

Applied to the log grades as previously derived these give:

Grade I—71.0
Grade II—64.5
Grade III—54.0
Grade IV—46.0

Thus any graded logs would be worth as lumber a percent of the price of one inch F&S lumber; that percent being the *Price Index*. To get an actual log value instead of the lumber value of the graded logs a deduction has to be made for a reasonable profit to the mill owner (when he owns the sawed lumber) plus a deduction for the costs of sawing.

Fifteen percent of the price of one inch F&S lumber should be a reasonable figure for profit allowance at present. Fifteen percent of the price index for each log grade gives the deduction to make from the price index. Final price indexes:

Grade I—60.0
Grade II—55.0
Grade III—46.0
Grade IV—38.0

The actual sawing costs are the final deduction, but since they do not vary with the log or lumber grade (rather with volume), the sawing costs are deducted from the results of multiplying this final price index by the price of one inch F&S lumber to give an actual log value at the sawmill:

Price index x price of 1" F&S lumber minus all sawing costs = log value at the mill.

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Rodent Control Activities in Connection With Grass Adaptability Studies

During the winter of 1945 and 1946 considerable rodent activity was noted in grass plots at the Manitou Experimental Forest¹ established for the purpose of determining seed adaptability. The plots had been planted during October, 1945, and the only seed present was that which had not yet germinated.

Damage was first observed in December, 1945,

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¹Located near Woodland Park, Colorado, the Manitou Experiment Forest is maintained by the Rocky Mountain Forest and Range Experimental Station, U. S. Forest Service, Fort Collins, Colo.

at which time it appeared the grass study plots would be almost ruined. Those in which the largest seeds were planted had been attacked first, each row being dug into. Other plots containing smaller seeds had also been invaded but not so extensively.

The situation indicated the attack would be continued in a rather systematic manner, i.e., rodents would first take the larger seeds and then dig up the smaller ones. An appraisal of the damaged plots was made in December, 1945. Of a total of 96 only 46 escaped soil disturbance by rodents. Disturbance was light on 26 plots, moderate on 12, and heavy on 12 indicating seed loss.

In January, 1946, inspection showed all plots to be badly damaged. A series of snap and live traps were set out to determine the rodents present. Though meadow mice (*Microtus*) runs were found adjacent to the nursery area, only white-footed mice (*Peromyscus maniculatus rufinus*) were taken on the seeded plots. It was determined that these were the rodents largely responsible for the depredation. Plans had been made to institute control measures but because of snowy weather no poison bait was exposed. Until February, at which time ponderosa pine seed, soaked overnight in 3 percent thallium sulfate solution and thallium-coated rolled oat groats (1 oz. thallium sulfate to four pounds of groats) were used as lethal baits. These were mixed in 50-50 ratio and teaspoonfuls placed at intervals of approximately 15 feet over the area. Attempts were made to place the bait under clumps of grass along trails or at other points most apt to be visited by mice. A barrier "protective" strip about one hundred feet wide was treated around the seeded area. "Permanent stations" consisting of discarded quart oil cans, which had been burned to remove oil, were also established on the area as a protection in case of mouse infiltration. The thallium-soaked ponderosa pine seeds were used as bait in these cans.

During the growing season observations were made in the nursery to determine the effectiveness of the bait placements. No dead mice were found in the nursery or in areas adjacent during the spring and summer. However, there were definite trails leading to the stations and evidence inside the "oil cans" indicated mice had visited them. The fact that rodent activity ceased in the grass plots following the laying

of poison bait and did not recur to any extent during the growing season indicated that the control measures were effective.

It was difficult to determine the effect of rodent depredations on the grass adaptation study. In some cases an excellent stand of grass was produced on plots which had been heavily invaded. In other plots subjected to equal rodent pressure the stands of grass were only fair to good. The fact that seed was planted at a very heavy rate of sowing partially explains these results. Even though some plots were heavily damaged, there was still enough seed left in the rows to produce an excellent stand of grass. In the case of fair stands or good stands of grass on plots which were heavily invaded it is more difficult to draw a conclusion. The results may reflect more extensive rodent damage than field observations indicate.

"1080" STUDIES

As a result of the observations made at the nursery, seeds of species which had been taken readily by white-footed mice were treated with the new poison, sodium fluoroacetate, commonly called "1080,"² to determine its effect on seed germination. Five samples of seed were soaked in a 1 percent solution of "1080" for five hours at room temperature. After draining and drying, the seeds were sent to the Seed Laboratory of the Colorado Agricultural and Mechanical College at Fort Collins, where germination tests were made.

The five seed lots made up of crested wheat-

²Kalmbach, E. R. "Ten-Eighty" a war-produced rodenticide. *Science*, August 31, 1945, Vol. 102, No. 2644, pp. 232-233. 1945.

grass, western wheatgrass, slender wheatgrass, tall meadow fescue, and smooth brome absorbed 23 to 28 cc. of the poison solution. All treated seed failed to germinate except smooth brome which gave 4 percent germination as compared with 91 percent for controls.

A limited study of the toxicity of the treated seeds to captive mice (*Peromyscus*) was made. Treated seeds of tall meadow fescue and Russian wild rye were lethal when as few as ten seeds were fed. Slender wheatgrass was less toxic.

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A Handy Device for Obtaining Tree Ring Cores of Short Length

In order to provide the small grower with the means of measuring growth the woodsman's knife was devised. This knife can be constructed by any local machine shop operator out of any stout heavy type of knife which contains a leather punch. The blades in one end of the knife should be removed to make room for a small bit $\frac{3}{8}$ inch in diameter and $2\frac{1}{2}$ inches in length. Holes are drilled through the sides of the knife, the reinforcing clamp, which provides sturdy anchorage for the rivet, and the square end of the bit and the latter is then riveted into place. Metal nubs containing brass rings similar to the type used for drawer pulls are brazed

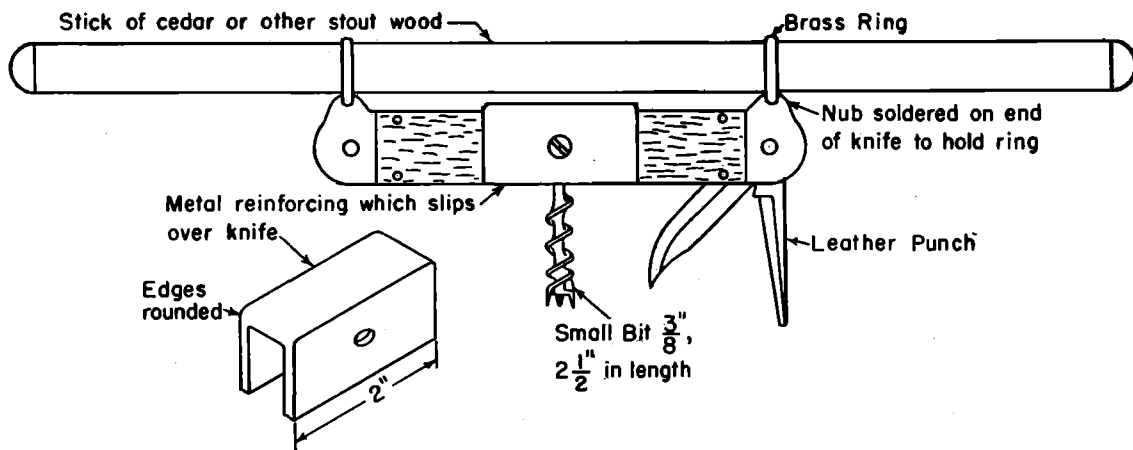


Figure 1.

onto the back of the knife one at each end.

In use a stout stick 12 inches in length is placed through the rings as a handle to provide leverage in boring. A hole slightly more than one inch in depth is bored in the tree bole at breast height. From the side of this hole a thin wafer of wood is trimmed using the leather punch blade. Several attempts may be required

before a good section is obtained on which the rings can be counted and measured. After recording the number of rings in the last inch of radial growth the hole may be neatly plugged with a fresh twig trimmed flush.

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Christmas Tree Production Declines In Montana

Montana Christmas tree shipments dropped 24 percent last season according to Northern Rocky Mountain Forest and Range Experiment Station Research Note #59 by M. B. Dickerman. Montana normally supplies about one-fifth of the 15 to 18 million trees comprising the nation's market. In 1946 Minnesota and Maine followed second and third, respectively, after Montana in Christmas tree production. The 1947 production decrease in Montana to 2½ million trees was attributed to the two following factors: discoloration and defoliation of many of the Douglas-fir trees in the Northern Rocky Mountain area, and the shortage of personnel to administer public sales. The Montana trees, almost 100 percent Douglas-fir, were shipped to nearly every state and two cars were exported to Cuba. Private land in the region continues to be the major source of yule trees, with 83 percent of the cut coming therefrom last year.

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