July 2010

PERFORMANCE OF SPIROTETRAMAT FOLIAR ON *PRATYLENCHUS VULNUS* INFECTED *JUGLANS* SPP. **McKenry, Michael, T. Buzo and S. Kaku.** Nematology Department, UC Riverside, Riverside CA 92521.

Two hundred and sixteen 25 year-old, 13-m tall Chico walnut trees on *Juglans hindsii* rootstock were set aside for experimentation with 455-ml/ha Movento™ in 1200-L/ha water plus 237-ml/ha Penetrator adjuvant on November 17, 2008. One hundred forty-four trees were sprayed with Movento. Six days later the trunks of seventy-two sprayed trees were severed by chain saw at 45-cm above ground level. An additional 72 trees remained unsprayed within a completely randomized design. At monthly intervals roots from each of 12 replicates were dug and soil adhering to these roots collected, sieved and extracted for three days in mist. Rhizosphere soil collected at 30-days post treatment from severed and non severed trees provided nematode population levels remarkably similar and significantly ($P = 0.05$) reduced from that of the unsprayed trees. Over the next five-months of rhizosphere sampling it was only the non-severed trees that provided significantly fewer nematodes compared to the unsprayed. These nematode reductions were significant for each of six-months of sampling and the cumulative reduction was 51% compared to nematode counts from unsprayed trees. Roots from trees with severed trunks did not provide significant population reductions after the 30-day soil sampling. During the next five-months the level of nematode control was half that achieved from non-severed trees. The 6-mo mean nematode reduction from severed trees was 24% compared to that achieved from unsprayed trees. Apparently, portions of the enol form of spirotetramat can travel within 6-days from 13-m tall trees to nematodes located in soil 1-m beyond the tree trunk. However, severance of tree trunks six-days after a foliar spray of Movento did not provide adequate time for achieving full lethal impact to *P. vulnus*. It is hypothesized that nematodes that ingested the enol temporarily lost their ability to pass through a double layer of facial tissue when mist extracted at 30-days post treatment but this impact was fleeting or lethal to a lesser portion of the nematode population. Our conclusion is that disruptions to the delivery or maintenance of the active enol metabolite at the site of the nematode can seriously detract from its nematicidal performance. At 120-days after treatment rhizosphere samples were also collected 3-m away from sprayed and unsprayed tree trunks and the 19% population reduction due to spraying was not significant. Previous reports indicate irrigations or rainfall too soon after a Movento spray can reduce nematicidal activity. In conducting these evaluations no irrigations or rains occurred during the two-week period after trees were sprayed. This is the first report of at least six-months of 50% nematode control following a foliar spray of Movento. For growers of perennial crops this level of nematode control is at least equivalent to that achieved at drip sites following drip irrigation delivery of Nemacur at 13-L/ha.