

Root Knot Nematode Management Demonstration in Pickling Cucumbers, 2011

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Objective: To evaluate the effectiveness of Avicta as a seed treatment for the control of southern root-knot nematode (*Meloidogyne incognita*) in processing cucumbers

Procedures: Demonstrations were established on two farms with a history of economically damaging levels of southern root knot nematode (*Meloidogyne incognita*) to evaluate the effectiveness of an Avicta 400 FS seed treatment for root knot nematode management. Seed was commercially treated with Avicta by the Syngenta Seed Care Group in Minnesota with Avicta 400 FS at a rate of 0.6 mg ai/seed, plus the following fungicides Apron XL(7.5 g ai/100 kg seed), Maxim 4FS (2.5 g ai/100 kg seed) and Dynasty 100FS (2.5 g ai/100 kg seed). At the Hurlock, MD location, large treated (2.5 acre) and untreated (2.5 acre) non-replicated blocks were planted. At the Lincoln, DE location, a four acre treated block and a one acre non treated block were planted. Roots were rated twice for galling from root knot nematodes, approximately 3 weeks after planting and within a week of harvest. At Location # 1 , ten 3 ft sections of row were randomly selected in the treated and untreated blocks (approximately a total of 90 plants observed in each treatment), At Location #2, each large treatment block was sampled by randomly sampling four 3 ft. sections of row (approximately 36 plants were observed in each treatment). No yield data was obtained.

Results:

(I) Location # 1 - near Lincoln, DE

Planting Date: May 20, 2011

Variety: 'Expedition'

Treatment	Stand Counts Plants per 3 ft. of row		Plant Height (inches)*		Nematode Damage Rating	
	June 1	June 6	June 15	June 28	June 15**	June 28***
Avicta ST	9.32	9.39	3.15	21.76	3.92	4.35
Untreated	8.50	9.23	2.99	16.10	4.05	4.86

*Plant height was measured from the cotyledonary node to the node of the last fully expanded leaf.

** Modified root damage rating system: 1-5: 1=0 galls present, 2=few galls present, 3= 10% of roots with galls, 4= 25% of the roots with galls, 5= >50% or more of the roots with galls.

*** 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

(II) Location # 2 - near Hurlock, MD

Planting Date: May 26, 2011

Variety: 'Expedition'

Treatment	Stand Count per 3 ft of row	June 17	
	June 6	Plant Height* (inches)	Nematode Damage Rating**
Avicta ST	10.2	4.45	3.68
Main Field (Vydate – foliar treatment 2 weeks after planting)	9.5	4.06	4.34
Untreated	9.7	4.06	1.40

Treatment	July 1	
	Plant Height* (inches)	Nematode Damage Rating***
Avicta ST	29.22	3.09
Avicta ST plus Vydate – foliar treatment late	29.86	3.00

*Plant height was measured from the cotyledonary node to the node of the last fully expanded leaf.

** Modified root damage rating system: 1-5: 1=0 galls present, 2=few galls present, 3= 10% of roots with galls, 4= 25% of the roots with galls, 5= >50% or more of the roots with galls.

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Comments: Overall, there was no observable difference between the Avicta treatment and the untreated control. 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. Since the crop is mature in approximately 6 weeks or less depending on temperatures, root knot damage was not severe on these cucumbers at the first sampling but at the second sampling there were large galls and many of the roots were galled. There was enough galling to see visible reductions in plant growth at both sampling dates. Additional studies with Avicta as a seed treatment for root knot nematode management are needed in the Mid-Atlantic.