MOVENTO NEMATICIDE ON WALNUTS

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ABSTRACT

This research project with Movento as a nematicide is being halted after two years. Our studies with Movento on walnut have already been re-initiated at the Rio Oso field trial, a site where we have huge amounts of plant growth and nematode data as well as the beginning of a nematode problem. Just as important that site provides an internal standard due to nematode resistance in half the rootstocks across the orchard. In the last two years we have achieved: 1) six months of 50% *Pratylenchus vulnus* control on NCB rootstock following a single treatment with 7 ounces Movento per acre. 2) in a second site on Paradox rootstock we applied 7 ounces late May, late July and late October for two consecutive years and during that time achieved once again 50% reduction in nematode population levels over the full two year length of the trial. 3) at a third site on Paradox near Riverbank we collected minimal soil samples and achieved 50% nematode control in only two replicates of the five we sampled. At this third site we only made sprays in spring and fall, again at 7 ounces per acre. This third site was large and for the purpose of obtaining yield data. Joe Grant gathered the yield data and there was no real change in yield attributable to the Movento. Meanwhile, in grape studies we conducted four years at 4 and 6.25 ounces per acre twice per year we have begun to notice apparent loss of yield in the fourth year although there was no loss in our ability to control nematodes. These are the same sites that were providing yield advantages in the first two years of our study. Even more indicative of a problem with improving yield is that it is the higher treatment rates where yield loss is most apparent. I have decided to stop everything and go to a new orchard with a single treatment per year probably in late May or at a time when no irrigations are needed for the next nine days after the spray. We are already looking for a second post plant nematicide that can be used to compliment the useful performance of Movento but it must be of completely different chemistry.

OBJECTIVE

Evaluate nematicidal activity in various field trials sprayed with Movento and Penetrator or DYNA-MIC adjuvants with applications made in early May, mid summer and or early November. Nematicidal value determined monthly on Paradox or NCB rootstocks.

PROCEDURES

Site 1. A 25-year-old orchard on NCB sprayed Nov 17, 2008 and sampled for nematodes monthly through winter months. Seven ounces Movento + DYNA-MIC adjuvant in 300 gpa water

Site 2. A mixed planting of various scions on Paradox and NCB aged 7 to 11 years of age (McGranahan Block at Kearney) sprayed in early May, July and early November with 7 ounces Movento each time using Penetrator in spring and summer with DYNA-MIC in November and monitored for nematodes monthly.
Site 3. A planting near Riverbank broken into large blocks either treated or not with a spring and fall application of 7 oz with yield data to be collected in 2010 only. Treatments will be replicated at least 4 times but our limitation will likely be the availability of adequate walnut selections. All nematode counts will be log-transformed and subjected to ANOVA.

RESULTS

Nematode counts from treated and untreated trees with samples collected at monthly intervals during 2009 and 2010. Three applications were made each year at 7oz/acre rate in late May, July and October. In general nematode control was maintained at 50% control over a two-year period.

\[ P. vulnus / 250 \text{ cc Paradox walnut rhizosphere soil,} \]
\[ \text{flood irrigated but not till}14 \text{ days after treatment, 2009} \]

\[ P. vulnus / 250 \text{ cc Paradox rhizosphere soil, 2010} \]
Nematode control for each replicate of a mature orchard near Riverbank, CA is displayed below. Samples were collected in May 2010 at one time following spring and fall applications at 7 oz/acre made in 2009. Nematode data from the different reps was highly variable as control appeared to be achieved in some reps but not others. Reasons for the variability are not known. In addition, yield differences were not apparent at two years after treatment.

Population levels of *P. vulnus* near Riverbank on May 13, 2010

Yields in lb of nuts per acre during 2010
Based on: 1) less than impressive nematode control, 2) less than impressive walnut yields in the second year and 3) data from a series of three and four year old vineyard trials indicating two applications of Movento per year can be too much product to apply over a lengthy period; we have decided to switch to a single 7 oz treatment made once each year. These studies have already begun near Rio Oso in an orchard already well studied relative to nematodes and just beginning to become problematic relative to yields.