

ANALYZING BENEFITS OF NEMATODE RESISTANT COTTON VARIETIES

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Introduction

Root-knot nematodes (*Meloidogyne incognita*) are detrimental to cotton production in Effingham and Screven Counties. This study was conducted to assess ten root-knot nematode resistant varieties against a widely planted susceptible variety in a field infested with root-knot nematodes.

Nematode Assay Results:

Root-knot populations were moderate in this field and soil counts varied. Varieties DP2141 and PHY443 had the lowest average nematode count. Use of resistant varieties helps to reduce populations as seen in the susceptible variety without a nematicide.

Trial Photos



Pictures of the trial were taken with a drone, which also was used throughout the trial to view signs of nematode pressure across the field.

Design

Eleven varieties were planted in this cotton trial: 10 nematode resistant varieties and 1 susceptible variety that was planted once with a nematicide (Aglogic at 5lbs/acre) and once without. The 12 treatment groups were planted and replicated four times across the field. The trial was planted on May 17th, 2021; plots were 4-rows wide by the length of the field.



Example of galling from root-knot nematodes on susceptible variety

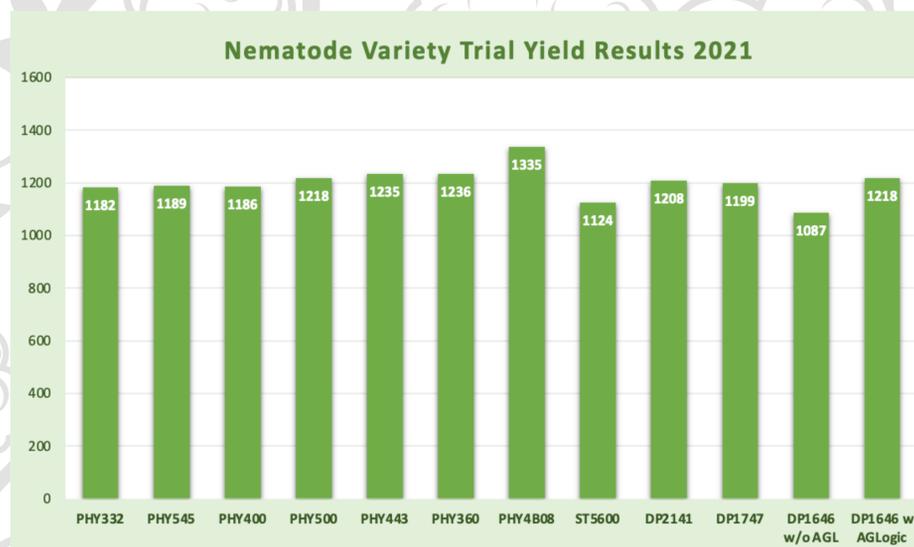
2021 Year End Root Knot Nematode/100 cc				
Variety	Rep 1	Rep 2	Rep 3	Avg
PHY332	32	0	109	47
PHY545	0	268	53	107
PHY400	62	122	187	123.67
PHY500	16	0	100	38.67
PHY443	33	18	8	19.67
PHY360	123	89	6	72.67
PHY4B08	20	8	34	20.67
ST5600	144	50	64	86.00
DP2141	0	0	56	18.67
DP1747	69	145	244	152.67
DP1646 w/o AGL	403	181	494	359.33
DP1646 w AGLogic	215	222	357	264.67

Results/Impact

The highest yielding variety was PHY4B08, which out yielded the susceptible variety without a nematicide by 248lbs/acre. Resistant varieties averaged a gross return to farm of \$1,029.52/acre while non-resistant variety treatments returned an average of \$979.63/acre. From seeing the advantage of planting RN resistant varieties in the trial field in 2021, the producer planted 453 acres of nematode resistant cotton in 2021 which according to the research will return an increased revenue of \$22,600.17 in his operation alone. This data has been shared with the producer, at county production meetings, and with agents across the State of Georgia. Utilizing this data 3,000 acres of RK infested cotton would have an impact of increased farm income of \$149,670 in similar operating conditions.

Field Details

The field chosen for this trial had susceptible cotton varieties planted without a nematicide the previous three years. Before that, it had been peanuts. There also is a cover crop blend planted every year following harvest.



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