

NURSERY WORK AND PLANTING.

I. Seed Extraction.

Seed of all native species is extracted in the seed house on the station. Essential parts of the seed house are the drying room, heated by a hot air furnace, a shaker, run by an electric motor, a fanning mill, and trucks, each with eight trays.

Cones are collected in fall, dried in the drying room over winter, and the seed is extracted in the spring. Cones are let into the trays by gravity, and run into the drying room. White pine was dried eight hours, red pine four hours, jack pine six hours, and cedar two hours. After drying the cones are threshed out in the shaker. Cedar was threshed out by hand. The other cones were shaken the first time for four minutes, the shaker cleaned, and then they were shaken about ten to fifteen minutes longer. Most of the seed was extracted in the first shaking.

Seeds, except cedar, were cleaned in the fanning mill. After being run through twice they were clean enough. Cleaning of the seed took one day.

Species.	Amount of cones.	Amount of seed.
White pine	115 bu.	70 lbs.
Red pine	$\frac{3}{4}$ bu.	$\frac{1}{2}$ lbs.
Jack pine.	15 bu.	10 $\frac{1}{2}$ "
White cedar	1 "	2 $\frac{1}{2}$ "

It took two men four days to extract and clean the amount of seed shown above. Eight hours to the working day.

2. Preparation of the seed beds.

The soil in the nursery is light sand.

Rotation.

Seed beds occupy the land two years, or possibly three or four. Then a crop of soy beans is grown, but is plowed under while the seeds are still green. A dressing of stable manure is then applied. Soy beans add nitrogen to the soil. A crop of buckwheat is then grown, but is also plowed under before it becomes ripe. Buckwheat is grown because it adds so much humus to the soil. In the spring before the seed beds are prepared the ground is disked and dragged, using a two horse team.

Preparation of the beds.

Five men constitute a crew for this work. Two make seed beds and three seed and cover the beds. Tools used were spades, rakes, soil sieve, level, seed bed ~~fram~~-frame and a soil depth regulator. Beds were 4x12 ft. flat.

The ground is well spaded first, then the seed bed frames are set in, leveled, soil evened off with the regulator, and seed applied by broadcast seeding. It is then covered with the soil sieve, the depth depending on the species. The seed bed is then covered with burlap, which is pinned down. Seed bed frame is removed and the seed bed cover is put on.

Species.	Amount planted.	Depth.	Time of germination.
White pine	5 oz.	$\frac{1}{2}$ in.	2 weeks-2 years.
Red pine	4 "	$\frac{1}{4}$ "	7-10 days.
Jack pine	3 "	$\frac{1}{4}$ "	7-10 "
Spruce	2 $\frac{1}{2}$ oz.	$\frac{1}{4}$ "	5-40 "
Cedar	3 "	$\frac{1}{4}$ "	7-10 "

Weeding is negligible.

Seed beds are not watered except in very dry years, then the overhead sprinkler system is used.

The crew of five men, working eight hours a day should put in fifty beds, or ten beds per man per day. The cost per bed is 28¢ for labor only, exclusive of seed, fertilizer etc. Basis 35¢ per hour.

3. Pulling Seedlings for Transplanting.

Tools used are spade and seedling box, also need burlap and water. Crew of seven men, two wrapping, one carrying to wrappers, one digging, and three pulling. (If the seedlings are pulled for shipment they are tied in bundles of twenty five, otherwise the bundles are not counted). Pullers pull a handful of seedlings, heel them in; they are carried to the wrappers and are tightly wrapped in wet burlap. They are packed in the boxes and transported to wherever needed.

The crew of seven men should pull about ten thousand trees per man a day, or a cost of 35¢ per thousand for labor.

4. Transplanting.

Rotation.

Transplants occupy the ground one or two years, then

a crop of soy beans or buckwheat is grown and plowed under before it becomes ripe. In the spring the ground is disked and harrowed, and is ready for the transplanting.

Operation.

Crew of five men, two threading, one trenching, and two planting.

Equipment consists of three Stillwell transplant boards, a hand trencher, pails, water and a transplant shed.

Rows are made twelve inches apart and one hundred feet long. They are marked out with string. Seedlings are one and a half inches apart. The trencher man makes a trench along the line, deep enough to hold the seedlings without bending the roots, and about three inches wide at the top. Transplant boards are filled up by the threaders, carried to the trench by the planter, roots put in the trench well spread out and earth firmly tramped in, after which the board is removed.

Two crews of five men each can set out an average of 50,000 trees per day, or 5,000 per man. The average cost is 56¢ per thousand for labor.

5. Pulling Transplants for Shipping.

A crew of nine men is used for pulling transplants. One horse is also needed.

Equipment consists of balers, burlap, paper, moss, and a Feighly tree digger.

Two men operate the balers, two being used, the rest pulled, including the teamster, who pulled part time. Trees are lifted and loosened with the Feighly tree lifter, and are then pulled. Twenty five trees are tied in a bundle and heeled in. One of the men of each baler crew collects trees, while the other arranges cord, burlap and paper, and puts the trees in the baler with moss. Roots are put in the middle, sphagnum moss is packed in and the whole bundle wrapped and tied. From 500 to 1000 trees are put in a bundle, depending on the size of the stock.

The crew of nine men can pull and bale about 40,000 trees per day, at a cost of 63¢ per thousand for labor.

6. Planting in the Field.

The size of the crew is not fixed, but two men work together, one digging and the other planting. All are under a straw boss, who also works.

Tools used were longhandled spades, short handled spade, heart shaped spade, mattock and planting wedge. Stock was Tamarack 2-0., Red pine 3-0, Spruce 3-0.

On an old field furrows were plowed about six feet apart, and the seedlings were planted in the bottom of the furrow. In most cases furrows could not be plowed as the area was too brushy, and the ground was entirely unprepared. Some of the sites were very brushy and hard to plant. Spruce was used on these, more as an experiment than anything else, as past results on these sites has not been encouraging. Red pine was planted on the fairly brushy sites, and tamarack and spruce in the old field. No swamps were planted. All planting was 6x6.

A man should plant one thousand trees per day, but only about three hundred were planted, as the site was difficult.

Cost of labor was \$10 per acre.