

PLANTING TREES WHEN THE TIME IS RIGHT

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A practical method of predicting successful regeneration of trees on the Willamette National Forest, using a computer and a soil testing laboratory has been devised.

Time and time again you hear the idea expressed that soil moisture is one of the most critical factors involved in reforestation. Our program aims to provide specific information on the critical moisture content of the soil of specific reforestation locations. Two years ago we began testing the following idea to see if reforestation specialists could obtain a better idea of whether the planting of young trees would be successful.

Using a tensiometer, a forester can measure the moisture existing in a soil to be planted (figure 1). Referring to charts made from lab tests and computer data, he can estimate how much water is in the soil and how long it will last. If he has an adequate supply of moisture readily available in the soil, he then can judge the survival of the planted seedlings.

A soils laboratory analyzes various kinds of soil found in the forest, and how much moisture each soil holds at various moisture tensions. This information, then, is tied to specific climatic data from 22 weather stations in or near the forest. A range of rainfall and temperature found in the forest is thus provided. These data are combined with information about a specific site, such as: aspect, slope, latitude, and soil type. A computer then produces monthly evapotranspiration rates for each soil moisture regime. The potential rate and actual rate are listed for each planting site.

The forester can then plot on a graph the fluctuations in soil moisture for each unit he is considering planting. By keeping exact weather data for these units, he can relate it to the computer information to know if it is wetter or drier than the computer predictions and make adjustments accordingly.

Our studies have confirmed suspicions we had about the lack of moisture on some sites on the forest. Generally, there are two times when planting is most risky—the late spring and early fall. Now we will have improved data to know which units will run out of moisture first, and we can plan accordingly.

This is important to us in this area because in Oregon the summers are dry, with little or no rain falling in July and August. This new method will help us to tell when it is getting too dry to plant in late spring and if it is wet enough to plant in the fall.

We have been testing this program for 2 years in the Oakridge and Detroit Ranger Districts. Personnel have been trained to interpret the information provided by the computer, and how to use the information to plan a reforestation program. With this method we should be able to improve the success of our reforestation efforts and save a lot of work.

Soil tests and a computer help determine when it is getting too dry to plant in late spring or if it is wet enough to plant in the fall.

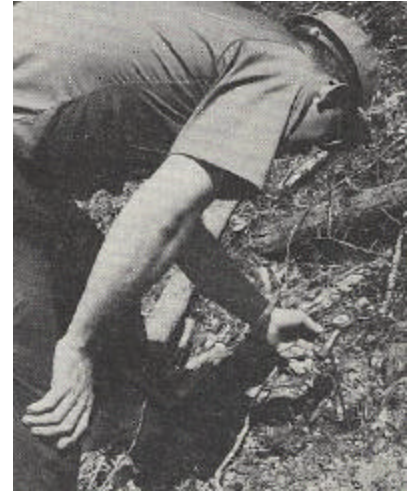


Figure 1.—Soil scientist checks tensiometer.