KNIFE-TYPE LATERAL ROOT PRUNER

Lyle A. Baker, Superintendent
Oregon State Forest Nursery
Elkton, Oreg.

Most forest tree nurseries today plant seed so that beds produce eight rows of seedlings, 6 inches apart. This is due to the increased production necessary to keep up with the demand for millions of seedlings each year. Machinery has been developed to speed up this planting process, and also to eliminate other long and costly chores in the growing and maintenance of trees in the nurseries. One of the machines is the lateral root pruner.

Use of a lateral root pruner has eliminated the need for transplanting many species and consequently has cut down on the amount of labor, land, and equipment needed in operating a large nursery. Seedlings that have been root pruned at the proper time of the year have a more compact root system and the rootlets themselves have a chance to heal over before the seedlings are lifted.

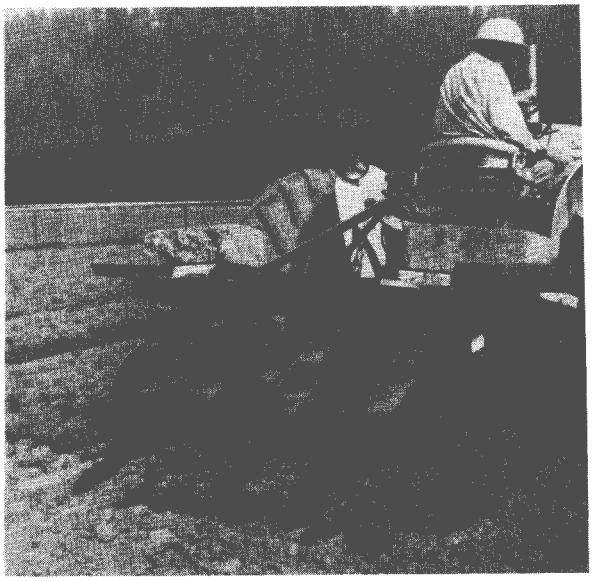
Rolling coulter types of lateral root pruners have been used in nurseries for a number of years. Two machines of this type were constructed for use in the Oregon State forest nurseries, but were found to be unsatisfactory. The first machine had the coulters mounted on a single axle similar to the one described by Mr. Edward D. Clifford (Tree Planters' Notes 24, February 1956). The second machine had the staggered coulters similar to the one described by Mr. Hugh B. Wycoff (Tree Planters' Notes 38, October 1959). We found that it took an extreme amount of weight to sink the coulters of both machines the desired depth into the soil types at the Oregon nurseries. Also, the soil was compressed to such a degree that the seedlings were lifted out of the beds as the machines moved forward.

Ealy in the spring of 1960, Arnold Aaserude, Shop Foreman for the State Forestry Department at Salem, Oreg., suggested we try a knife-type lateral root pruner. Consequently, we constructed one and tried it thoroughly in both State nurseries (fig. 1). The soil types at the State nurseries are extremes; one is a heavy clay-loam soil that dries out very slowly and the other is a deep sandy-loam soil that is loose and dries quite rapidly. The spring of 1960 was very wet in Oregon, but, in spite of this, the knife-type lateral root pruner worked very well. *Very* little compression of the soil occurs because of the staggered arrangement of the blades.

We have tried lateral root pruning both inthe spring and in the fall and the knife-type pruner works equally well at either time of the year. We found, however, that more weight was needed in the fall pruning to sink the knives to the desired depth.

We found that the knife-type pruner could root prune all the seedbeds in one-third the time the coulter-type pruner took. The knife-type pruner was constructed at a cost of approximately $100. Of this amount most was for labor as the nine knives were made from discarded sawmill saw blades. This compares very favorably with the coulter-type pruners, which usually cost from $300 to $400 to construct.

Requests for the plans for this knife-type lateral root pruner should be mailed to the State Forester, Box 2289, Salem, Oreg.



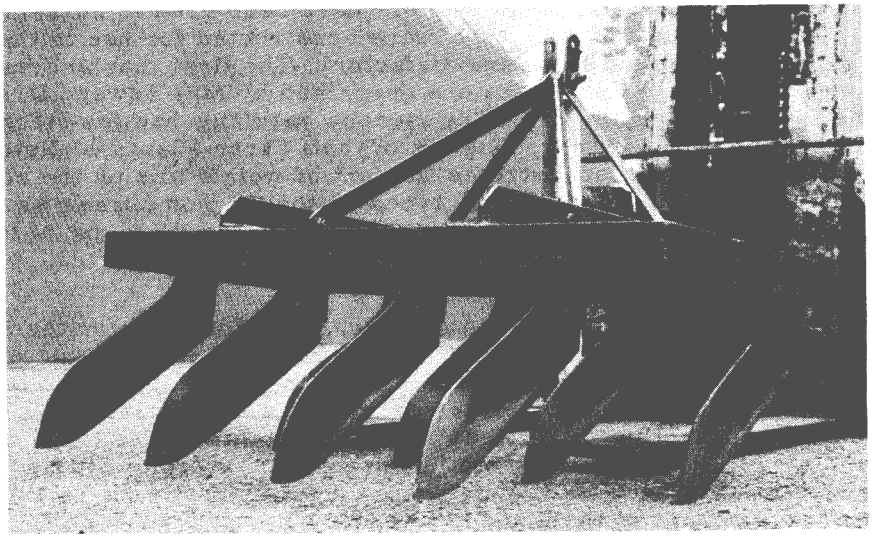


Figure 1.--Knife-type lateral root pruner. Upper photos show outside knives removed because beds were root pruned with a terminal root pruner which severed lateral roots on both sides of bed.