots were infected by *P. penetrans*. The field site has a high degree of suppressiveness to *M. arenaria*, which is believed to be caused primarily by *P. penetrans*.