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USE OF A SHORT- HANDLED PLANTING HOE IN THE APPALACHIANS

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Because forest planting in the Southern Appalachian Mountains in the past has been sporadic, it has too often been done without the benefit of detailed knowledge of methods or suitable tools.

Knowing how to plant ornamental or fruit trees does not necessarily bring skill in forest tree planting, because the two are quite different. For example; a gardener digs a hole to accommodate the natural spread of semi-

rigid roots, puts good loose dirt back to cover those roots, puddles the soil with water, and tamps in unfavorable portions of soil last. Such a procedure is appropriate in horticulture because the trees are larger, but it is all wrong for extensive planting of the relatively small 2-yearold conifers distributed by forest nurseries. The forestry job calls for adequate slits in the soil rather than large holes. The flexible roots need deep rather than wide setting. Instead of loose soil settled with water, the forest planter frequently has to exert strong pressure on stiff soil to gain firm contact with roots. If he imitates the gardener he may get high survival, but he wastes his time.

Unsuitable tools likewise contribute to inefficiency. Planting machines are primarily for level or gently rolling lands. On mountain jobs it is feasible to use farmers' spades, mattocks, or grub hoes, but they were not made for this job and the planting is unnecessarily slow and often of poor quality. A better tool is the long iron dibble or planting bar of the South. If you must use hand tools, the bar is best in the Coastal Plain and on the flat lands in the Piedmont or Appalachian country.

For hillsides and mountain slopes we have a still better tool, the one-hand planting hoe. It is a short-handled hoe with a narrow blade 9 inches long, developed by the Forest Service in western Montana and northern Idaho (Region 1). There it was thoroughly tested, adopted as standard, and has given good service for 30 years or more. Men who set 800-900 trees per day with the old tools immediately began to put in 1, 100-1, 200, with no loss in quality of planting. That was about a 35 percent gain in efficiency.

We felt that this tool could work in the Appalachians as well as it has in the Rockies. Because a short-handled hoe is too hard on a man's back when used for planting on flat land, we limited our use of the bar and tree-carrying tray to the bottomland sites. On the slopes we used the new equipment (furnished by Region 1), which included a planting hoe and a watertight canvas tree-bag for each planter. We tried the outfits on laurel replacement work and on inter-planting on the Bent Creek Experiment Forest.

The first thing the men noticed was the difference in weight of the equipment. Together, the bar and tray weighed 17 pounds, 1 ounce; the hoe and bag 4 pounds, 11 ounces - a saving of 12 pounds, 6 ounces per man. This is an appreciable advantage when working over rough ground.

Each member of a two-man planting crew (hole maker and tree setter ccasionally has to wait a few seconds for his companion to complete his

task. This is avoided when each man does the whole job. When a worker charged with correct root placement has to widen the slits into proper holes himself, he is directly interested in and solely responsible for quality planting. Designed as a one-hand tool, the short-handled hoe is ideal for a one-man-unit crew. Except on difficult, obstacle-ridden sites, the division of labor between his two hands is complete, i. e. , he manipulates the hoe with one hand and the seedlings with the other. With these motions coordinated in trained planters, the need for a tree-toting assistant is eliminated and maximum efficiency attained.

We do not claim that our crews have reached the degree of perfection possible from long experience, but their output is rising. On an average mountain site each man can put out about 100 trees an hour. Fewer trees can be set on rocky sites and in spot planting, as in under-planting or what is sometimes called reinforcement planting. Experienced planters can probably do still better in uninterrupted work on good sites.

Do you want to learn this technique?

The Southeastern Forest Experiment Station Paper No. 12 contains brief working directions that specify and illustrate the steps involved in the use of the Region 1 hoe. It notes the reason for making each essential motion, and the reason it is best to avoid certain natural but superfluous movements. A limited number of copies are available for distribution from the Station, Box 252, Asheville, N. C.