RUTEX TREATMENT OF PONDEROSA PINE PLANTING STOCK

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Summary

Rutex 59 and Rutex W-3, both hydrophilic formulations for keeping planting stock moist, were tested on 2-0 ponderosa pine stock raised at the Col. William B. Greeley Forest Nursery and planted by machine in spring 1963 on the Klamath Falls Tree Farm. First-season survival was not increased. In fact, application of Rutex 59 reduced survival when it was used as a dip with water at the recommended dilution rate of 1:1.

Introduction

Ponderosa pine stock raised west of the Cascades for planting east of the mountains must normally be stored until it can be planted in order to protect it from drying by sun and wind. Formulations of Rutex have been developed to protect planted seedlings and bare-root seedlings in storage against moisture loss sufficient to reduce survival. The formulations were tested on ponderosa pine because conditions during planting are relatively severe.

Experiment

The test was made with 2-0 ponderosa pine lifted and packed in polyethylene multiwall bags at the Col. William B. Greeley Forest Nursery on March 20, 1963. One bundle of approximately 1,000 seedlings, wrapped in groups of 50 with roots surrounded by moist peat, was taken to Centralia for treatment, stored at Gilbert Forest at 34° F., and transported by car to cold storage at Klamath Falls. Other bundles of the lot were stored in Olympia at 34° F. and then shipped by common carrier to cold storage at Klamath Falls--where the stock was held until planted.

Treatments, each assigned randomly to four packages of 50 seedlings, were as follows:

1. Rutex 59 diluted 1:1 with water as a root dip.

2. Rutex 59 diluted 1:3 with water as a root dip.

3. Rutex W-3 diluted 1:4 with water as a foliage dip.

4. Rutex W-3 diluted 1:9 with water as a foliage dip.

5. Treatments 1 and 3 combined.

On the day of planting, four packages of untreated seedlings were taken from another bundle for comparison. Four more packages of untreated seedlings were taken from a bundle in which a substitute for peat had been used to hold the moisture.

The 28 packages of seedlings were planted on May 6, 1963, in predetermined random order. They were planted in two adjacent rows and a portion of a third in a plantation installed on a pumice soil. The aspect is westerly; the site is open and exposed. The spacing between seedlings was approximately 3.5 feet.

The trees were examined in mid-June and in mid-September for survival and vigor. By the close of the first growing season (table 1), two of the Rutex treatments and the test packing adversely affected survival. The foliage dip at the recommended rate of dilution alone and in combination with the root dip caused a reduction of 8 to 10 percent. The damage which occurred when the combination was used was attributed to the Rutex 59 when diluted 1:1. The test packing material caused a reduction of 15 percent. When it was diluted at 1:3, no harm was apparent. Rutex W-3 did no harm when diluted 1:4 (within the range of recommended dilution).

This season provided no strenuous test of the Rutex treatments. Although the weather during planting was moderately severe, with normal sunlight and light wind, the weather throughout the summer was cooler and wetter than normal. With the high survival of the untreated plants, there was no chance for greater survival resulting from use of the Rutex foliage dip.

TABLE 1.--First-season survival of various Rutex-treated ponderosa pine seedlings

Treatment	June		September
	Survival	Vigorous seedlings	Survival
	Percent	*Percent*	*Percent*
None	98	86	98
Rutex W-3 (1:9)	100	88	99
Rutex W-3 (1:4)	100	77	99
Rutex 59 (1:3)	98	58	98
Rutex 59 (1:1)	98	8	[1] 91
Rutex W-3 (1:4) + Rutex 59 (1:1)	96	38	[1] 88
Test packing	94	74	[1] 83

[1] Significantly less than value for no treatment.