

if the first planting leaves blank spaces, the replacements must be made during the first two and not later than the third year. If this is not attended to, the now well developed roots and branching stems of the living trees will make the operation a waste of time and money.

Some Important Principles

The foundation of the future wood-

gives way to the problem of management, and strict caution must be observed in handling the structure. Much of the foundation work can be destroyed in short time through operations hastily performed without a knowledge of the effects on the future of the belt. Nature will not be hurried and in her own way will direct the operations in due seasons. One of the greatest temptations at

probably be opened and the belt gradually become infested with grass. A stem canker characteristic more particularly with Poplar and Cottonwood will show signs of development depending upon the character of the soil and the amount of moisture content. Experiments are being conducted at the present time in the matter of handling such belts so that a growth of suitable varieties can be encouraged beneath belts of this nature to eventually take the place of the original belt, now ineffective from a shelter standpoint. Reproduction immediately under older trees under prairie conditions of soil and moisture as a rule develops poorly unless the ground space is sufficient and the stand of older trees open enough for the young underplanting to get sustenance. Under our conditions the competition of the roots of the older trees dries out the soil to such an extent that the young under planting cannot develop satisfactorily on account of deficient moisture.

To Assure Permanency

It would appear to be more practicable in the long run to plant mixed varieties of broad leaf trees, discourage the planting of fast growing varieties in pure stand, and set out supplementary breaks of the more permanent and effective evergreen spruce and pine adjacent to them. In this way the future permanency of the prairie tree belt is assured and the ultimate results will be in proportion to the amount of individual effort devoted to the work.

The fifteen twenty year period will reward the planter with a real young woodlot. The lower branches of the trees will either be dead entirely or in the last stage. The ground cover has gradually opened to the light as the trees have attained height growth and tree form. The falling leaves of passing years have formed a wholly or semi-decayed blanket, covering the soil, under which ample moisture is retained. Grass and weed seeds cannot readily penetrate to the soil beneath and as a consequence are no longer a menace. We have a healthy stand of trees, putting on a steady annual height and diameter growth. Even at twenty years under this system of management, records prove conclusively that 4-feet x 4-feet spacing is not in the least too close and there is yet no necessity for thinning the belt.

It is safe to predict that the first fifteen to twenty years is the hardest period in establishing a tree belt. If by careful management we can encourage the trees in a strong healthy growth to this stage then their future success and usefulness is assured.



Belt of Tamarack, Scotch Pine and White Spruce set out in 1905, photographed in Fall of 1920. Average height 19 feet 9 inches, average diameter, 3 inches.

lot is thus established by a few important principles:—

A thorough preparation of the ground before planting;

Careful selection of the varieties in mixture;

Careful planting with proper and timely cultivation at intervals during the growing season;

And last, but not the least, the replacement of dead trees not any later than the third season.

Strict observance of these points under average conditions cannot fail to reward the planter with a strong, healthy plantation fitted to enter the second stage of development with excellent chances of success in its favor.

The second or the five to ten year period will offer many temptations to the enthusiastic planter. The initial work of preparation, cultivation and so on will not demand further effort to any great extent. The belt has been started right and the future looks promising. It is advisable for all time to maintain in permanent cultivation a strip of ground from ten to fifteen feet wide all round the outside edge of the trees in order to isolate the belt from grass encroachment.

The Problem of Management

The hard work of maintenance now

this stage is the desire to prune the trees to a single stem. Much permanent damage will result from injurious and injudicious pruning and no other operation will more quickly destroy the effectiveness and permanency of a prairie belt than this practice. Known results at this stage strongly advise to leave well alone. In shelter belt form, as the trees get older, the lower branches will die off naturally and can be cleared away later on, without injury to the trees, leaving a good, clean stem developing in diameter. Think of the belt now as a valuable asset to the farm, capable of yielding good interest on the time and money invested, if handled intelligently. The merits of width, spacing and mixture will begin to show up from now on and present knowledge applied in a practical way to the farm tree belt tends toward medium belts of not more than ten rows wide, a spacing of four feet between the trees and rows and a combination of varieties. At the end of the ten year period a mixed stand can be still left to its own development with careful watching for the control of grass and insect menace. The pure stand of fast growing, open crown varieties may begin to show disadvantages. Ground cover will