

BACTERIAL BLAST NEMATODE SURVEY

Bill Krueger, Becky Westerdahl

ABSTRACT

Plant parasitic nematodes, Ring and Lesion, were recovered from eight of ten orchards displaying symptoms of bacterial blast compared to one of ten asymptomatic orchards suggesting a relationship between nematode populations and the expression of bacterial blast symptoms in Glenn County prune orchards.

INTRODUCTION

During the last two springs (1992 and 1993), bacterial blast symptoms have been widespread in Glenn County prune orchards. These symptoms were confined primarily to leaf buds and consisted of browning and darkening of the leaf tissue as leaf buds began to open. Often the buds were killed and would persist on the tree as blackened dead leaf buds. Sometimes only the outer leaves in the leaf whorl would be killed and the growing point would survive and grow out of the center of the leaf bud. Symptoms were often widespread on the tree and at first leafing would appear quite serious. By later in the season, symptoms were masked by new growth and it was often difficult to see where the damage had occurred. After two seasons of widespread symptoms a consensus was reached by U.C. Plant Pathologists that these symptoms were the result of bacterial blast. Bacterial blast is caused by the bacteria *Pseudomonas syringae* which is widespread in the environment and results in disease under certain environmental conditions. This disease outbreak occurred despite the absence of freezing temperatures during the leafing period which were thought to be associated with the disease. The same organism is responsible for the more serious disease, bacterial canker, which can attack young prune trees, usually from two to eight years of age, and can kill scaffold limbs or entire trees. In the Glenn county area bacterial canker disease in prunes is usually associated with nematode populations and normally Ring nematode (*Criconemella* sp.) which apparently predispose the trees to the disease. It was wondered if the same relationship might exist between nematode populations and the incidence of bacterial blast.

OBJECTIVE

To see if the presence of bacterial blast symptoms could be correlated with nematode populations in symptomatic orchards.

PROCEDURE

During the spring of 1993, ten randomly selected prune orchards displaying symptoms of bacterial blast were sampled and analyzed for nematodes. The results were compared to ten randomly selected orchards which did not show symptoms.

RESULTS AND CONCLUSIONS

Ring nematode was recovered from six of the ten blast-affected orchards compared to one of ten for the unaffected orchards. Two of the affected orchards where Ring nematode was not recovered were infested with Lesion nematode (*Pratelnchus vulnus*) which is also known to be damaging to prunes. Therefore, nematodes known to be damaging to prunes were recovered from eight of ten affected orchards compared to one of ten for unaffected orchards. From these results, it appears that there is a correlation between nematode populations, particularly Ring nematode, and the presence of bacterial blast during years of disease outbreaks in Glenn County prune orchards. It is worthwhile noting that 3 of the ten symptomatic orchards received copper dormant sprays which is often recommended for control of bacterial blast.

Nematodes/Liter Soil							
	Ring	Lesion	Pin	Spiral	Stunt	Hemicyclophora	Xiphanema
Symptoms	1550	50	0	150	0	0	10
	0	0	0	0	0	0	0
	0	50	0	100	0	0	0
	50	0	0	0	0	0	0
	950	0	0	200	0	0	0
	500	0	0	0	0	1050	150
	100	0	0	0	0	0	250
	0	0	200	0	0	0	0
	0	500	100	1500	250	0	0
	800	1100	100	1250	0	0	0
No Symptoms	0	0	50	0	0	0	0
	50	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	100	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	150	50	11,850	100
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	100	0	0	0	0