

THE STATUS OF TREE IMPROVEMENT
IN THE GREAT PLAINS

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Abstract.--The various tree improvement action programs of State forestry agencies in the Great Plains are described and the role of the Forest Service, USDA in promoting cooperative tree improvement programs is explained.

INTRODUCTION

The particular branch of the Forest Service that I work for, State and Private Forestry, is involved in tree improvement primarily through its responsibility for administering the Title IV program.

In my presentation I will explain some of the details of the Title IV program and I will describe the current activities of Great Plains' State forestry agencies that cooperate with the Forest Service in this program.

TITLE IV

Legislative Intent

Section 401, Title IV, of the Agricultural Act of 1956 is intended to provide Federal assistance to States for the purpose of bringing into production commercial forest land not adequately stocked with marketable tree species. In the early years of this program, tree planting on State and private lands was the predominate activity. In recent years, increased emphasis on tree improvement work under Title IV has helped to initiate and promote tree improvement activities nationwide.

It should be noted that activities under this program are limited to those involving commercial tree species. Species planted primarily for Christmas trees or windbreaks are excluded. Unfortunately, there are no Federal cost-share programs to promote the genetic improvement of non-commercial species.

Financial Assistance

Cost-sharing under the Title IV program is essentially 50:50 up to a maximum allotment for each State. Allotments are made each new fiscal year and may vary from year to year. In 1976, a total of slightly over one million dollars was allocated to 43 States and territories for an average of \$23,279 per State. Allotments ranged from a high of \$63,000 for Alabama to a low of \$1,000 for Massachusetts.

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Program Administration

Cooperative Forestry and Fire Protection, a staff unit within State and Private Forestry, has the responsibility and authority for recommendation of plans, for review and approval of financial plans, for allotment of Federal funds, for determining standards, and for inspections.

Before a cooperative agreement can be signed, a State has to develop a long-range program plan that describes, in detail, the activities planned for the next five years and, in general terms, the long-term strategy to be used.

The Forest Service also has responsibility for providing technical assistance to States involved in the Title IV program. Staff specialists, such as myself, provide assistance in writing tree improvement plans, training in plus-tree selection, assistance in seed orchard and progeny test design and establishment, and recommendations for seed orchard maintenance and protection.

Unfortunately, there are very few staff specialists (usually geneticists) in State and Private forestry, to provide technical assistance for the entire United States. Clyde Hunt covers the Northeastern Area, Clark Lantz the Southeastern Area, and I roam the entire Great Plains. The west coast and intermountain region presently have to fend for themselves.

EXAMPLES OF STATE TITLE IV PROGRAMS

Kansas

Kansas has been involved in the Title IV program since 1968, longer than any other Great Plains State. Tree improvement has been the focus of their program since its inception. A program of plus-tree selection and seed orchard establishment was initiated for black walnut and later for eastern cottonwood. To date, over 200 clones of black walnut have been selected and established in a 55 acre seed orchard. Over 37 clones of eastern cottonwood have been selected and established in a six acre clone bank.

Half-sib progeny tests and clonal tests of the plus-trees have been initiated this past year.

Interim sources of black walnut seed are being collected from stands selected as above average.

Kansas is in the process of replacing Loy Shreve, their former tree improvement forester, who is now working for the Texas Extension Service.

Wyoming

Wyoming has recently redirected their Title IV program from one of tree planting on State owned lands to a tree improvement program for ponderosa pine and Douglas-fir.

A 17 acre seed production area has been established for ponderosa pine (courtesy of F. H. Kung) and is being used to supply seed for the State's planting program.

Ponderosa pine and Douglas-fir plus-trees are being selected in the Laramie Peaks, Black Hills and Bighorn Mountains of Wyoming. Open-pollinated seed collected from plus-trees will be used to establish seed orchards and progeny tests.

Bart Trucano, reforestation forester, spends 50 percent of his time on tree improvement activities.

Nebraska

Nebraska has just recently signed a Title IV agreement and is nearing completion of their comprehensive tree improvement plan.

Silver maple will be the major species to be improved with lesser emphasis on black walnut and eastern cottonwood.

As many of you know, Bill Lovett is Nebraska's tree improvement forester and is the first such tree improvement forester hired by a Great Plains State with a forest genetics education. Hopefully, this signifies a trend rather than a random occurrence.

South Dakota

South Dakota also has just recently signed a Title IV agreement. Of the commercial tree species likely to be planted in any numbers in South Dakota, black walnut ranks first. Native stands of black walnut are found in southeastern South Dakota along the Big Sioux and Missouri riverbottoms. Black walnut is currently being planted under the FIP program in these same

An improvement strategy of plus-tree selection and half-sib progeny testing and seed orchard establishment was initiated this year by Ron Gardner, the full-time tree improvement forester.

Colorado

Colorado is in the process of revising their Title IV plan. Past work has involved maintenance of an outplanting of the Rocky Mountain Experiment Station's ponderosa pine provenance study, evaluation of several hybrid poplar clones, and establishment of a lodgepole pine seed production area.

Very little tree planting is currently being practiced for commercial purposes on State and private lands in Colorado. In the mountainous areas of the State, landowners are generally faced with the problem of too many trees rather than too few trees.

One possibility being investigated is landowner interest in planting eastern cottonwood along the South Platte in northeastern Colorado.

New Mexico

New Mexico is in the draft stages of a Title IV proposal. Species of major interest are ponderosa pine, Douglas-fir and Engelmann spruce. Planting for commercial purposes is expected on both State and private lands.

North Dakota

North Dakota also is in the final draft stage of a Title IV proposal. Ponderosa pine and eastern cottonwood will likely receive major attention in the Title IV program. Both species are native to the State.

NON-COMMERCIAL SPECIES

State Programs

The progress of genetic improvement programs for non-commercial species is sporadic and in some instances non-existent. The lack of Federal cost-share programs for such species forces the States to go it alone or not at all. In this day of tight State budgets, an improvement program for such species is assigned a very low priority. Most States are forced to do what they can within the existing nursery budget. Despite such monetary constraints, several States have made significant progress.

In North Dakota, the Association of Soil Conservation Districts has, in cooperation with the Rocky Mountain Experiment Station, established a green ash seed orchard. The ASCD operates the Lincoln Nursery at Bismarck.

The North Dakota State Forest Service, in cooperation with the Rocky Mountain Experiment Station, has established seed production areas for Colorado blue spruce and ponderosa pine.

In cooperation with the Lincoln Lab of the Rocky Mountain Experiment Station, Nebraska has established seed orchards for Scots pine and Austrian pine. You will be hearing more about the Scots pine program tomorrow morning from Dave Van Haverbeke. The Austrian pine seed orchard was established from the Yugoslavian origin that has exhibited resistance to Dothistroma needle blight in Ralph Read's provenance test at Horning.

SEED CERTIFICATION

Existing Programs

South Dakota and North Dakota amended their seed certification standards to include tree and shrub seed in 1973 and 1974 respectively. Both programs are administered by the State Crop Improvement Association. Standards for tree and shrubs were developed cooperatively by the Forest Service, Soil Conservation Service, State forest service agencies, State universities and others. The OECD proposed scheme was used as a basis for the standards.

To date, applications for certification have been received primarily from State and Federal agencies and have included both the source-identified and select classes of certification.

In 1975 New Mexico amended its seed certification standards to include tree and shrub seed. The New Mexico Crop Improvement Association administers the program, and in fact, took the lead in writing the standards. The standards are consistent with the OECD scheme and are patterned closely after the Washington and Oregon programs.

A private seed collection business in New Mexico was instrumental in getting the State's program extended to cover tree and shrub seed. This business is just getting started and apparently plans to specialize in high quality seed.

Future Programs

The tree improvement plans of both Kansas and Nebraska include provisions for promoting the development of tree and shrub seed certification programs in their respective States. As in other Plains States, the Crop Improvement Associations in both States appear to be receptive to including tree and shrub seed in their programs. Generally if such crop improvement associations are provided the technical assistance of professional foresters in writing the standards and administering portions of the program, such as field inspections, they are eager to add tree and shrub seed to their certification programs.