

OHIO AGRICULTURAL EXPERIMENT STATION

Wooster, Ohio

April 20, 1953

Forestry Mimeograph No. 4

Chemical Bark Peeling of White Pine by Applying Sodium Arsenite* in September

By

R. L. Sarles

- - -

From a recent small scale test carried out at the Experiment Station it appears that white pine can be successfully treated for chemical bark peeling by using sodium arsenite as late as September 24. Complete separation of the bark from the wood for extremely easy peeling was obtained within four months from the date of treating.

In an effort to produce peeled white pine poles by early 1953, the Department of Forestry turned to chemical peeling with sodium arsenite. Bark peeling with this chemical is being practiced quite extensively by some of the pulpwood companies in the United States and Canada to produce peeled pulpwood. The advised practice is to apply the chemical during the "sap-peeling" season for best bark removal results with both hardwoods and softwoods. The "catch" however, in our situation was that the time of year was September. Could the chemical peeling method be used as late as September on white pine and still produce good results? This was the question facing us.

The Forestry Branch of the Canadian Department of Resources and Development reported^{1/} that sodium arsenite girdle treatment applied in August and September gave easy peeling a year following treatment for jack pine, balsam fir, black spruce, white spruce, white cedar, and aspen. No reference at hand indicated what results could be obtained by treating white pine in the fall.

On September 24, 58 white pines, 38 years old, which were marked for thinning in plot 94 of the Secrest Arboretum, were given the chemical girdle treatment. A six to ten-inch wide bark girdle was made with a hand axe on each tree at waist or breast height. Care was taken in making the girdle not to cut into the sapwood, since it has been reported that such cuts prevent the upward movement of the chemical. As would be expected, the inner bark for the most part was tough and fibrous, but occasionally a portion of the bark would "slip" easily.

^{1/} McIntosh, D.C. 1951. Effects of chemical treatment of pulpwood trees. Forestry Branch, Forest Products Laboratories Division, Department of Resources and Development. Ottawa, Canada. Bull. No. 100: 29pp.

* A chemical poisonous to both man and all animal life. Particular care should be taken in handling this material.

Following the making of the girdle the barked area was thoroughly painted with Chipman's standard strength sodium arsenite. A water soluble red dye was mixed with the arsenite to show its presence on treated stems. The chemical was carried in a one-gallon paint bucket, and a three-inch paint brush was used as an applicator. Approximately one-half gallon of chemical was used in treating the 58 trees, and about ten and one-half man hours were expended in girdling the trees and applying the arsenite. The time necessary to make the girdles was considerably more than would be needed to do the job during the "sap-peeling" season because of the tight bark.

Observation two weeks after treating showed the pines to be dying back from the tip of the crown. Some crowns were completely dead and others showed very little sign of "browning" except at the very tip. By this time the red dye used in the sodium arsenite was no longer evident on the girdles from a distance.

Twenty-three of the treated trees were cut the first week in November, and all peeled easily and satisfactorily. The remaining 35 trees were cut by the end of January, and all peeled satisfactorily - the bark coming clean from the stem in long, large pieces. The peeling of the stems was complete for the entire length with the exception of the portion below the girdle - from the girdle to the ground. Evidently no downward movement of the arsenite took place. This could be overcome by placing the girdle at stump height.

The peeled poles were free of surface pitch and its resulting "glaze" effect common on material hand-peeled during the "sap-peeling" season. It is felt that the absence of this "glaze" will make for better cold-soak post and pole treating, particularly uniformity and depth of penetration of the preservative material. The peeled poles were also bright and clean - no sap stain or insect activity was in evidence.

The workmen handling the poles were extremely well pleased with the ease of peeling and the absence of the pitch.

Additional References on Chemical Peeling

1. Northeast Pulpwood Research Center. September 1952. The chemical killing of trees to facilitate bark removal. Gorham, New Hampshire. 14pp.
2. Ehrhart, E. O. May 1951. Effect of chemical girdling on bark separation. Symposium - Pulping and Recovering Problems. Report No. 5:3-6. American Paper and Pulp Assn. 122 East 42nd St., New York 17, N.Y.



At the left is a general view of several white pine trees illustrating results of chemical bark peeling with sodium arsenite in plot 94, Secrest Arboretum, Wooster, Ohio. On the right, forester J. A. Gibbs demonstrates the ease of bark removal and size of bark pieces obtained through the use of this method. Note location and width of the axe-made bark girdle. Photographs were taken January 16, 1953—approximately 16 weeks after treatment.