

# A NEW WAY OF RAISING TREES

A METHOD of producing forest seedlings which can be planted into their permanent quarters much earlier than by normal methods has been developed by a German forester named Dunniemann. Although primarily intended for use on a forest scale, it is ideally suited to small garden requirements.

The system entails creating ideal germination conditions similar to those found in naturally regenerated woods by constructing a seed bed of composted forest floor debris. The material initially used was the needles of Douglas fir (*Pseudotsuga taxifolia*) and Norway spruce (*Picea abies*). Owing to the general scarcity of these trees in forests large enough to produce needles in quantities, other species have been used with success, including larch and cedar. Mixtures of deciduous debris and general conifers have also proved suitable. Collected during the autumn and winter these needles are composted until a firm seed bed 9 to 12 in. deep has been obtained. During composting, the needles should be kept damp and firm and large objects such as stones and sticks removed.

## FREEDOM FROM WEEDS

Apart from the rapid initial growth obtained by this method, and ease of germination, freedom from weeds is a main advantage. This arises from the fact that very few weeds succeed under conifers and there are, therefore, no weeds to infect the seed bed. The compost has complete drainage and aeration and if

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composted will retain moisture. The presence of mycorrhiza, a symbiotic fungus which lives on the roots of conifers to their mutual benefit, may well prove to be important but this has not been conclusively proved, as far as I know.

The main disadvantage I have experienced is the drying out of the top surface during germination. This can be avoided by ensuring that the compost has been completely wetted before sowing, that a daily watering with a medium rose thoroughly moistens the surface and that the bed is shaded from direct sunlight. Lack of moisture when the young roots have emerged will prove fatal. The bed is made in a solid-sided frame of appropriate dimensions, generally not wider than 3 ft. in small gardens. The sides should be 15 to 18 in. high and the posts should project above the bed another 12 to 15 in. These will be used to support the shading, preferably of 2-in. laths of lightwood nailed at 3 in. intervals to two or three strips of 3-in. hessian webbing. This will give a semi-shaded effect, and will also roll up to allow easy storage.

The seed bed is completed by firming and covering with  $\frac{1}{2}$  in. of sieved debris into which the seeds are sown. Sowing should be carried out from April to late May and the seeds covered with a  $\frac{1}{2}$ -in. layer of the debris. Sowing in drills 2 in. wide is preferred to

broadcast sowing. Better stands of seedlings and earlier germination result from covering the seeds with washed gravel or coarse granite chips. These tend to act as a mulch and keep the surface moist. Most species of conifers have grown well with this system and the rate of growth of common deciduous trees is very quick.

## ANOTHER METHOD

Another method by which increased stands of seedlings can be obtained is to treat the seed bed with formalin, a practice initially carried out on seed beds which were sick. This sickness is caused by intensively monocropping a piece of land for successive seasons, thus using up too many of the soil's plant nutrients and promoting parasitic fungi. Seed beds can be treated with a sterilizing solution of 1 gall. of commercial formalin (40 per cent. formaldehyde) diluted in 1 to 2½ gall. of water applied to the sq. yd. through a coarse rose or spray. It should be given to the seed bed three weeks before sowing. Following a warm period, this aids vaporization of the formalin. The ground should be kept rough and covered with a tarpaulin for six to 10 days. Shallow cultivation should be used before the sowing and fertilizers can be applied at this time.

The effect is not only to sterilize harmful fungi and weed seeds, but to increase the stand, the height of the seedlings and their rate of growth. Many species of conifers have benefited from this treatment.