

PROJECT NO.: 3491 (Termination Report)

TITLE: Nematode Investigations on Apples

YR INITIATED: 1990 **CURRENT YR:** 1994 **TERMINATION YR:** 1994

PERSONNEL:

Project Leader: G. S. Santo, Nematologist, WSU-Prosser

REPORTING PERIOD: MAY 1, 1990 - APRIL 30, 1994:

Nemacur plot A trial was established in cooperation with Mr. David Allan, Grandview, WA. in spring 1991 to evaluate lower rates of Nemacur for control of *Pratylenchus penetrans* on 4-year-old Granny Smith apples on M7a rootstocks. Treatments included Nemacur at 10 and 18 lb a.i./A, and a split application of Nemacur at 5 lb a.i./A 3 weeks apart. Nemacur was sprayed in a 3.25 ft band on both sides of the row (50% of the row spacing), and followed within 24 hrs with approximately 1-inch of sprinkler applied water. Untreated plots served as controls. Each plot consisted of 5 trees, and treatments were arranged in randomized complete blocks with five replicates. Nematode soil samples were taken before treatment, 6-8 weeks after treatment, and after harvest. Trunk diameter measurements were taken at the beginning of the test and end of each growing season.

No differences in soil or root populations of *P. penetrans* were observed among the treatments. Trunk circumference measurements showed that growth increases from May 1991 to October 1993 were greatest ($P < 0.05$) in the Nemacur 18 lb treatment compared to the untreated. Although, the Nemacur 10 lb and split treatment had greater trunk circumference increases than the untreated, differences were not significant. No differences were observed between the Nemacur treatments. However, despite these growth increases no differences were observed in yields among the treatments. This was contrary to results observed in 1992 where the 18 lb Nemacur treatment yielded 24% more than the untreated.

Marigold/Nematicide plot In April 1993 a plot was established at Mr. David Allan's, Grandview, WA. to evaluate the experimental nematicide fosthiazate manufactured by ISK-Biotech and marigold in managing *P. penetrans* on 1-year-old Granny Smith apples on M7a rootstocks. Nemacur 18 lb was included for comparison, and untreated plots served as controls. Experimental design and procedures were similar to the Nemacur plots.

Fosthiazate was used at rates of 5 and 10 lb a.i./A, and applied similar to Nema-cur. French marigold (*Tagetes patula* cv. Extra Dwarf Double Red Pygmy) was seeded in the herbicide strip by lightly raking at approximately 16 seeds per sq. ft. A second marigold treatment included transplanting marigold seedlings in 2-rows 1-ft apart, spaced 1-ft apart, and 1-ft from the tree row.

Six weeks after treatment significantly ($P < 0.05$) less soil population of *P. penetrans* was observed in the nematicide treatments compared to the untreated. However, no differences in root populations were observed. To avoid damage to the marigolds post-treatment nematode samples were not taken from the marigold plots. No differences in trunk circumference increases were observed among the treatments. Significantly less yields were observed in the fosthiazate 10 lb and the marigold transplant treatment compared to the untreated. No differences were observed among the other treatments. This differences in yield were probably due to the variability in yields among the treatments.