

SOIL TEXTURE CAN INFLUENCE FOREST REGENERATION FROM SEED

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The texture of the soil can have a great effect upon- the survival of newly germinated seedlings. Soil texture therefore must be considered when the methods of reproducing a. specific cut-over tract -- natural seeding, artificial direct seeding, or the planting of seedlings -- are being decided. This is borne out by the fact that naturally dispersed coniferous tree seed has been observed to germinate better on fine textured - than on coarse textured soils in southwestern Oregon. One reason for this difference may be greater capacity of fine soils to replace surface water losses by capillary conduction from below. Thus they remain moist and favorable to germination for a longer period following rain.

To check on observed differences in germination between soils, a small controlled test was made in the spring of 1952. In the coarse pumic soil of Union Creek Flat on the Rogue River National Forest two stratified Douglas-fir seeds were placed in each of 85 natural-soil seed spots, and in each of 50 more spots from which a double handful of the native pumice had been removed and replaced with a finer-textured red sandy loam. Wet weather for several days after seeding made conditions relatively favorable for germination on both soils. Differences in germination might have been greater had conditions been less favorable. Yet, 38 percent of the seed placed in the red sandy loam produced seedlings, whereas only 18 percent of those in pumice produced seedlings. The difference proved significant by "t" test.

It would be dangerous to generalize from the results of this small test so far as to consider any fine soil superior to any coarser soil as a germination bed. But for the soils studied it appears that cutover tracts on the finer soils will have a better chance of regenerating naturally or from direct seeding than cutovers on the coarser soil. Planting may be a surer method for the coarse soil.