

SECOND YEAR POPLAR GROWTH IN RESPONSE TO ESTABLISHMENT-YEAR WEED CONTROL

Corey V. Ransom, Joey Ishida, and Lamont Saunders
Malheur Experiment Station
Oregon State University
Ontario, OR, 1998

Purpose

This experiment monitored second-year growth of poplar trees in response to herbicide programs used during the establishment year.

Procedures

Poplar trees (var. OP 367) were originally planted in 1997 using sticks 25- to 30-cm long spaced 3.5-ft apart in rows 14-ft apart. Herbicides were evaluated during the year of poplar establishment, weed control and poplar growth were recorded. In March 1998, trees were thinned to a 7-ft spacing within the row. In 1998, poplar tree growth in response to establishment-year weed control was evaluated. On March 13, 1998, sticks were planted in plots where weed competition had caused the death of poplars the previous year. Weeds were controlled in all plots with a blanket application of Goal (2.0 lb ai/acre) and by hand weeding. Trees were watered as needed with sprinkler irrigation. Poplar height and diameter at breast height (4.5 ft) were measured, and wood volume was calculated.

Results

During the establishment year, poplar tree height and diameter were reduced by weed competition in plots where herbicide treatments did not provide adequate weed control. In some of the weediest plots, poplar trees died from weed competition. Treatment differences from 1997 continued to be evident in 1998. Even after a full year of growth without competition from weeds, tree height was reduced 62 percent, tree diameter was reduced 84 percent, and wood volume was reduced 97 percent in the untreated plot as compared to the best herbicide treatment. In March 1999, poplar trees were shorter, had smaller diameters, and had less wood volume in plots treated with Treflan and Sonalan as compared to those where Goal or Prowl had been applied. Weed control during the establishment year is necessary for tree establishment and for maximizing growth.

Table 1. Second-year, average tree height, diameter at breast height, and wood volume of OP 367 poplar trees in response to establishment year applications of soil-applied herbicides, Malheur Experiment Station, Oregon State University, Ontario, OR, 1999.

Treatment	Rate	Timing†	Poplar tree observations					
			Height		Diameter		Wood volume	
			8-18-98	3-2-99	8-18-98	3-2-99	8-18-98	3-2-99
lb ai/acre		ft		in		ft ³ /acre		
Treflan	1.0	PPI	10.8	12.8	1.09	1.44	26.1	30.5
Goal	2.0	PRE	15.2	16.5	1.87	2.13	47.6	67.1
Treflan + Goal	1.0 + 2.0	PPI + PRE	14.0	15.3	1.67	1.94	34.2	49.5
Prowl	2.0	PRE	14.3	16.0	1.67	2.03	39.6	62.3
Sonalan	1.5	PRE	10.9	12.3	1.06	1.28	15.5	24.6
Untreated	-	-	4.6	6.2	0.17	0.34	1.6	2.0
LSD (0.05)			2.7	3.0	0.45	0.44	20.0	26.7

†PPI = Preplant incorporated; PRE = preemergence.