SUMMARIES OF FOREST TREE IMPROVEMENT WORK IN THE UNITED STATES AND CANADA

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SUMMARY OF FOREST TREE IMPROVEMENT WORK IN THE NORTHEAST

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This summary of tree improvement work in the Northeast is based on replies to questionnaires received from 39 organizations. They include state forestry departments, agricultural experiment stations, forestry extension services, private industry, foundations, institutions, forestry schools, and research centers of the Northeastern Forest Experiment Station. In a survey of this type there are, invariably, a few individuals who are overlooked, and in my case, this is probably no exception. But in spite of this, I feel that the summary will give a satisfactory outline of the tree improvement work in this region.

The material received in the questionnaires has been processed by subject matter and will be presented according to number of projects, organizations and species in each category. The attached appendix lists[1] all organizations who have cooperated in this survey, the studies they are conducting, and the species with which they are working.

Stand and Individual Tree Selection. There were 23 projects listed in this category by 15 organizations involving a total of 9 species. The majority of the projects are concerned with seed orchard development from selected individuals of several species. About half of the seed orchards would be used for growing superior Christmas tree stock.

Provenance Tests. Twelve organizations in this region have reported a total of 2 provenance tests with a minimum of 9 species. Two organizations (4,22) reported studies with red pine to determine the relationship between site and provenance.

Hybridization. The hybridization programs reported by 9 organizations list a minimum of 28 species that are being worked. The majority of these species are conifers, and much of the work has been done by one organization.

Progeny Tests. Reported by 11 organizations. The majority of the control-pollinated material is being tested by one organization; one-parent progeny tests of selected phenotypes make up the majority of the tests conducted by other organizations.

[1]The appendix lists have been summarized in tables 1 and 2. Editor.

Vegetative Propagation. There have been reports from 12 organizations on work with 37 species. The projects include rooting of cuttings, air-layering, and grafting.

Clonal Tests. Six organizations reported clonal tests.

Morphology. Morphological studies associated with tree improvement are listed in 11 projects in which 8 species and at least 2 hybrids are being investigated. This work is being done by 9 organizations and ranges in objectives from the identification of hybrids by stomate structure, to the relation of leaf form to timing of leaf development.

Cytology (including polyploidy). Five projects, involving three species, were listed by two organizations.

Miscellaneous Work. Two arboretums (5,9) are in the process of being established to provide breeding stock for future crossing work. One (9) of these is concerned with a single genus, the second (5) is designed to include all species of commercial importance in the Northeast.

Nursery programs are now in progress by two organizations (5,9) where seed from selected trees are being planted and the seedlings grown for general distribution.

Table 1.--Organizations Supplying Information on Tree Improvement

1. Armstrong Forest Company
2. Boyce Thompson Institute for Plant Research, Inc.
3. Commonwealth of Massachusetts, Department of Natural Resources, Division of Forests and Parks.
4. Cornell University Agricultural Experiment Station
5. Hartford Foundation, Yale School of Forestry
6. Maria Moors Cabot Foundation for Botanical Research, Harvard University
7. New Hampshire Forestry and Recreation Commission
8. New York State College Agricultural Experiment Station
9. Northeastern Forest Experiment Station, U. S. Dept. Agriculture, Forest Service
10. Paul Smith's College
11. Pennsylvania State University, School of Forestry
12. State of Connecticut Agricultural Experiment Station
13. State of Connecticut Forestry Extension Service
14. State of Connecticut Park and Forest Commission
15. State of Maine Forestry Extension Service
16. State of Maine Forest Service
17. State of Maryland Department of Forests and Parks
18. State of Maryland Forestry Extension Service
19. State of New Jersey Department of Conservation and Economic Development
20. State of New Jersey Forestry Extension Service
21. State of New York Agricultural Experiment Station
22. State of New York Conservation Department
23. State of Pennsylvania Forestry Extension Service
24. State of Rhode Island Department of Agriculture and Conservation
25. State of Vermont Department of Forests and Parks
26. State of Vermont Forestry Extension Service
27. State Ranger School, State University of New York, College of Forestry

Table 1 (continued)

28. State University of New York, College of Forestry
29. University of Connecticut, Agricultural Experiment Station
30. University of Connecticut, Department of Forestry and Wildlife
31. University of Maine, Agricultural Experiment Station
32. University of Massachusetts, Forestry and Wildlife Department
33. University of New Hampshire, Agricultural Experiment Station
34. University of New Hampshire, Department of Forestry
35. University of Rhode Island, Agricultural Experiment Station
36. University of Vermont, Agricultural Experiment Station
37. U. S. D. A. Agricultural Research Service, Crops Research Division
38. Vermont Forest and Farmland Foundation
39. Yale School of Forestry

Table 2.--Summary of Reports on Forest Tree Improvement Work in the Northeast

	Stand and tree selection Seed orchards	Provenance tests	Hybridization Inbreeding	Progeny tests	Vegetative propagation	Clonal tests	Physiology	Taxonomy Morphology	Cytology
White pines	7,9,17,[1/] 22,31,32	9,22	9,28	1,5,9,19	28,32	32	11, 34	11	
Hard pines	4,11,17,22, 23,28,31	4,7,9, 22,23,31	5,9, 11,28	1,5,9, 11,19,22	9,11		5	5	5
Spruces	4,14,22,31	7,9, 22,31	5,9, 17,28	9,19	5,28		5,38	5	
Larch	2	2,22,36	2,28	2	2,28	2	38		2
Douglas fir	4	7,11,36							
Hemlock							12		
Poplar and Aspen		6	6,9,28	6,7,9,38	9	1,6 9,17	6,9 38	6 9	
Sugar maple	36			9	9,28,33, 36,38		36		
Other maples			9	9,19	28			28	
Birch		6	9	9,38					
Ash	25	1,9,19	9	9					
Chestnut	9		12	7,12	12,30	9			
Black cherry	1			1,17					
Elm			37				37		
Oak		6,9		5					
Black locust					17	17			

1/ Numbers refer to organizations listed in table 1.