Progress in the New York State Tree Improvement Program

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The New York State Tree Improvement Program has the objective of improving the quality of plantations on both private and public levels through the application of genetics. The steps are essentially that of selection of quality trees and their propagation to produce seed for sowing in the state owned nurseries. The criteria for quality tree selection are somewhat indefinite due to the lack of clear cut objectives of tree planting. However, such things as straightness of trunk, rate of growth, wood quality and pest resistance are desirable in any tree improvement program and are, therefore, basic in the selection phase. The need for such a program is obvious since quality seed based upon known tree source is not available, except to produce it ourselves.

The program is one of progressive improvement. There are two approaches - one, the conversion to seed production areas from existing plantations or natural stands. The trees are at the age of seed production, or expect to be in the near future. The conversion operation is one of removing undesirable trees, thinning the plantation, removing hardwood brush, building access roads and topping for convenient cone collecting where feasible. The selection ratio is relatively low, and less gain in improvement is expected, yet we have somewhat better seed for the present use. The second approach is the selection of quality trees in the nursery from natural and planted stands, and through the use of scions and seed collection, have available material for planting into seed orchards.

Here the ratio of selection is much greater - as one to several thousand trees - and thus more improved gain is expected. A further, but related approach, is the hybridization in controlled pollination between selected trees within the species and among species. The working plan is based upon seed supply needs in the state and calls for 316 acres of seed production areas and 189 acres of seed orchards. Seed collection areas are not in the plan, since no work has been done to improve the genetic quality or the collectioning feasibility.

The program is a joint effort between the Conservation Department and State University of Forestry in Syracuse. Financial support comes from the Title 4 program administered by the U. S. Forest Service.

Here at Saratoga a portion of the seed, grafting and nursery phases can be demonstrated. Facilities made available are the greenhouse, seedbeds and transplant areas; along with cold storage for seed, scions, and planting stock. Present inventory of grafted stock shows 10,401 trees of all major species. This material is for new orchards and refills of those already established. A clonal bank planting of each clone handled can be seen. A demonstration planting of Scotch pine from many sources can be seen for those interested in the variability of this species. The nursery is the base of operations with the real results at some 28 stations in the field on state lands. The acreage of seed orchards already established is 50, at 13 locations. Seed production areas total 201 acres at 15 locations.

Photos of tree improvement activities were shown. Pointed out as serious pests of newly established seed orchards were frost, drought, and rodents including the usually innocous woodchuck.