

galling and increased bean yield. At HRS, bean yield from microplots treated with Pl, Pp and cattle manure was increased by 40% compared to either 14%, 13% or 8% resulting from single applications of biocontrol agents.

SOIL TEXTURE AND THE EFFICACY OF *STEINERNEMA RIOBRAVE* AGAINST *DIAPREPES ABBREVIATUS*. L. W. DUNCAN, J. G. Genta, and J. Zellers. University of Florida, IFAS, CREC, 700 Experiment Station Road, Lake Alfred, FL 33850, U.S.A.

Experiments were conducted to determine the influence of soil texture on the efficacy of the nematode *Steinernema riobrave* against larvae of *Diaprepes abbreviatus*. In all experiments, weevil larvae buried in cages (30 cm depth) were exposed to infective juveniles (IJ) of *S. riobrave* by treating soil at field capacity with 20 IJ per square cm surface area. During 7 days in both field and microcosm (120 liter soil volume) experiments, *S. riobrave* killed between 70-80% of the insects buried in sandy soil, but only 4-17% of larvae buried in sandy clay loam soil. Mortality of untreated controls did not exceed 13%. Larvae permitted to move freely in 120 liter microcosms were killed at a rate similar to that of larvae held in cages. Efficacy of *S. riobrave* in microcosms of six autoclaved soils from citrus orchards in different regions of Florida was not correlated with the proportions of sand, silt or clay in the soils, but was directly related to the percentage of coarse sand in the soils.

CROP PRODUCTION SYSTEMS FOR NONCHEMICAL CONTROL OF *ROTYLENCHULUS RENIFORMIS*. R. E. Edgar (1), C. F. WEAVER (2), R. Rodriguez-Kabana (2), C. R. Taylor (3), and D. G. Robertson (2). (1) Edgar Farm, Deatsville, Alabama 36022; (2) Department of Entomology and Plant Pathology, Auburn University, AL 36849; (3) Department of Agricultural Economics, Auburn University, AL 36849.

A three-year field study was initiated in central Alabama to assess the efficacy of seven different cropping sequences for control of *Rotylenchulus reniformis* in cotton. Identical cropping schemes were used the first two years. This included both conventional and Bt cotton in monoculture, corn, grain sorghum and velvetbean used alone and corn and grain sorghum in combination with velvetbean. In the third year all plots were planted with Bt cotton except the one scheme utilizing traditional cotton. All rotation crops showed moderate reductions in nematode populations the first year and drastic reductions after two years. Nematode populations rebounded quickly following all cropping sequences when cotton was planted in the third year. Little difference was noted in traditional versus Bt cotton in either nematode populations or yield response. Highest cotton yields were obtained following two years of corn alone or corn plus velvetbean.

SITE-SPECIFIC MANAGEMENT OF NEMATODES: PITFALLS AND PRACTICALITIES. K. EVANS (1), R. M. Webster (2), P. D. Halford (1), A. D. Barker (1), and M. D. Russell (1). (1) Plant-pathogen Interactions Division, IACR-Rothamsted, Harpenden, Herts, AL5 2JQ, UK; (2) Agriculture and the Environment Division, IACR-Rothamsted, Harpenden, Herts, AL5 2JQ, UK.

The greatest constraint to potato production in the UK is damage by potato cyst nematodes (PCN) *Globodera pallida* and *G. rostochiensis*. Management of PCN depends heavily on nematicides, which are costly. Of all the inputs in UK agriculture, nematicides offer the largest potential cost savings with spatially variable application, and these savings would be accompanied by environmental benefits. We mapped PCN infestations in potato fields and monitored the changes in PCN population density and distribution that occurred when susceptible potato crops were grown. The inverse relationship between pre-planting population density and multiplication rate of PCN makes it difficult to devise safe spatial application procedures, especially when the pre-planting population density is just below the detection threshold. Also, the spatial dependence found suggests that the coarse sampling grids used commercially may produce misleading distribution maps.

EFFECT OF RESISTANT SOYBEAN LINES WITH PUSCN14 ON POPULATIONS OF SOYBEAN CYST NEMATODE. J. FAGHIHI (1), R. A. Vierling (2), V. R. Ferris (1), and J. M. Ferris (1). (1) Dept. of Entomology, Purdue University, West Lafayette, IN 47907-1158; (2) Indiana Crop Improvement Association and Dept. of Agronomy, Purdue University, West Lafayette, IN 47907-1150.

The high yield potential of SCN resistant PUSCN14 germ plasm (CystX) initially was reported in 1998 and reaffirmed in 1999 and 2000 in both SCN infested and non-infested fields. In an infested field (1999), an indeterminate CystX line yielded 4007 Kg/h while susceptible cultivars Williams 82 and Resnik yielded 2034 and 1896 Kg/h respectively. In 1998, the SCN soil population in this field was 28000 eggs/250cc soil, whereas it was 3600 eggs/250cc in fall 2000. In a long-term rotation study in field micro plots, a 99% reduction in SCN population was observed in the first year of rotation in plots with CystX lines in 1999, and a 91% reduction in another set of plots with CystX lines in 2000. When compared with other non-host crops under study, the largest reduction in SCN populations occurred under CystX lines. Greenhouse studies also showed that under CystX lines, populations of SCN decreased faster and further than they did under alfalfa, corn, wheat, clover, SCN resistant cultivars Jack and Hartwig, or fallow.

DOES THE *STEINERNEMA FELTIAE/XENORHABDUS BOVIENII* COMPLEX CONTROL *MELOIDOGYNE JAVANICA*? D. J. FALLON (1), H. K. Kaya (2), and B. S. Sipes (1). (1) PEPS, Univ. of Hawaii, Honolulu, HI 96822; (2) Dept. of Nematology, Univ. of California, Davis, CA 95616.

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