

University of Minnesota, North Central School and Experiment Station

Tour Guide: William Cromell 1/

Chapman Plantation

One of the oldest successful plantations in Minnesota was established in 1900 by H. H. Chapman, then Superintendent of the North Central Experiment Station. He obtained wild Norway (red) pine seedlings from Carlton County. This stock was set out in rows on previously cultivated land here on the station, and the seedlings were cultivated for three growing seasons prior to the April 1900 planting date. The portions of the plantings observed on this tour are located on sandy soil that had been cut over and had little value for agricultural crops. The pine was planted here at a 6 x 6-foot spacing; survival was satisfactory at the end of the 1901 growing season.

In 1905, a spring fire killed many of the young pines, but enough trees remained to justify keeping records on them. In 1915 Professor J. H. Allison from the School of Forestry recorded the first data. Each tree was numbered and has been accurately measured every 5 years. Professor Allison has been part of the 2-man team making the measurements since he initiated the project. The 1961 data are as follows:

	<u>Plot A</u>	<u>Plot B</u>	<u>Plot C</u>
Original no. of trees	1,200	1,200	1,200
Present no. of trees	387	210	173
Present basal area - square feet	240.4	180.6	185.1
Present total merch. vol.--cords	93.4	73.0	74.5
Present vol. Scrib. Dec. C--bd. ft.	36,024	28,464	29,664
Mean annual growth--cords	1.60	1.17*	1.19*
Mean annual growth--bd. ft.	554	438	456
Total height--feet	69-78	70-74	70-74
D.B.H. spread--inches	7-18	7-17	10-18
Ave. D.B.H.--inches	10.7	12.6	14.0

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*These rates of growth would be higher if all thinning material had been included.

Norway Pine Christmas Tree Plantings

During the winter of 1958 the low-grade hardwoods and brush were cut on this area. The only product salvaged from the site was fuel wood. The tops and brush were piled and burned. The next summer (1959) the area was very heavily invaded with root and stump sprouts. During July 1959 the area was sprayed with a combination of 2,4-D and 2,4,5-T in the ester form, each 21.3 percent by weight or 2 pounds per gallon, using a water carrier.

This combination was mixed at the rate of 5 quarts for each 150 gallons of water and was applied at the rate of 60 gallons per acre with a farm tractor and tank. The total cost per acre for spraying, including chemicals, labor, and tractor costs, was \$10.74. Our average per acre for all spraying on such sites at the station is \$11.20. This treatment gave a 70 percent kill of the new sprouts in the following spring. Some spot spraying may still be necessary.

In April of 1960 a block of 3,500 2-2 Norway pine and a similar block of 3-0 Norway pine were hand planted at a spacing of 5 x 5 feet or about 1,700 trees per acre. The spring of 1960 was very dry. Survival rates were 88 percent for the transplants and 55 percent for the seedling stock. Replacements were made in 1961 in the seedling block. The trees in the transplant block averaged 28 inches this July (1963). About one-half or 700 per acre, of the remaining trees in the 2-2 transplant block were sheared. The 3-0 seedlings were just reaching grass and weed height, so no shearing was done.

This project will be carried through until the trees are harvested as Christmas trees.