

FOREST TREE SEED CERTIFICATION

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What Seed Certification Is

The word certification generally means "attestation of facts," Literally, anything covered by a certificate has been given certification. It may refer, for example, to freedom from plant pests in a lot of seed. However, multiple usage of this term has led to confusion and misunderstanding.

For agricultural seed, certification implies genetic improvement; its aim is to maintain and make available to the public high-quality seeds and propagation materials of superior crop plant varieties grown and distributed in order to insure genetic identity and genetic purity. Foresters have indicated a desire to retain this meaning as applied to tree seed, and the following definition has been proposed

for a revised "Forestry Terminology": Seed certification is "the guarantee of seed character and quality by an officially recognized organization, usually evidenced by a certificate including such information as certification category, genuineness of species and variety, year of collection, origin, purity, soundness, and germinative capacity."

Why We Need It

Naturally we want plantations that will produce the maximum amounts of the most desirable products per acre. We want to obtain seed that has produced such results. Conversely, we want to avoid reaccessions of seed that has given poor or indifferent results.

Unless we can control the necessary seed collections, there is no certainty that good seed accessions will be repeated and poor ones avoided. Seed must be collected under certain recognized standards and so verified by a reputable agency or authority, i.e., seed certification.

How It Developed

Tree seed certification in the United States is new, but the concept has long existed. In 1928, Carlos G. Bates of the Lake States Forest Experiment Station proposed developing "tree seed farms (1)." In New England about that time, Henry Baldwin advocated various aspects of seed control. In 1939, the U.S. Department of Agriculture adopted a tree seed policy requiring rather detailed information on tree seed origin and use of local seed. But these actions and several related ones were somewhat advanced, for they received little or no implementation.

About 1959, however, foresters in the South-eastern Section of the Society of American Foresters (SAF) adopted standards for certifying forest tree seeds that were to be applied by the Georgia Crop Improvement Association. In October 1959 the International Crop Improvement Association (ICIA) adopted a set of minimum forest tree seed certification standards, essentially the same as those used by the Georgia organization. However, foresters in other parts of the United States did not consider these standards entirely applicable, so the SAF Committee on Forest Tree Improvement established a Seed Certification Subcommittee to study the question. The Subcommittee solicited opinions from 123 organizations and individuals throughout the United States and Canada and developed revised minimum standards for tree seed certification. These were presented to ICIA in November 1960 and adopted with slight modification in November 1962. These minimum standards for forest tree seeds differ from those for most agricultural crops in that they provide for two subclasses of certified seed. These subclasses are defined later in this article.

Who Is Doing It?

Reliable agencies responsible for seed certification may be organized voluntarily by groups or associations of seed collectors, users, or both, or they may be established by law. An example of the former is the proposed Northwest Forest Tree Seed Certifiers, Inc., a voluntary

association of tree seed collectors, dealers, and users (both public and private) planned for the Pacific Northwest. They propose to conduct tree seed identification under their own rules on a regional basis.

Experience with agricultural seed control, however, has indicated that effective certification needs legal backing. Many foresters prefer to be guided by the experience obtained using agricultural seed and to develop certification practices for tree seeds that will fit into the existing pattern of legislation.

All 50 States have laws that require labeling of agricultural seeds and provide for certification. However, whereas labeling is mandatory for such seed entering commerce, certification is voluntary. The laws do provide, however, that seed cannot be designated as "certified" unless it meets certain requirements and is so designated by the appropriate authority.

Thirteen State laws require labeling of tree seeds. Six States have an established and operating system for certifying tree seed; one has a law that permits certification, but standards and machinery to be used have not been developed.

ICIA-SAF Standards

In 43 States and in Canada the seed certifying agencies are the local crop improvement associations. These associations are members of ICIA, which, among other activities, provides minimum standards for certifying the seed of various crop plants. Local seed certification standards must equal or exceed these minimum standards. In the remaining seven States, some other agency is designated to certify seeds.

The ICIA recognizes four certification categories for agricultural seed, which in

descending order of control of hereditary makeup are as follows: Foundation, breeder, registered, and certified classes. Seed of each class is designated by a tag of specified color. The minimum standards for forest tree seeds presently include only the "certified" category, but include also two additional subclasses of less rigid genetic control: (1) Selected seed that comes from untested, but rigidly selected, trees or stands that have promise but not proof of genetic superiority; and (2) source-identified seed that comes from natural stands of known geographic origin or from plantations of known original seed source. Because of the long time required for succession of generations in forest tree species, these two subclasses probably will make up the bulk of certified tree seed for a long time, and their general use will represent a real advance in forest practice.

Activities in the States

Seven States, including five in the Southeast, now have a legal basis for tree seed certification. In six of these States foresters have developed the certification standards and provide or guide inspection activities. The exception is South Dakota, which certifies only four selections of trees specifically developed by the Agricultural Experiment Station for shelterbelt use.

In Georgia the crop improvement association has received 10 applications for tree seed certification since 1959, most of them for slash pine. More than 200 acres are involved. In 1962 about 260 pounds of seed were collected from certified slash pine trees. All the areas involved belong to forest industries.

South Carolina has tree seed certification standards comparable to those in Georgia and has so far received one (industry) application for certification.

The Alabama Crop Improvement Association recognizes three classes of tree seed roughly equivalent to the "certified" and "selected" categories, and made its first inspection in 1963 (3 acres).

In Florida all tree seed certification requires appropriate progeny tests to substan-

tiate improvement claims, and no applications have yet been made.

North Carolina has no tree seed legislation, but the State College has been working with certain forest industries that have now established enough seed orchards, primarily of southern pines, to produce the seed required for 300 million seedlings per year.

In New York the Dean of the State University College of Forestry has an Advisory Committee on Tree Seed Certification, which has developed certification standards for use under the New York Seed Law. Certification activity has been minor and is not expected to increase much until seed becomes generally available from present seed production areas and seed orchards, perhaps in about 10 years.

In South Dakota certification of forest reproductive material began about 1952, and about 250,000 trees were handled under certification in 1964.

In the Pacific Northwest the Northwest Forest Tree Seed Certifiers, Inc., already mentioned, has developed certification standards generally comparable to those of ICIA except that they provide for two categories of source-identified seed. The lower category provides for identification by seed collection zones only.

Committees of foresters in the Northeast, the Midwest, and the Southwest are studying tree seed certification needs, informing their colleagues of the problems, and preparing recommendations. Some of these recommendations undoubtedly will result in additional local tree seed certification standards and actions.

Foreign Programs

In some European countries, the laws specify that seed origin must be shown for all collections. For example, the West German law specifies seed collection zones for each of the major forest tree species grown within the country.

The European Economic Community (Common Market) has a committee of foresters that has developed detailed rules for seed procurement and handling. These regulations are comparable to our certification.

The Organization for Economic Cooperation and Development (OECD), which includes about 20 European countries, Japan, Canada, and the United States, has a committee of foresters developing an international program for certification of forest reproductive material. The current draft recognizes the same categories as the ICIA-SAF minimum standards: Certified, Selected, and Source-identified.

Future

Certification of forest tree seed is just starting in the United States and elsewhere. The volume of activity can be expected to increase gradually.

Because tree seed certification is generally considered desirable among foresters in the United States, and because the general pattern of expected certification-- except in the Pacific Northwest--will rest upon authority provided by State legislation, we can expect increased activity using the ICIA minimum standards for tree seed certification as a basis. Also, simi

lar OECD standards will likely permit coordinated international tree seed certification activities within 5 years.

Among many foresters engaged in tree seed work, there is also the hope that standards developed for tree seed certification will be used as guides even by those seed producers who do not sell seed. Such a practice cannot but help them and their respective communities upgrade their forests and the production resulting from them.

Finally, I should like to stress that the future of tree seed certification rests with the seed user. Certification cannot become truly effective until the man who uses the seed knows what seed he wants, and is willing to pay the extra price certified seed will have to bear to meet the special cost of high-quality seed production and certification.

Literature Cited

- (1) Bates, Carlos G.
1928. Jour. Forestry 26(7): 969-976.