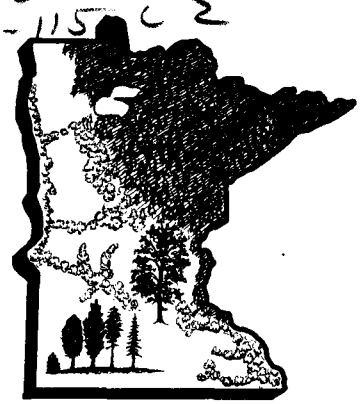

MINNESOTA FORESTRY NOTES

No. 115
April 15, 1962

SNOW DRIFTING PATTERNS IN FARMSTEAD WINDBREAKS HAVING VARIOUS WIDTHS OF SNOWTRAP

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Minnesota and other northern states as well as Canadian provinces are subjected to snowfall in such quantities that exposed farmsteads may be seriously drifted unless provided good wind protection. The design of plantings of trees and shrubs to most effectively provide the desired snow protection has been subject to controversy, particularly with respect to the ideal width of snowtrap, or distance between outside shrub rows and the main planting.

Those favoring a wide (25 to 60 feet) snowtrap point to the protection provided inner rows of trees, particularly conifers, against snow breakage and to the reduction of drifting inside the planting. Those opposing such wide spacing question whether the added land required can be justified. They believe it may result in the farmer's plowing out his shrub rows or in a weed patch between shrubs and the main planting.

To throw some light on this question, an experimental planting having three snowtrap widths was made in 1948 on the exposed, windswept poultry area at the Rosemount Agricultural Experiment Station. Two sections, one in an east-west direction and the other in a north-south direction, were each given spacings of 10 feet, 25 feet and 50 feet between inner shrub row and outside row of the main windbreak (Figure 3). During the winters between 1955-56 and 1961-62 inclusive, observations were made on the snow drifting patterns in each spacing for both sections.

Two major snowfalls in the winter of 1962 reflect typical snow drifting patterns during this period as shown by diagrams (Figures 1 and 2).

Conclusions drawn are:

1. Except for location of the major drift adjacent to the shrub row, differences among spacings have little practical importance. There are advantages to placing the extra moisture where the trees can benefit most directly.

2. No breakage of importance occurred on any of the trees located in inside rows.

3. Snow depth in the farmstead area did not differ importantly among spacings. Drifting disappeared twenty-five feet beyond the inside row of the planting.

4. The evidence throws considerable doubt on the need for planting the shrub rows more than 10 to 16 feet from the main planting.

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Published by the School of Forestry, University of Minnesota, St. Paul 1, Minnesota, cooperating with the Division of Forestry, Minnesota Conservation Department, and Forest Industries of Minnesota

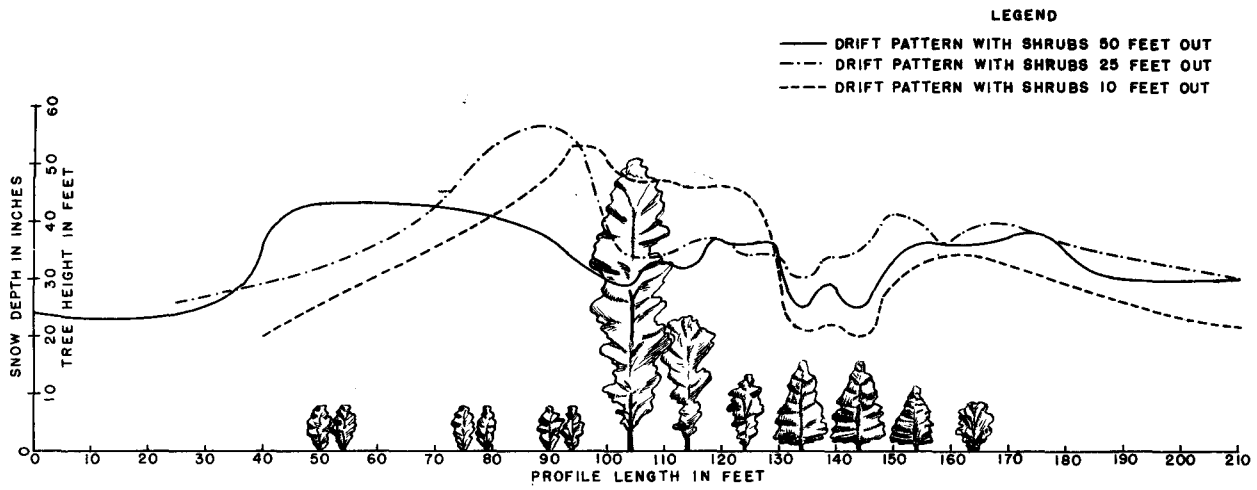

Fig. 1. Average snow depths for two major snow falls of 1962 in north-south planting for three spacings between shrub rows and main windbreak.

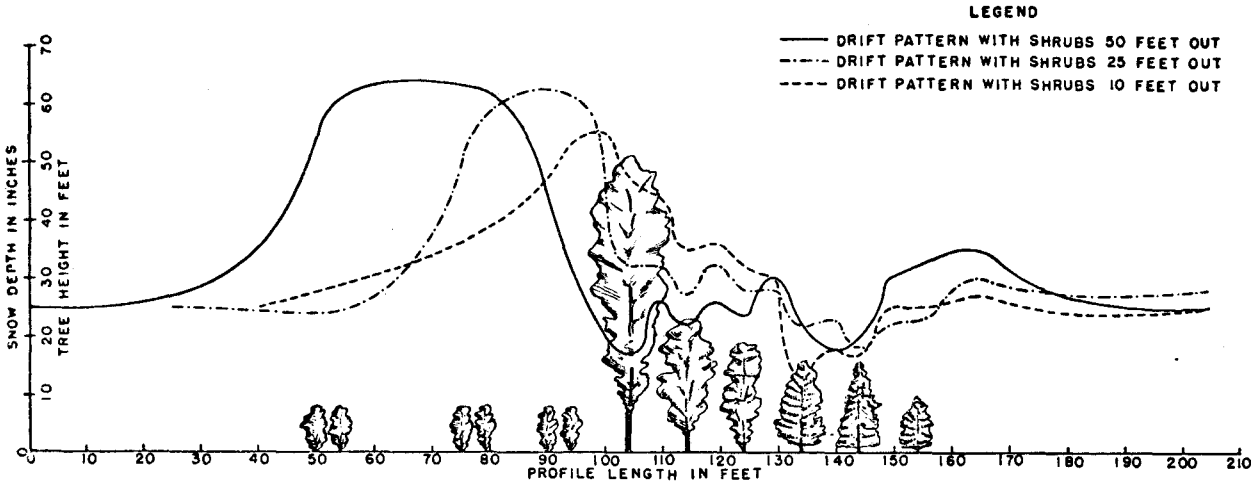

Fig. 2. Average snow depths for two major snow falls of 1962 in east-west planting for three spacings between shrub rows and main windbreak.

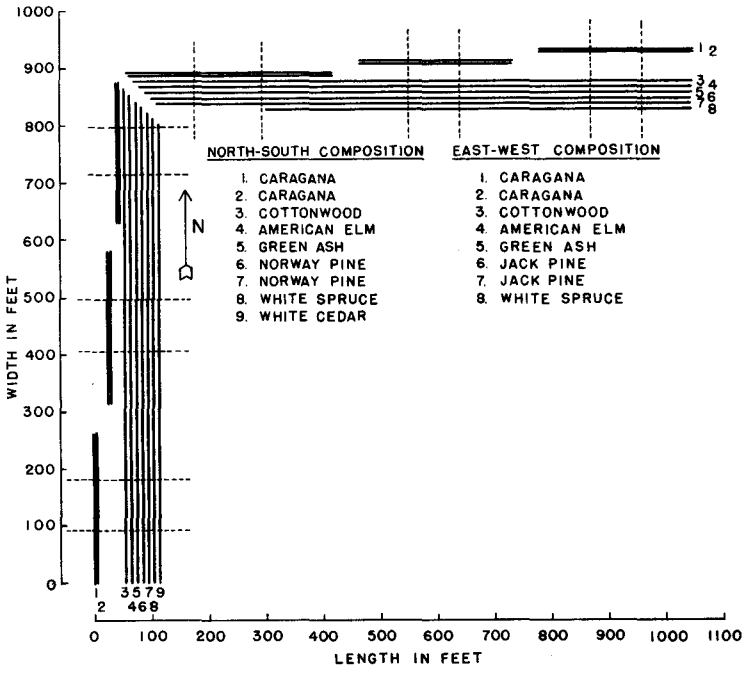

Fig. 3. Diagram showing planting layout. Dotted lines at right angles to tree rows show lines in which measurements of snow depth were taken.

Published as Sci. Jour. Ser. Paper No. 4857 of the Univ. of Minn. Agr. Exp. Sta.