

Evaluation of Shepherd® Fungicide Trunk Injection for Controlling Diplodia Blight of Austrian Pine: 2009-2011

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Twenty-two Austrian pines (*Pinus nigra*) along one street and in one park in Lincoln, Nebraska, were selected for the evaluation. Trees ranged in trunk diameter from 14 to 24 inches (36 to 61 cm). Trees were paired based on proximity to each other, size, and current degree of damage from Diplodia blight (*Diplodia pinea*). Eleven trees, one in each pair, were treated with Shepherd® Fungicide (propiconazole) using ArborSystems's Portle® Tip injector in October or November of 2009 or April of 2010. Treatments were applied at the rate of 1 injection (4 ml)/4 inches (10 cm) of trunk circumference near the base of the tree (within 12 inches (30 cm) of the ground). High resolution images were taken of the crowns of the trees in September 2009 before treatment and in July 2011 after approximately one and one-half growing seasons. Images of each tree from 2009 and 2011 were compared to determine the degree of crown improvement or increased damage. Changes in crown condition were recorded as high, moderate and low degree of improvement (indicated as 3, 2 and 1, respectively), no change (0), and low, moderate and high degree of increased damage from the disease (-1, -2 and -3, respectively). Changes in crown condition between pairs of trees were analyzed by the Wilcoxon Matched-Pairs Signed-Ranks Test.

Trees treated with Shepherd® Fungicide injections showed greater crown improvement compared to the untreated trees (significant at $p = 0.0625$). No evidence of injury from the treatment was observed in the crown or at the injection sites.

Treatment and rate	Change in crown condition*
Shepherd® Fungicide, 1 injection (4 ml)/4 in. (10 cm) of trunk circumference	2.4**
Control (untreated)	1.8

* On a scale of 3 to -3 (high degree of improvement to high degree of increased damage)

** Significantly different from the control at $p = 0.0625$ (Wilcoxon Matched-Pairs Signed-Ranks Test)

11/4/2011

Diplodia trial - Lincoln, 2009

Treatments: A = Propaconazole (Shepherd)
 B = Tebuconazole
 C = Untreated control

Be sure to treat priority 1 trees.
 Treat trees with priority 2-5 as product is available.
 Rows are colored based on priority. Tmt A is a darker shade.

Found Amt of Product
 Injected Time to inject Date of Injections
 Rate = 4ml every
 4" of
 circumference

Location	Tree no.	Rep.	Treatment	Priority	
Sunken Gardens	236	S1	B	1	
	237	S1	A	1	
	240	S1	C	1	
Normal Blvd. beginning S end near South St. along W edge of trees	238	N1	A	1	
	257	N1	B	1	
	232	N1	C	1	
	439	N2	B	1	
	269	N3	A	4	
	427	N2	A	1	
	447	N2	C	1	
	256	N3	B	4	
	443	N4	B	2	X
	314	N3	C		4 X
	11	N5	A		5 X
	316	N5	B		5 X
	236	N5	C		5 X
	266	N6	A	3	
	297	N6	C	3	X
301	N6	B	3	X	
277	N4	C	2		
248	N4	A	2	X	
N of Sumner beginning N end just S of Sumner along E edge of trees going S	226	N7	C	1	X
	269	N7	B	1	X
	254	N7	A	1	X
	288	N8	B	4	X
	307	N9	B	1	X
	324	N9	C	1	X
	283	N10	A	3	X
	278	N8	A	4	X
	254	N8	C	4	X
	246	N9	A	1	
319	N10	C	3	X	
241	N11	B		5 X	
307	N10	B	3	X	
242	N11	A		5 X	
497	N11	C		5 X	

Found	Amt of Product Injected	Time to inject	Date of Injections
	15	25 for 2	4/1/10
	19		4/1/10
	16	10	4/1/10
	19		4/1/10
	17	9	4/1/10
	17		11/30/09
	16		11/30/09
	19		11/30/09
	15	9	10/20/09
	14	12	10/20/09
	14	7	10/20/09
	16		11/30/09
	14	10	10/20/09
	13	7	10/20/09
	19	20	10/20/09
	11	12	10/20/09
	18	18	10/20/09
	11	15	10/20/09
	13	10	10/20/09
	14	8	10/20/09
	14	19	10/20/09

Marked on West
 Marked on West

Could not find

Could not find