

Evaluation of nematicides for control of Southern Root Knot Nematode in sweetpotato, 2018.

This experiment was conducted on a commercial sweetpotato farm near Four Oaks, NC. The trial site is known to be infested with *Meloidogyne incognita*. Covington sweetpotatoes, used in this trial, are moderately resistance to *M. incognita*. Sweetpotatoes were transplanted on 23 Jun and spaced at 1 plant per foot in-row. The plots were 3 rows wide on 40-inch centers and 30-feet long. Treatments were randomized in a random complete block design with three replications per treatment. Telone II was applied on 6 Jun with a chisel plow at 6 gal/A. KPAM HL was applied on 6 Jun with 3 spray blades at 31 and 62 gal/A. Pre-plant sprays of Nimitz, at 5 pt/A, and Mocap, at 6.9 fl oz/1000 row ft, were applied with a CO₂-powered backpack sprayer at 40 gal/A on 14 Jun and incorporated into the soil with a rototiller. At planting, sprays of Nimitz at 3.5 and 5 pts/A, were applied with a CO₂-powered backpack sprayer at 40 gal/A and incorporated with a rototiller on 23 Jun prior to transplanting. Velum Prime in-furrow sprays at planting were applied with a CO₂-powered backpack sprayer at 6.5 fl oz/A in 100 gal/A of water immediately prior to transplanting. Soil samples were collected three times during the season, prior to application of treatments, mid-season, and harvest. A soil probe was used to collect multiple 8-10 in. deep samples that were mixed together and submitted to the NCDA&CS Agronomic Division for counting. The middle row of the 3 row sweetpotato plots were harvested on 5 Oct. After harvest, roots were sorted by size, weighed, washed, counted, and rated for nematode damage. Only U.S. No. 1 (3-9 in.) sized sweetpotatoes were rated for nematode damage. Gall ratings were used to determine whether sweetpotatoes were marketable or unmarketable. Data were analyzed in the software SAS (SAS Institute, Cary, NC) using Proc GLIMMIX and LSmeans (pdiff.) to separate means.

Nematode pressure was moderately low in the trial (<50%). No treatment provided significantly less galling when compared to the nontreated control. No treatment provided significant differences in yield when compared to nontreated control. There were no statistical differences in the root knot nematode counts taken before planting. KPAM HL + Velum Prime, KPAM HL at 31 gal/A, Telone II, and KPAM HL at 62 gal/A, Nimitz at 5 pt/a, Nimitz at 3.5 pt/A, and Mocap had significantly lower nematode counts midseason than the nontreated control. KPAM HL + Velum Prime, KPAM HL at 31 gal/A, Telone II, and KPAM HL at 62 gal/A all had significantly lower nematode counts than the nontreated control at harvest. No phytotoxicity was observed in any of the treatments at harvest. In the table, treatments are sorted by U.S. No. 1 % Damage.

Treatment and Rate	U.S. No. 1 % Damaged ^z	Total U.S. No. 1 ^y lb	Total Canner ^x lb	Total Jumbo ^w lb	Nematode Count Preplant 22 Jun	Nematode Count Midseason 27 Jul	Nematode Count Harvest 4 Oct
KPAM HL - 31 gal/A							
Velum Prime - 6.5 fl oz/A	3.1 c ^v	32.5 a	9.9 ab	4.3 a	7 a	0 b	53 b
KPAM HL - 31 gal/A	3.7 c	17.5 a	6.1 ab	0.7 a	0 a	0 b	363 b
Telone II - 6 gal/a	5.0 c	20.8 a	12.1 a	2.3 a	0 a	0 b	83 b
KPAM HL - 62 gal/A	5.3 c	31.1 a	8.0 ab	4.3 a	0 a	0 b	67 b
Mocap - 6.9 fl oz/1000 row ft							
Velum Prime - 6.5 fl oz/A	8.1 c	11.5 a	8.5 ab	2.4 a	3 a	3 ab	1383 ab
Nimitz - 5 pt/a	11.7 bc	22.1 a	7.5 ab	1.1 a	0 a	0 b	1430 ab
Nontreated	18.4 bc	29.0 a	6.1 ab	3.3 a	3 a	13 a	2323 a
Nimitz - 3.5 pt/a	20.1 bc	19.2 a	8.5 ab	2.5 a	0 a	0 b	2157 a
Mocap - 6.9 fl oz/1000 row ft	30.1 ab	23.6 a	3.10b	3.8 a	0 a	0 b	1559 ab
Nimitz (Preplant) - 5 pt/a	46.1 a	23.7 a	9.7 ab	4.5 a	3 a	7 ab	2197 a

^z The percent damaged was calculated for each treatment based on percentage of roots with galling

^y U.S. No. 1 are between 2 and 3.5 in. diameter

^x Canners are less than 2 in. diameter

^w Jumbos are greater than 3.5 in. diameter

^v Treatments followed by the same letter(s) within a column are not statistically different (LSmeans (Pdiff) p=.05)