

RESEARCH ABSTRACT

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Study Title: Post-eruption species selection and planting trials for reforestation of sites near Mount St. Helens

Key Words: terrestrial plant upland trees vegetation
planting conifers seedling reforestation blowdown zone archives
survival

Abstract: This study monitored survival and growth of seven conifer species planted with shading and fertilization treatments on disturbed sites at Mount St. Helens. Seedlings were planted on six low-elevation sites and five high-elevation sites which represented a variety of post-eruption conditions.

First and second year survival and growth results were comparable to plantings on undisturbed sites. Lodgepole pine survived best, and Douglas-fir exhibited the fastest height growth at elevations below 1100 m (3600 ft). Although western white pine, lodgepole pine, and Engelmann spruce survived equally well on the high elevation sites, lodgepole pine grew fastest. Lodgepole pine and Engelmann spruce had the highest survival rates on the harshest, exposed sites in the most disturbed areas.

Eight years after planting, all of the species, except Pacific silver fir on the low elevation sites, had greater than 90 percent survival. Douglas-fir and grand fir had the best average growth on the low elevation sites--both species averaged more than 11 feet tall. Lodgepole pine was tallest on high elevation sites, averaging 8 feet in height.

Averaged over all species and sites, the original fertilizer and shading treatments had only small, insignificant effects after eight years. Shading did, however, seem to have lasting, beneficial effects on Pacific silver fir planted on the high elevation sites.

Successful reforestation of disturbed sites at Mount St. Helens is possible with proper species selection and careful handling and planting.

Type of Measurement(s):

Survival of planted trees (dead or alive).

Growth of planted trees (height and diameter in centimeters).

Competing vegetation (ocular estimate of percent cover).

Animal damage (yes or no).

Tree vigor (healthy, weak, damaged).

Frequency of Measurement(s): 1, 2, 4, and 8 years after planting (now completed).

Data Storage: Permanent database on a Bernoulli cartridge. Entered into IBM microcomputer and analyzed using SAS.

Long-term plans: Data available for collaborative efforts: A manuscript on the 8th-year analysis is being prepared. No further tracking is planned, but the plants are well identified if others want to use them. Long-term monitoring will require stocking control at point of crown closure, which is close to happening on plots in the Clearwater drainage.