

Patrick M. Lantz - Pennsylvania

The methods of mulch applications at the four Pennsylvania nurseries vary slightly, so the techniques discussed will refer to those used at the Penn Nursery located in central Pennsylvania .

The normal method of application of mulches is with modified manure spreaders. Pine needles, sand and sawdust, and chopped pine cones are spread over seedbeds and seedlings with these spreaders.

Mulching operations fall into three categories at the Penn Nursery and each will be discussed separately.

I. Seedbed Mulch

After the seed is sown, the bed areas are covered with a thin layer of dry pine needles. Then a layer of sand and sawdust mixture (1/2 sand - 1/2 partially rotted sawdust) is spread over the beds. The thickness of the sand and sawdust cover varies with the species of tree seed; e.g. , 1/16" for European larch to 1/2" for black locust. Finally, snow fence or snow fence shades are placed over the beds until germination occurs when the snow fence is removed.

For the past two years we have been experimenting with an asphalt emulsion called SOIL GARD, manufactured by Alco Chemical Co., Baltimore, Maryland. With such an emulsion we hope to eliminate the application of pine needles and use of snow fence in our seedbed mulching process.

We purchase Soil Gard for \$1.95/gallon, in 50 gallon drums and have used it in a variety of mixes in water. We use green colored Soil Gard. We expect to use 200 gallons of this solution per acre at an approximate cost of \$45.00/acre for general use on the species tested.

Soil Gard was used on seedbeds of Austrian pine, pitch pine, Norway spruce, and white pine during the spring and fall planting seasons. Applications during the fall were not successful. Spring applications indicated good results, despite severe thunderstorms and heavy washing over the test beds.

Observations made before, during, and after germination on the Soil Gard treated beds show a more uniform germination of all species used. One disadvantage is that the seed germinates earlier in the spring making the seedlings more susceptible to late spring frosts.

II. Winter Mulch

For winter mulching of our 1-0 and some 2-0 seedbeds we use wood shavings and chips which are a by-product of a planing mill located on the Nursery. This is spread at cost of \$.08/lin. ft. Dry pine needles are used when the supply of shavings is exhausted. The needles are applied at the cost of \$.11/11n. ft. The average cost to collect pine needles from nearby plantations is \$3.52/cu. yd. The pine needles are removed from the beds the following spring while the shavings and chips remain indefinitely.

III. Path Mulch

During late spring, after the seeds germinate and the snow fence is removed, the paths in each newly sown area are covered with wood shavings and chips. This material remains in the paths and is incorporated into the soil as organic matter at the end of the rotation. This material also aids in suppressing weed growth and holds moisture in dry periods during the summer. Path mulch is applied at the cost of \$.003/lin . ft. of bed.