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Blister-Rust Control

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FOREST PRACTICE AS INFLUENCED BY THE WHITE PINE BLISTER RUST *

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The control of the blister rust is associated intimately with silvicultural practices. The following points are brought out, more for discussion, than as solution of all forest problems in connection with the raising of white pine as a timber crop.

Size of Stand.

From the standpoint of cost of Blister Rust Control per acre covered in eradication, the larger the area of white pine in a block, the less the cost of protection. In the protection of a one acre pine woods, in the center of brush area, it would be necessary, if we covered an area extending 900 feet from the pine, to work a total area in the protective zone of approximately 74 acres, or 74 times the pine area to be protected. Whereas, in a township 6 miles square containing 23,040 acres the protective strip 900 feet wide is only 1/9 of the area protected, while in an area 50 miles square the protective zone outside is but 1/72 of the area protected.

The future of blister rust control will be protection on a community basis rather than on the acre basis. On this basis the protective strip becomes of much less concern than around a few acres. Since white pine is the most valuable tree for many sites in the North East, this species will become more and more used and larger areas of contiguous pine will probably result.

Density of Stand.

In Ribes territory, even under the densest of pine stands, Ribes may be found. The bushes however are usually small, weak, and with few leaves in the case of gooseberries, but are larger in the case of skunk currants. Their infecting power is small as compared to bushes grown in the pastures or openings in the dense pine. From a blister rust standpoint it is advisable therefore to maintain a dense stand throughout the life of the forest.

Cooper and Brierley show in their Ecological Study of Ribes in 1920, that gooseberries occur most commonly and bear most fruit and are most generally infected in orchards and pasture communities; that they are less common and with less infection in mixed woodland; and least in number and in infection in the climax forest.

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When the stand is to be opened up by thinnings or at the final cut the area should be worked and all Ribes removed just before these operations. If Ribes were not removed they would recover quickly under better light conditions, and would become sufficiently large to menace the pine, especially the young seedlings.

Desirability of Conversion of Mixed Hardwood and Pine to Pure Pine Fore:

Mixed stands do not yield as much timber as pure pine. Fisher and Terry show a yield of well-stocked, natural pine stands as based on mill figures, from 40,000 to 55,000 feet per acre at 60 years. For mixed stands of same age the yield varies from 20,000 to 35,000 feet per acre.

This conversion to pure pine forests is desirable from a blister rust standpoint. Since the forest cover is usually much denser in pure pine, less light is admitted and Ribes growth discouraged.

It is believed that fewer re-eradications will be necessary in pure pine than in mixed hardwood and pine, since there is less fruit formed on Ribes in the pure pine, therefore less reproduction of seedlings.

Supplemental Planting Needed.

The planting of white pine on poorly stocked areas should immediately follow Ribes eradication. These poorly stocked areas adjoin good areas of pine forest and are necessarily included in the area worked.

If advantage is not taken by the owner and the state, of the fact that pine areas are being cleared of Ribes, which are not fully stocked, hence not producing the maximum of timber, then the costs of blister rust control are going to be higher than they should be, considering as a basis of cost, not per acre covered, but per acre of growing pine protected.

Choice of Site.

In the formation of plantations it would be the best practice to decide first which lands are white pine lands and which most suitable for spruce or other species. Then in the spring, prior to planting, after the Ribes have begun to leaf, a fairly intensive Ribes survey should be made of the planting site. Swampy areas or other areas may be found where experience has shown that Ribes cannot be removed economically. These areas adjoining such swamps should then be planted to other species than white pine. When it has been decided to plant white pines upon a particular area in a blister rust infected region, eradication of the Ribes should certainly precede the planting. An instance of the results of planting before eradication is cited. At North Hudson, New York, a plantation of white pine was made in 1919, the Ribes not being destroyed till 1920. In 1921 an examination showed 15.1% of the living trees infected or 11.2% of all the trees set out, infected in the course of but two years.

Not only should this intensive Ribes survey of a planting site be made by the owner, but an extensive Ribes survey of the state would be advisable. This would reveal areas where Ribes are absent; where present and possible of eradication; and where present and eradication not practicable. White pine would then not be recommended on the latter type of land.

SUMMARY:

1. Ribes eradication over large contiguous areas will encourage production of white pine in larger blocks of dense pure stands which in turn will result in lower cost of control per thousand feet of pine lumber produced.

2. Supplemental planting of white pine on poorly stocked areas and the conversion of mixed stands to pure pine will result in a higher yield of good quality timber besides affording conditions less favorable for Ribes growth.

3. An extensive Ribes survey will result in greater care being used in selecting planting sites so that the species used will be produced at greater profit.