

# I. Deciduous Orchard Diseases

## d. Chemical and Biological Control

### 1. Crown and root rot; Apple

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This study was conducted in a commercial orchard with a history of crown rot, with approximately 20% of the trees being infected. The orchard, located in Kelowna, contained 25-year-old McIntosh trees on MM104 rootstock. One hundred and twenty trees showing crown rot symptoms were treated with six treatments. They were subdivided into blocks of five trees; each tree within a block received the same treatment or remained untreated. The chemical/biological treatments were evaluated as soil drench, granular or foliar in a randomized complete block design with four replications. The drench applications (spring and fall) were made on and around the base of the trunk with each tree receiving 5 litres of spray. The granular metalaxyl was applied over a 1 sq M area at the base of the tree. The foliar spray of phosetyl-Al (5 g ai/6 L H2O per tree) was applied in the spring, summer and fall. The first application of all treatments was made in 1986 and continued in subsequent years until 1988.

Just before treatment, the trees were assessed for extent of crown and root rot infection as follows: initial - about 1/4 of the bark around the trunk infected by P. cactorum; intermediate - about 1/2 of the bark around the trunk infected; terminal - more than 3/4 of the bark at the crown region infected.

Metalaxyl (granular) applied by broadcasting prevented death of all trees showing initial, intermediate or terminal symptoms of crown and root rot. Phosetyl-Al and Metalaxyl applied as soil and trunk drenches prevented death of all trees showing initial symptoms of crown rot. Phosetyl-Al; Metalaxyl (drench) and Enterobacter aerogenes (B8) prevented death of some trees that were showing initial and intermediate symptoms, but none of these treatments prevented the death of trees exhibiting terminal symptoms.

Treatment	Mode of Appli- cation	Rate ai/ tree	Number of trees*					
			Initial symptoms 1986	Dead by 1988	Inter- mediate symptoms 1986	Dead by 1988	Term- inal symptoms 1986	Dead by 1988
Phosetyl- al	Foliar	5 g	11	1	6	1	3	3
Phosetyl- al	Drench	10 g	11	0	8	1	1	1
Metalaxyl (granular)	Broad- cast	2 g	9	0	10	0	1	0
Metalaxyl	Drench	2 g	6	0	10	1	4	4
<u>E.</u> <u>aerogenes</u>	Drench	2x10 <sup>10</sup> CFU	9	1	9	2	2	2
Control		--	5	3	12	6	3	3

\* Number of trees, out of a total of 20 per treatment, showing various stages of crown and root rot symptoms.