**Evaluation of Possible Alternatives to Methyl Bromide for Management of Nematodes in Louisiana: Field and Microplot Trials with Cotton, Soybean, Rice and Assorted Vegetables. E.C. MC GAWLEY, C. Overstreet, and M.J. Pontif.**

Respectively, Research and Extension Nematologists and M.S. Candidate, LSU Agricultural Center, Baton Rouge, LA 70803.

In 2000, field trials were conducted to evaluate Telone (45.3 and 90.6 kg a.i./ha) and two experimental compounds, Agri 50 and 60 (10 GPA diluted 1:100), on soybeans and cotton. On both crops, application of Telone and Agri 50 reduced the numbers of reniform nematodes at midseason and at harvest. Telone produced increases (14 and 21%) in soybean yield and Agri 50 and 60 produced numerical (12% and 14%, respectively), but non-significant yield responses. Weights of seed cotton were increased by Telone and Agri 50. Seed cotton from untreated plots averaged 2.5 kg per 80'row. Yields from Telone and Agri 50-treated plots averaged 6.1 and 5.0 kg,. Microplot trials included tomato, cotton, and rice. Inoculated tomato plants had gall indices which averaged 4.3 and Agri 50 treated plants averaged 0.5. On cotton, both Agri 50 and 60 reduced numbers of reniform nematodes. Ring and stunt nematodes were employed in the study with rice. Compared to the control, Agri 50 reduced the total nematode community at harvest from 381,590 individuals per microplot to an average of 42,020 individuals.

In 2001, field trials with cotton (Deltapine NuCotton 33B) and soybeans (Pioneer 96B21) were established to evaluate efficacy of 5 treatments (1-untreated control, 2-Agri 50 [at plant-10 GPA], 3-Agrizide [ Agri 50 combined with 250mg/ml sodium azide – preplant-3ml/linear foot of row], 4-Telone II [preplant-8GPA] and, 5-Methyl Bromide [preplant- 8 GPA]) for management of the reniform nematode, Rotylenchulus reniformis. Mid-season nematode population counts per 300 g soil for treatments 1-5 averaged 1457, 741, 1358, 812, and 727 individuals, respectively on cotton and 1087, 97, 398, 62 and 693, respectively on soybean.

Microplot trials for 2001 included cotton, soybean, sugarcane and rice. In order to assure natural infestation with a wide variety of plant pests, soil lots for these trials were collected from fields monocultured to each respective crop for at least 5 years. Soil lots representing each crop were apportioned into microplots and 8 treatments (Agri 50, Methyl Bromide, Agrizide (at 50 and 100 mg/kg soil-covered or left uncovered for 10 days prior to planting) and 2 controls (nontreated and steam pasteurized soil) were established. Weed spectrum and density in microplots were determined at 3 week intervals after planting. Across all 4 crops, Agrizide treatment, especially at the 100mg/kg rate "covered", significantly reduced weed populations. On rice in particular, noticeably increased growth was associated with Agrizide treatment.