CONTROL OF DEAD FLOWER BUDS IN CONFERENCE PEARS DURING SPRING USING METALOSATE® ZINC

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Introduction

For the last couple of years, parcels of Conference pear suffered from the death of part of the flower buds during wintertime. In the past, we observed a positive effect of Metalosate® Zinc on the reduction of the number of dead flower buds. In this trial we intended to see if spring is a good time to spray Metalosate Zinc. In addition, we will also have a look at the influence of root pruning and the use of Metalosate Zinc on death of flower buds.

Materials and Methods

The rootstock used is Quince Adams. The planting distance between trees is 3.5 × 1.5 meters (11.5 x 4.9 feet) with 1,714 trees/hectare (4,235 trees/acre). The trees used for the trial are 10 years old and were never treated with Chlormequat (CCC). In 1999 the trees were subjected to root pruning operations with a distance of 30 cm (12 in.) the last one taking place in 2003.

Each treatment was divided in two. Half of the trees were sprayed 4 times with Metalosate® Zinc at the rate of 2.5 L/ha (34 fl. oz./acre) while in 2003 they were sprayed 3 times in June instead of May.

Table 1
Treatments

Treatment	Root Pruning		Metalosate® Zinc 2.5 l/ha (34 fl. oz/ac)	
	2003	2004	2003	2004
Control	-	-	17 Apr., 28 Apr., 12 May, 26 May	7 Jun., 16 Jun., 28 Jun.
Control + Metalosate® Zinc	13 Mar.	-	-	-
1 RP + 1 RP	13 Mar.	-	17 Apr., 28 Apr., 12 May, 26 May	7 Jun., 16 Jun., 28 Jun.
1 RP + 1 RP + Metalosate® Zinc	13 Mar.	-	-	-
2 RP	13 Mar.	-	17 Apr., 28 Apr., 12 May, 26 May	7 Jun., 16 Jun., 28 Jun.
2 RP + Metalosate® Zinc	-	-	17 Apr., 28 Apr., 12 May, 26 May	7 Jun., 16 Jun., 28 Jun.

1RP + 1 RP = One side subjected to Root Pruning (RP) one year, and the second side the next year.

2 RP = Both sides subjected to Root Pruning (RP) every year.

Results and Discussions

Yield. Bloom clusters were counted at the beginning of the season. At harvest time, the following parameters were measured (Table 2): yield/tree, number of pears/tree, fruit weight and fruit setting.

For fruit setting, we counted the total number of fruits (picked fruits + thinned fruits).

Table 2 Yield					
Treatment	**Yield per Tree (kg)**	**Number of Pears**	**Fruit Weight (g)**	**Number of Clusters**	**Fruits per 100 Clusters**
Control	26.3 kg a	184 a	143 g a	195 a	111 a
Control + Metalosate® Zinc	28.0 kg a	186 a	151 g a	176 a	126 a
1 RP + 1 RP	26.4 kg a	191 a	139 g a	231 a	97 a
1 RP + 1 RP + Metalosate® Zinc	27.3 kg a	191 a	144 g a	226 a	101 a
2 RP	26.7 kg a	197 a	136 g a	254 a	90 a
2 RP + Metalosate® Zinc	27.1 kg a	204 a	134 g a	266 a	91 a

1RP + 1 RP = One side subjected to Root Pruning (RP) one year, and the second side the next year.

2 RP = Both sides subjected to Root Pruning (RP) every year.

Trees were hand thinned during the summer. Figure 1 shows the number of thinned and picked fruits.

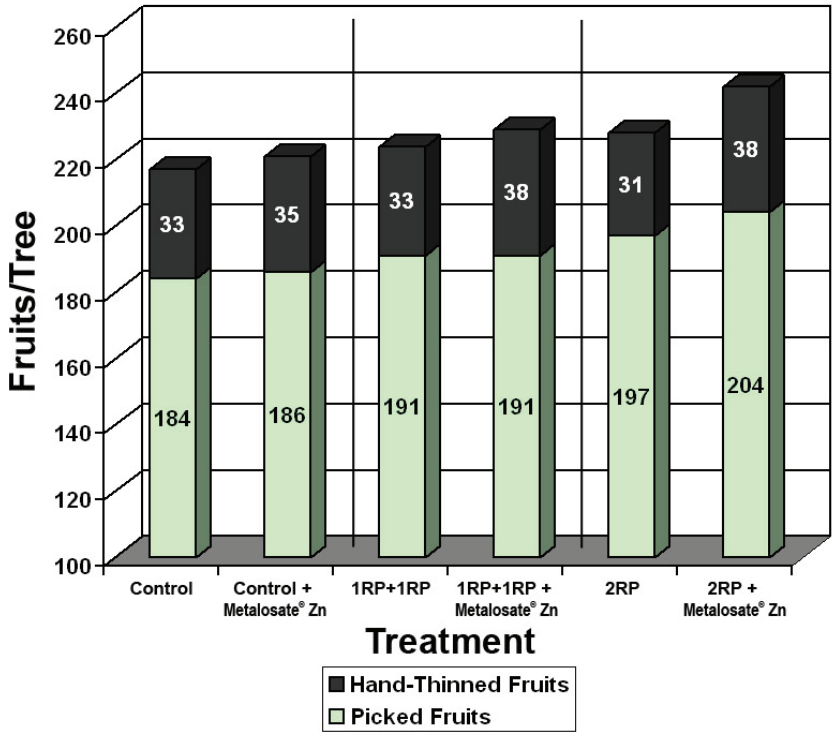

Figure 1. Total Fruits=Hand-Thinned and Picked Fruits

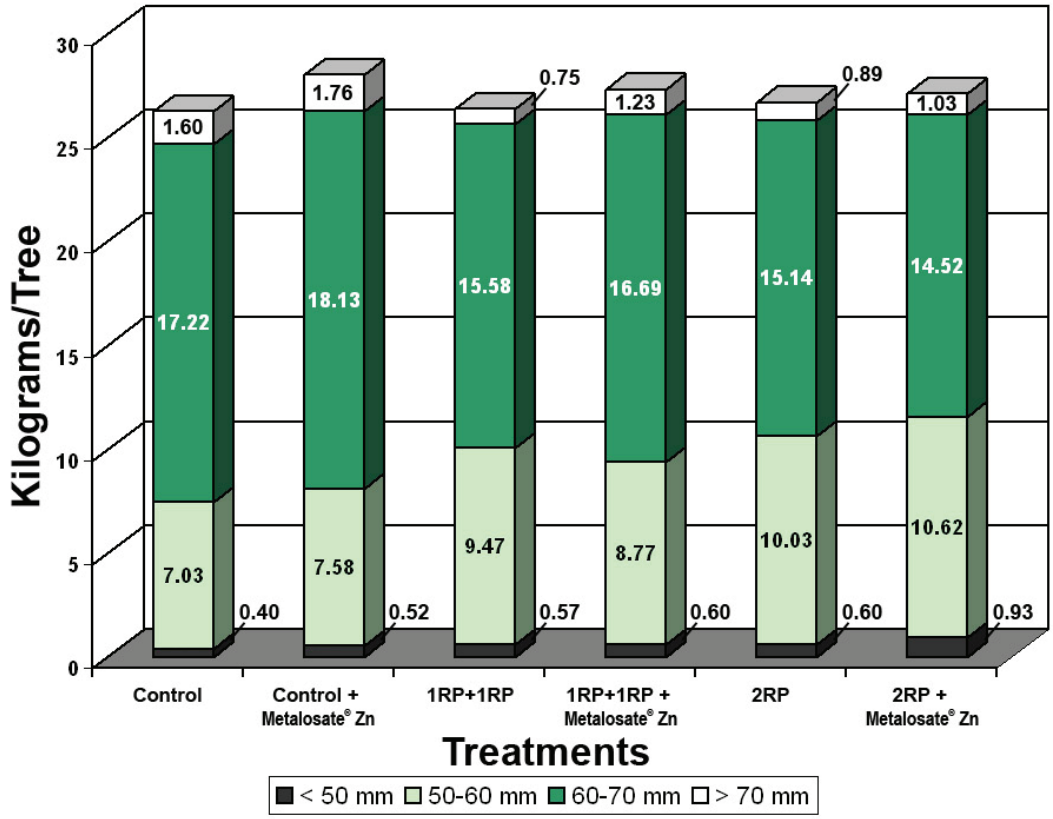

Figure 2. Fruit Size

Counting Dead Flower Buds. On March 23, flower buds were counted on some branches. We made a differentiation between good and dead flower buds.

Table 3
Counting Dead Flower Buds

Treatment	% Dead Flower Buds
Control	6.1 a
Control + Metalosate® Zinc	3.0 a
1 RP + 1 RP	3.0 a
1 RP + 1 RP + Metalosate® Zinc	0.9 a
2 RP	3.4 a
2 RP + Metalosate® Zinc	2.2 a

1RP + 1 RP = One side subjected to Root Pruning (RP) one year, and the second side the next year.

2 RP = Both sides subjected to Root Pruning (RP) every year.

This data was run in a profile plot to have a look at possible fluctuations between the different treatments.

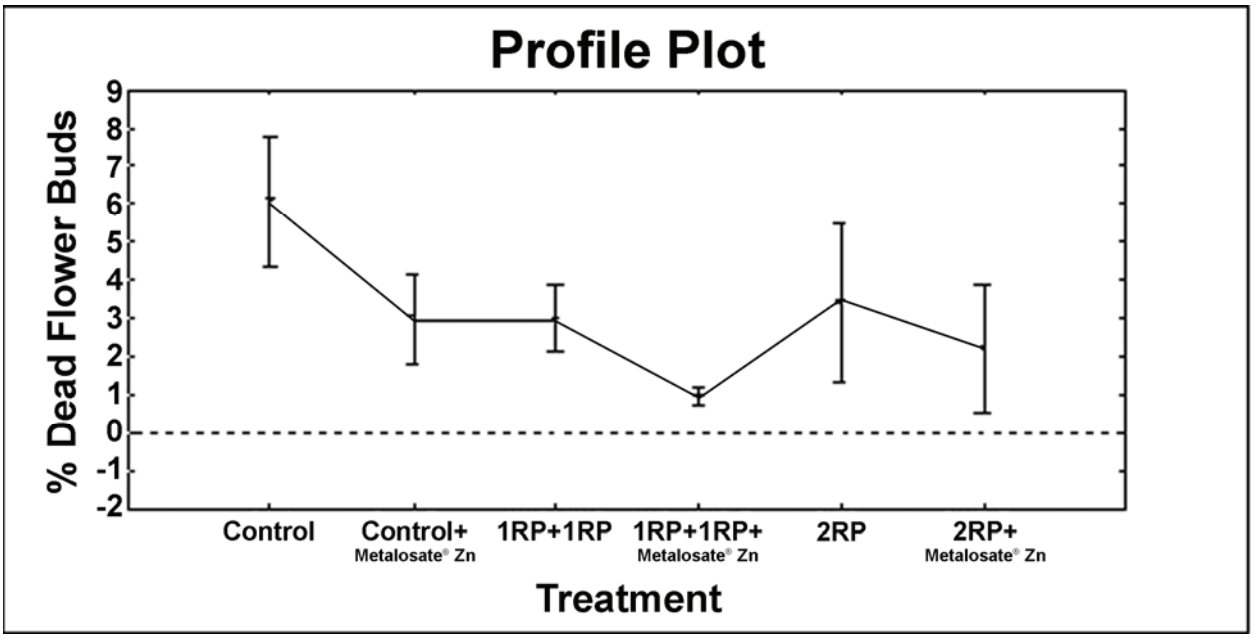

Figure 3: Profile Plot of % Dead Flower Buds

1RP + 1 RP = One side subjected to Root Pruning (RP) one year, and the second side the next year.

2 RP = Both sides subjected to Root Pruning (RP) every year.

Last year there were less dead flower buds in the orchards. In addition, there wasn't much damage in the untreated plots for this trial. Therefore, there are only small differences in production. Also, there are no statistically significant differences in the dead flower bud count. However, there was again a slight tendency to have less dead flower buds in the treated subjects. Therefore, we have sprayed the trial again and there will be again a evaluation of the number of dead flower buds during spring 2005.