

Management of Southern Root-Knot Nematodes in Lima Beans – 2011

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Objectives: (1) To evaluate the effectiveness of Avicta as a seed treatment for the control of southern root-knot nematode (*Meloidogyne incognita*) in processing baby lima beans.
(2) To determine if the Avicta rate used on soybeans will provide effective control of southern root-knot nematodes in a lima bean system.

Procedures: 'C-elite' lima beans were planted on June 15 in a section of a commercial lima bean field (sandy-loam soil) with a history of high root-knot nematodes near Houston, DE . At planting each plot averaged approximately 85 J2 larvae of root-knot/ 250 cc soil. Randomized paired strip plots, four rows wide by 1000 foot long were planted on 30-inch centers and replicated seven times. The lima bean seed was treated with Avicta by Alan Taylor's seed treatment laboratory at Cornell University. Root ratings were taken at monthly intervals from early July through mid-September by examining the roots for damage in 3 ft of row sections (8-12 plants) in 3 random locations per strip for a total of 24-36 plants rated per treatment. The root damage rating system used on July 7 was a modified system: 0 = no galls; 1= <5% of roots with galls; 2 = 5-10% of roots with galls; 3 = 11-20% of roots with galls; 4 = 21-30% of roots with galls and 5 = > 30% of roots with galls. On Aug 4 and Sept 12, the Bridge and Page root knot rating chart was used: 0 = no knots on roots; 1 = few small knots, difficult to find; 2= small knots only, but clearly visible and main roots clean; 3= some larger knots visible, main roots clean; 4 = larger knots predominate but main roots clean; 5 = 50% root infested, knotting on parts of the main roots; 6= knotting on main roots; 7= majority of main roots knotted; 8 = all main roots knotted, few clean roots; 9= all roots severely knotted, plant starting to die; 10= all roots severely knotted, no root system, plant usually dead.

Results:

Due to the severe nematode damage to the roots, very few plants in the treated or untreated plots had pods with harvestable seed so no yield data was collected. Data was analyzed using an unpaired t-test (P=0.05).

Treatment	Rate	Average Root Damage Rating		
		July 7	Aug 4	Sept 12
Avicta ST	0.15 mg ai per seed	0.91	5.54	8.61
Untreated	----	1.13	6.68	8.92
P-value		0.49	0.24	0.22
Significance		NS	NS	NS

Comments: In reviewing past data, trials on other crops have demonstrated that an Avicta seed treatment can provide early season suppression of root knot nematode. Seed treatments for root knot nematode management would only be considered as part of a solution for nematode management and would not provide season long control. At the rate evaluated, the Avicta seed treatment did not provide control of the root knot population levels present in this field. Additional work is needed to determine if increased rates of seed-applied Avicta can control root-knot nematode on baby lima bean.