

EFFECT OF SPRAYING NORDMANN FIR WITH METALOSATE[®] ZINC AND METALOSATE[®] BORON ON THE WINTER SURVIVAL OF INTERNODAL BUDS

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Introduction

The purpose of this trial was to improve the survival of the internodal buds during winter by spraying the trees with Metalosate[®] Zinc and Metalosate Boron in the fall.

Materials and Methods

Five hectares (12 acres) were sprayed at different times with 1 Litre/Ha (14 fl. oz./acre) Metalosate Boron and 2 Litres/Ha (27 fl. oz./acre) Metalosate Zinc as follows:

1. Control
2. Treatment September 30, 2004
3. Treatment May 19, 2004
4. Treatment May 19, 2004 + September 30, 2004
5. Treatment May 19, 2004 + June 17, 2004 + July 2, 2004
6. Treatment May 19, 2004 + June 17, 2004 + July 2, 2004 + September 30, 2004.
7. Treatment July 2, 2004
8. Treatment July 2, 2004 + September 30, 2004

The assessment was done on August 9, 2005. The number of internode shoots on last years top leader was counted. The number of shoots was counted per 54 trees per treatment.

Results and Discussion

Figure 1 below shows that the number of shoots increased with Treatments 5, 6, 7, and 8. The application date for these 4 treatments was July 2, 2004.

When the trees were treated in September and May, the number of shoots decreased as shown in Figure 1 below.

Therefore Nordmann Fir did not react to treatments made later in the season with more winter (cold) resistant buds.

Table 1 below shows that Treatment 7 was significantly different from Treatments 3 and 4 at $p < 0.05$. In addition, Treatment 5 was significantly different from Treatments 3 and 4.

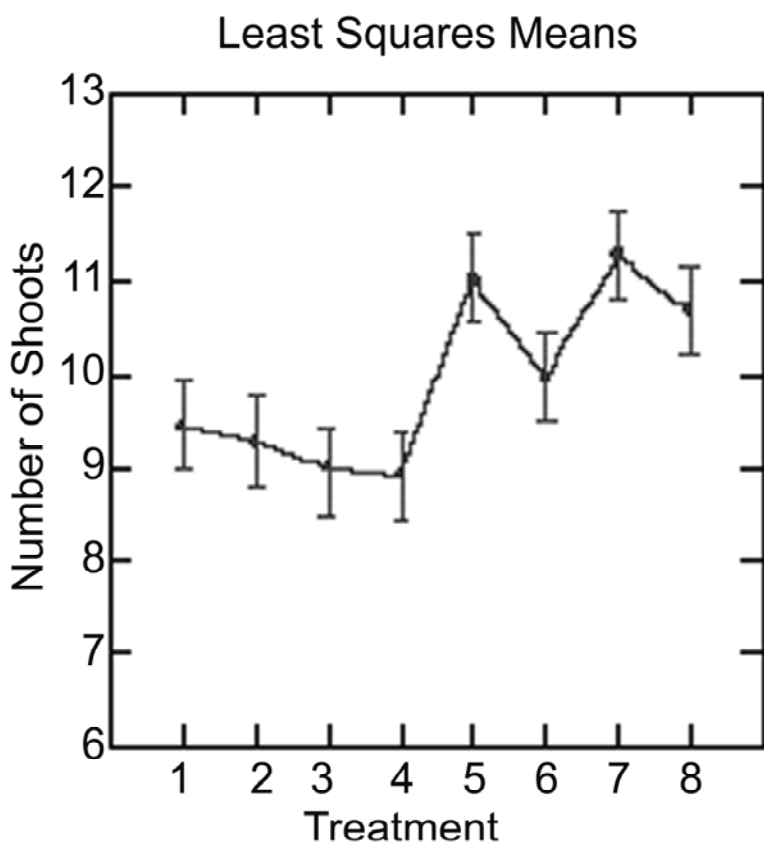


Figure 1: Number of Shoots for Each Treatment.

Table 1 Comparison of Treatments Matrix of Pairwise Comparison Probabilities								
	1	2	3	4	5	6	7	8
1	1.000							
2	1.000	1.000						
3	0.997	1.000	1.000					
4	0.993	0.999	1.000	1.000				
5	0.264	0.154	0.048*	0.034*	1.000			
6	0.994	0.971	0.824	0.763	0.763	1.000		
7	0.110	0.056	0.014*	0.009*	1.000	0.504	1.000	
8	0.600	0.429	0.186	0.144	1.000	0.966	0.985	1.000

*Statistically Significant at $p < 0.05$

Therefore, it would seem that spraying the trees in early spring decreased the number of shoots significantly compared to spraying them in the fall.

There were no significant differences between Treatments 5, 6, 7, and 8. Thus, the growers do not get more winter resistant trees by spraying with zinc and boron in September.

Winter hardiness was not improved by treating the trees with boron and zinc in September. In addition, number of buds did not increase significantly with treatments applied in September.

The number of shoots increased by almost 18% when the trees were treated on July 2 but the later treatment did not seem to have any impact on the survival of the buds.