

SEEDBED AND PATH CULTIVATOR FOR FOREST TREE NURSERIES

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During the summer of 1961 a revolutionary type of seedbed and path cultivator was put into use at the Elkton Nursery, which is located on a deep sandy loam soil with little change in elevation on the entire area. This equipment has worked extremely well for us. We hope the following information will help other nurserymen in their cultivating operations.

This cultivator operates on a new concept; it works entirely at ground speed of the tractor. Generally, cultivators used in forest nurseries fall into two categories: Those that consist mainly of knives or blades to do the cutting and which are drawn behind a tractor, and those that are the revolving type which have a separate motor of their own for power.

In the past few years, the seedbed and path cultivating operation at Elkton has been costly because of the manpower needed and the type of equipment used. To cut down the expense of this operation, the author decided to try a form of cultivator blade similar to that of a garden cultivator for use between rows of seedlings. Consequently, a draft of such a cultivator blade was drawn up, and seven blades were built in the State Forestry Department shop.

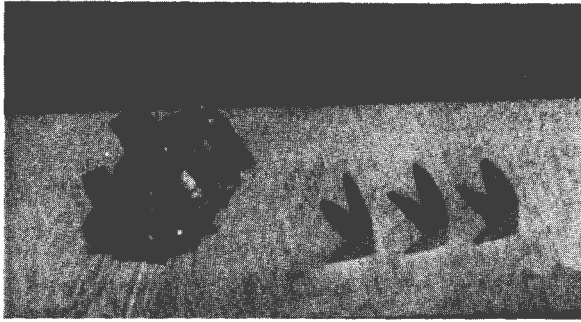
The new cultivator blade consists of two flat metal disks 1/8 inch in thickness and 6 inches in diameter, spaced 3 inches apart on an axle. Between these disks are welded eight strips of metal 1/8 inch by 1 1/2 inches, set at a 15-degree angle and extending 1 inch beyond the outer edge of the disks. The outer edges of these strips are sharpened. As these blades rotate at ground speed, they not only cultivate the ground but also cut off numerous small weeds.

Cultivator blades similar to these were first used in the guayule nurseries during World War II; they were mounted behind the tractor. With the improved cultivator we covered five times as much area in a day as we had previously. However, we were still using two men, tractor operator and cultivator operator.

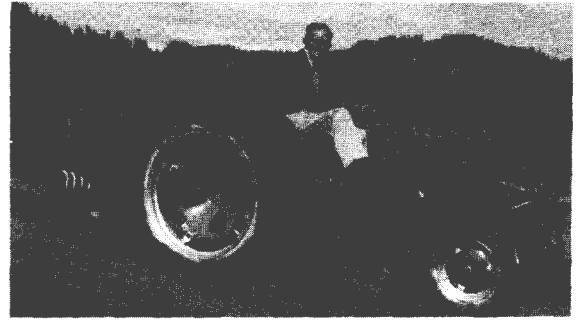
Late in the summer the Forestry Department purchased a used Allis Chalmers Model G tractor for the nursery, and we attached both the seedbed cultivator unit and the path cultivator units to one machine. The wheels on the Model G tractor can be spread to 64 inches, making it possible for the machine to straddle a seedbed and cultivate between the rows of seedlings and the paths at the same time. Both the seedbed cultivator unit and the path cultivator units, which are two sets of small disks, can be operated at the same speed effectively. Thus we finally have a machine that can do a very important job in the nursery at a minimum of expense and manpower. After the driver has become familiar with the equipment, he could easily cover 5 acres of seedbeds and paths per day.

The only disadvantage we have found so far in the operation of this equipment is that both the seedbed cultivator blades and the disks used on the paths will clog if the top 2 or 3 inches of soil is too wet. The efficiency of the operation is cut down if the driver has to stop often to clean the operating parts.

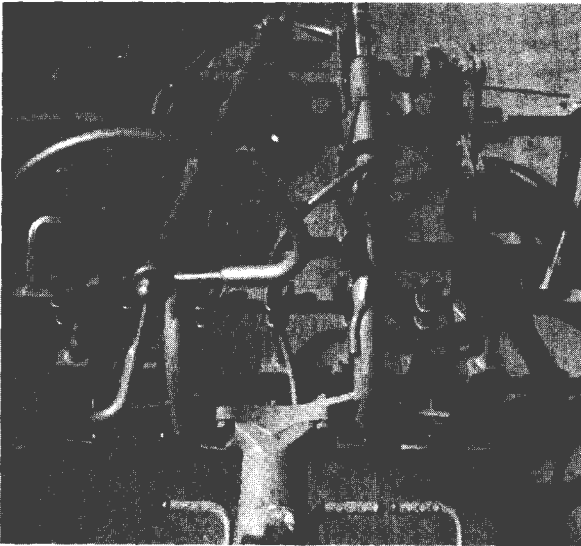
The tractor cost the Forestry Department \$825, and the work and materials for the cultivator units cost approximately \$175. With this initial cost of about \$1,000, we are able to save approximately \$5,000 per year in labor and equipment over previous cultivating methods.



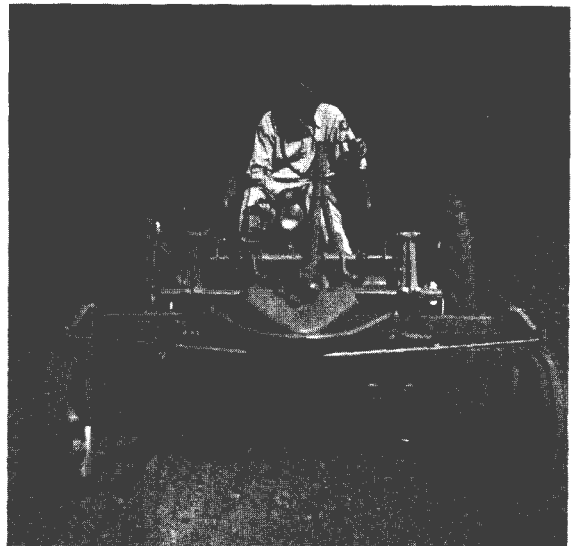
Left, New type cultivator blade; right, L-shaped knife blades formerly used.



Model G tractor with seedbed cultivator blades mounted in front and path cultivator units in rear.



Driver has clear view of seedbed cultivator blades, so he can control the tractor and not injure seedlings.



Tractor with cultivator blades in operation.



Seedbed cultivator blades break up crust of soil between rows of seedlings; two sets of disks cultivate paths.



Tractor cultivator can operate in fairly large stock without injury to seedlings.