TREE IMPROVEMENT RESEARCH AT THE UNIVERSITY OF WISCONSIN

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The University of Wisconsin, in cooperation with the Wisconsin Conservation Department, began a program of forest tree improvement in 1948. Prior to this time work had been started in the Pathology Department by Dr. A. J. Riker and his associates on the selection and testing of blister rust-resistant white pines, This program has been expanded and promising resistant material is under field test at the present time.

The work which was started in 1948 in the Genetics Department was initially concerned with red pine. More recently work has been undertaken with jack pine and spruces. Individual tree selections have been made and progeny and provenance trials have been started. Vegetative propagation studies have also been initiated. Flower induction studies have been conducted for a number of years, Controlled pollinations have also been carried out. Research is being conducted at the University of Wisconsin with various Populus species. Problems concerned with disease and insect resistance, seed and pollen storage, vegetative propagation, etc,, are being investigated. Controlled pollinations are being made and the growth of the Populus hybrids under Wisconsin conditions is being studied,

The oak wilt disease which is causing severe damage to oak species in the eastern and central United States is being studied here, Oaks which have escaped the tree-to-tree spread of the disease in large oak wilt pockets are being tested for possible disease resistance by means of artificial inoculation,

The field trip scheduled for this afternoon will show at first hand some of this material, I believe that a more detailed discussion of the various phases of the research will be more profitable at that time,

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2/In consecutive order, the field trip included the following: (1) a demonstration of the Swedish tree-climbing ladder; (2) a view of the facilities of the Griffith State Nursery; (3) greenhouse facilities; (4) Populus seedlings treated with colchicine to induce polyploidy; (5) potted trees to be used as understocks for 1955-56 greenhouse grafting; (6) some of the 1300 grafts made during the 1954-55 greenhouse grafting season; (7) miscellaneous breeding material to be outplanted; (8) several lots of hybrid pines received from the Institute of Forest Genetics; (9) seedbeds of material to be field tested or placed in breeding collections; (10) the University of Wisconsin Forest Pathology Summer

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2/ Editor's note.

Research Center and the similar Forest Entomology Summer Research Center from which research teams carry out investigations throughout the state during the spring, summer, and fall; (11) 5-year-old greenhouse grafts planted at a 12x12-foot spacing; (12) Pinus monticola – P. strobus hybrids and the two parent species planted together; (13) a field planting of cuttings and seedlings of white pine very comparable in development; (14) 1 of the 4 breeding collection areas being developed throughout the state; (15) 1954 controlled crosses bagged to prevent further losses to squirrels and cone pickers; (16) seedlings resulting from controlled pollinations on blister rust-resistant white pine selections; (17) April 1954 pine field grafts with better than 70-percent take; (18) beds of white pine cuttings treated with various chemicals to induce rooting; (19) grafts and open-pollinated seedlings from apparently blister rust-resistant white pines which, after artificial inoculation with blister rust, have shown various degrees of resistance; (20) more than 1,000 air layers applied to various age classes of red, jack, and Scotch pines early in June, 1955; (21) several age classes of red pine given six different treatments, some of which have induced heavy male flower production but only a small increase in female flower production; (22) field grafts of red pine made in the spring of 1955 with about 45 percent success; (23) trials to find satisfactory methods of keeping the producing crown low so that seed can be harvested easily from the ground or from small ladders; and (24) progeny and provenance tests established in 1953, 1954, and 1955 with open-pollinated material of red pine, jack pine, Virginia pine, lodgepole pine, and Scotch pine.