

SWEETPOTATO (*Ipomoea batatas* ‘Covington’, ‘Jewel’, ‘Murasaki’)  
 Southern root-knot nematode; *Meloidogyne incognita*  
 Guava root-knot nematode; *Meloidogyne enterolobii*

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### Evaluation of nematicides for control of Southern and guava root-knot nematode in sweetpotato, 2019.

This experiment was conducted on a commercial sweetpotato farm near Meadow, NC. The trial site is known to be infested with both *Meloidogyne incognita* and *Meloidogyne enterolobii* nematodes. ‘Covington’ sweetpotatoes are moderately resistant to *M. incognita*, but show no resistance to *M. enterolobii*. Sweetpotatoes were transplanted on 10 Jul and spaced at 1 plant per foot in-row. The plots were three rows wide on 46 in. centers, 30-feet long. Treatments were arranged in a randomized complete block design with 5 replicates. Two varieties thought to be resistant, ‘Jewel’ and ‘Murasaki’, were also planted as treatments. Telone II was applied on 25 Jun with a fumigant shank at both 6 gal/A and 9 gal/A. K-PAM HL was applied on 25 Jun with one fumigant shank at 62 gal/A. K-PAM HL was also applied with two fumigant shanks at 31 gal/A and 62 gal/A. Mocap EC was applied on 25 Jun by tilling the bed, spraying the treatment, and then reforming the bed to incorporate the treatment. Mocap was applied at 6.9 fl oz/1000 row-ft in 40 gal/A water. Velum Prime in-furrow sprays at planting were applied with a CO<sub>2</sub>-powered backpack sprayer at 6.5 fl oz/A in 100 gal/A of water immediately prior to transplanting. 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 of *Meloidogyne* spp. The middle row of the 3-row sweetpotato plots was harvested on 24 Oct. After harvest, roots were sorted by size, weighed, washed, and counted. Only U.S. No. 1 sized sweetpotatoes were rated for incidence of nematode damage. Gall ratings were used to determine whether sweetpotatoes were marketable. Sweetpotatoes showing any galling were deemed unmarketable. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher’s Protected LSD test ( $P=0.05$ ) to separate means.

Nematode pressure in all treatments ranged from low to moderate (2.3-38.6%). No treatment performed statistically different from the nontreated ‘Covington’ check in regards to nematode damage. Telone II + Velum Prime, ‘Murasaki’, K-PAM applied with two shanks, and Telone II all had significantly lower nematode damage than the Mocap EC and Velum Prime treatments. Yield/A in ‘Murasaki’ was significantly lower than all other treatments except ‘Jewel’. Yield/A in the nontreated check ‘Covington’ was not significantly different than any treatment except ‘Murasaki’. There were no significant differences in nematode counts on 25 Jun or 25 Jul. On 24 Oct, K-PAM applied with two shanks and Telone II + Velum Prime had the lowest nematode counts, and ‘Jewel’ had the highest. While significantly different from each other, ‘Jewel’ and ‘Murasaki’ were not significantly different from the nontreated check ‘Covington’.

| Treatment and Rate               | Nematode Damage <sup>z</sup> (%) | Total Yield <sup>y</sup> (lb/A) | <i>Meloidogyne</i> spp. Count <sup>x</sup> 25 Jun | <i>Meloidogyne</i> spp. Count 25 Jul | <i>Meloidogyne</i> spp. Count 24 Oct |
|----------------------------------|----------------------------------|---------------------------------|---|--------------------------------------|--------------------------------------|
| Mocap EC - 6.9 fl oz/1000 row ft | 38.6 a <sup>w</sup>              | 31095.7 a                       | 37 a  | 64 a                                 | 2124 ab                              |
| Velum Prime - 6.5 fl oz/A        | 24.1 ab                          | 28137.1 ab                      | 50 a  | 38 a                                 | 1524 abc                             |
| Nontreated                       | 20.3 abc                         | 29860.0 ab                      | 10 a  | 44 a                                 | 1581 abc                             |
| Telone II - 9 gal/A              | 10.7 c                           | 33769.2 a                       | 58 a  | 220 a                                | 1125 bc                              |
| K-Pam (2 shank) - 31 gal/A       | 8.7 bc                           | 26390.4 ab                      | 38 a  | 0 a                                  | 1824 abc                             |
| K-Pam (1 shank) - 62 gal/A       | 8.2 bc                           | 31523.5 a                       | 40 a  | 10 a                                 | 1282 bc                              |
| ‘Jewel’                          | 7.2 bc                           | 19985.9 bc                      | 48 a  | 18 a                                 | 2738 a                               |
| K-Pam (2 shank) - 62 gal/A       | 3.1 c                            | 26152.7 ab                      | 26 a  | 0 a                                  | 820 c                                |
| ‘Murasaki’                       | 2.6 c                            | 13118.0 c                       | 16 a  | 32 a                                 | 2214 ab                              |
| Telone II - 6 gal/A              |                                  |                                 |   |                                      |                                      |
| Velum Prime - 6.5 fl oz/A        | 2.3 c                            | 32830.5 a                       | 62 a  | 20 a                                 | 562 c                                |

<sup>z</sup> Percent damaged was calculated for each treatment based on percentage of roots with galling

<sup>y</sup> Yield per Acre is based total weight of sweetpotatoes from 30 ft plots and 46 inch rows

<sup>x</sup> *Meloidogyne* spp. Count per 500 cc of soil

<sup>w</sup> Treatments followed by the same letter(s) within a column are not statistically different (LSmeans (Pdiff)  $p=0.05$ )