

PINE SEEDLINGS FROM ARTIFICIALLY SOWN SEED

At the Burgess Spring Experimental Range last year we lacked seedlings for our grazing experiments which deal in part with the influence of livestock grazing on pine seedlings in their first year of growth. An attempt at artificial seeding was made necessary by the uncertainty of how many years would elapse before the natural establishment of a number of seedlings sufficient for experimentation. We got some seedlings, enough for a start on our grazing studies — but far from a satisfactory number from a silvicultural standpoint. Whether or not any or all of the practices which were employed in this planting played any significant part in the number of seedlings obtained was not indicated from the first season's results. This point has created considerable interest and comment regarding the work, and is open to discussion. For example, Horn has already suggested that a low rodent population, especially of mice, on the Burgess Spring area probably had more bearing on the results than the planting method. Since the full answer to the significance of these results and the possible value of the method in direct seeding must be left for the future, after Dunning and Horn have evaluated the many intermixed factors in their rodent-silvicultural experiments, we are not advocating the method used. However, the interest evidenced in this planting effort seems to justify a description of what was done and what was obtained.

The technique was deliberately planned to combine several planting practices in an attempt to reduce the chances of rodents finding and eating planted seed before germination took place. The detrimental effect of rodents, particularly mice and chipmunks, in the artificial establishment of seedlings has of course been pointed out many times in the past by foresters and

biologists. In our planting three points were stressed:

1. Seeding if possible just ahead of heavy snows, at the beginning of the period when presumably the rodents would be relatively inactive and would have the least chance of taking the seed.
2. Planting the seed 1/2 to 1 inch deep in mineral soil and out of sight.
3. Avoidance of soil and surface evidences of planting. Such disturbances were minimized by (a) using a modified hand corn planter with narrowed snout and regulated to drop 1 or 2 seeds per spot, and (b) closing the soil crack by stepping on it.

In addition to using a planting method as a means of decreasing rodent pressure on planted seed, reduction of the rodent population was tried through poisoning. With the cooperation of Horn and Fair of the Biological Survey, all of the seeds were coated with a plaster-of-paris mixture containing strychnine, and a block of about 60 acres was treated with poisoned grain. Both of these poisoning treatments proved to be not at all or only slightly effective. No special effort was made to mask the odor in the seeds, although the feeling is widespread that scent is an important factor in the location of seeds by rodents.

In more detail, 72 spots were planted on each of 837 quadrats, which were 6.6 feet long, 3.3 feet wide, and spaced 2 1/2 chains apart in a lattice pattern over the planting area of 537 acres. This large-scale planting afforded the opportunity for silvicultural as well as range studies, and Forest Management of the Station carried half the burden of laying out the quadrats, planting the seed, and making examinations of the seedlings every two weeks throughout the season.

Of the estimated 60,000 viable seeds planted, 5,600 or about 9 percent

were missed by rodents and germinated.

—A. L. Horney - Exp. Sta.—