

# Obtaining Quality Seed for Use in Vegetation Management Projects

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## Introduction

Quality seed is the cornerstone of any vegetation management project. Quality seed can be defined as to genetic quality or varietal identity, mechanical quality including level of certain weeds, other crops, and inert matter, and the quality of germination or viability.

It is best to start a revegetation project with quality seed of known identity and quality. Where unknown quality seed is used, problems in vegetation management for weed control and stand establishment can be an unforeseen hazard.

In discussing the topic of obtaining quality seed for use in vegetation management, I would like to review the activities that Certification agencies utilize to quantify quality factors and assure varietal purity and then go into some steps that a vegetation manager can use to evaluate seed sources for planting purposes.

## Certification Activities in Oregon

The Oregon State University Seed Certification Service provides a service to the public for the maintenance and increase of quality seed and propagating material. This service is provided to insure varietal purity through review and maintenance of crop production records and a series of field and laboratory evaluations.

Legislative action taken in 1937 authorized and required the Dean of the College of Agriculture at Oregon State University to initiate a program for certification of seed in Oregon. This responsibility has been carried out by the establishment of the OSU Seed Certification Service, part of the Extension Service of the Department of Crop and Soil Science.

The OSU Seed Certification Service provides for certification of grasses, legumes, grains, mint, potatoes, other miscellaneous crops, and forest tree reproductive material. As a producing state, Oregon markets seed nationally and internationally, with over 95% of the seed produced here sold in other states and countries.

The OSU Seed Certification Service is also the legally designated authority for the Organization for Economic Cooperation and Development (OECD) Certification program in Oregon. This OECD program is an international program providing assurance that international certification standards are met in seed produced here in Oregon, which is a consideration for overseas marketing of Oregon-grown seed.

## Steps in Certification

The OSU Seed Certification Service is available to the public on a voluntary basis. Each new variety entered in the program has special characteristics of disease resistance, greater productivity, environmental adaptation, or other features that give it unique value. It is essential that these specific characteristics be preserved during the process of multiplication for the variety to provide maximum benefit to agriculture and the public.

The seed multiplication process under the certification program involves the supervision of the three or four generations of seed increased from the plant breeder to the commercial grower. Under the U.S. system of certification, four classes of seed increase are designated, with the registered class optional. Breeder-class seed is produced by the originator and provides the stock seed for the first increase. Production from this planting is designated "foundation class." Fields established with foundation-class material produce registered (with certain specific varieties) or certified seed. The certified class is the final generation in the program and is not intended for further seed increase but rather for commercial use - such as pasture, lawn, or grain production. The OECD system is similar to the U.S. system, but different terms are used to designate the generation of increase.

The process of certification begins with the seed grower in Oregon. Applications for certification are made through the County Extension office in the county where the seed production is taking place. Most seed crops for Oregon Certification require a seedling inspection. The initial application for seedling inspection requires specific information for grower identification, field identification including acreage, permanent field number, aerial map of field, acreage size, Township,

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Range, and Section listing, date of planting, crop history of field for previous two to five years depending on crop being certified, chemical usage with seed planting, seed source documentation of planting, and appropriate fee payment for inspection request. Specific standards are listed for each commodity in the Oregon Certified Seed Handbook for certification in Oregon. Evaluations are used to determine eligibility for certification as applications are received. Seedling inspections are made, field inspections are completed, and seed lots are tested for seed quality evaluation. Certification in Oregon is not final until all of the evaluations are completed and meet the standards listed in the Oregon Certified Seed Handbook and each seed bag is tagged with an appropriate certification tag.

#### Labeling Factors for Seed Lots

Major factors of seed quality that consumers can utilize to evaluate comparative seed purchases start with proper documentation of a seed lot. The term lot of seed is defined by the Federal Seed Act as "a definite quantity of seed identified by a lot number, every portion or bag of which is uniform, within permitted tolerance, for the factors which appear in the labeling." As the state and federal laws indicate, each seed lot must be properly labeled and tested.

Grass and legume seed shall be delivered in sealed containers and each container should be labeled with certain information that will help the buyer determine the quality of the seed lot. The label will include the kind and variety of the seed, the kind and variety of each seed in the lot if a mixture exists, the percent germination for the seed, and the date of the most recent seed test. In addition, the percent of pure seed, percent and kind of other crop, percent of inert matter, percent of weed seed, and number of restricted noxious weed seeds present in a seed test must be listed on the label. It should be verified that the labeling information meets current state (Oregon Seed Law) and Federal seed act requirements. In addition, the label must also indicate origin of where the seed was grown, lot number, name and address of labeler, and lot weight or bag weight.

The label that you observe on a seed purchase could look like:

1. Name of the kind or kind and variety (Pure seed)
2. Origin (State or county where grown, or unknown)
3. Lot number
4. % Pure seed
5. % Other crop seed
6. % Inert matter
7. % Weed seed
8. Name and number per pound of restricted noxious weed seeds present
9. % Germination
10. % Hard seed (if over 1%)
11. Test date (month and year)
12. Name and address of labeler
13. Lot weight or bag weight

#### Evaluating Quality Factors for Seed Lots

Relative quality of seed lots can be determined in a number of ways. Variety identity can be verified through the presence of a certification tag. The certification tag can also be an indication of mechanical and viability quality. It is helpful to become familiar with state certification standards. The seed label attached to each seed container of a specific seed lot can be helpful in determining relative quality of a seed lot. Ask for a complete seed laboratory report, which will list all crop and weed contaminants found in a seed test. Be familiar with seed testing procedures and the different types of tests available. This will help you in evaluating the quality of the seed.

The ability of a seed buyer to evaluate the potential and value of a seed lot for their use is of utmost importance to the final success of a planting need. Purchase of the incorrect crop kind or variety can lead to inferior final results. It is important to know the needs of your area and the options available. Some factors may depend on maintenance requirements of the crop type, stand establishment needs, end use requirements (forage or turf), and the ability of the crop type and variety to successfully survive and flourish under local growing conditions.

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Common Name	Latin Name	Points of interest / values
<b>Trees</b>		
1 Hardy rubber tree	<i>Eucommia ulmoides</i>	resistance, leaf texture
2 Black gum	<i>Nyssa sylvatica</i>	fall color, wet tolerant
3 Ginkgo	<i>Ginkgo biloba</i>	unique habit, fall color
4 Carolina silverbell	<i>Halesia carolina</i>	intricate white flower
5 European hornbeam	<i>Carpinus betulus</i>	resistance, unique bark, wet tolerant
<b>Shrubs:</b>		
6 Virginia seetspire	<i>Itea virginica</i>	fragrant flowers, fall color
7 Summersweet clethra	<i>Clethra alnifolia</i>	fragrant/showy flower, multiuse
8 Blue-spirea	<i>Caryopteris x clandonensis</i>	showy blue flower/attracts butterflies
9 Spicebush	<i>Lendera benzoin</i>	fall color, naturalizing
10 Japanese kerria	<i>Kerria japonica</i>	yellow flowers, hardy

#### Professional Assistance:

There is probably no one that knows his golf course more than the Superintendent, perhaps most for the problem areas and for the hot spots of concern to the membership. There is no one more qualified than the Golf Course Architect to determine the distances and arrangements which set the strategy and diversity of golf shots of the course. But in choosing a professional to assist in the task of the Long Range Landscape Plan as outlined above, it is the professional which provides a combination of talents that is needed. These talents include: a strong knowledge of the natural environment including soils, vegetation, climate, hydrology and aesthetics; knowledge and appreciation of natural succession of various vegetation communities; a thorough understanding of the game of golf; and working knowledge of the plants of the region. The professionals trained in each of these areas include Landscape Architects, Restoration Ecologists, Golf Course Architects, and Horticulturists respectively. It is critical to find one that has expanded his professional expertise to include all the above and one that can bring all these talents to the project.

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##### Summary

Utilize the label information available to you in market channels and required by State and Federal seed laws. If seed is offered for sale as certified, it must have the appropriate certification tag attached to the container of seed.

All seed must be properly labeled with a seed analysis tag. Use the additional information available to you by asking for the complete seed laboratory analysis reports. Make sure the viability test results are current. Select the crop kind and variety that will do the best job for you. Utilize additional steps that are available to you to compare value among seed lots. For example, calculate the pure live seed percentage for each seed source and determine the actual cost per pound that the seed lot will cost you.

Be specific in your requests for bids on the minimum factors of seed quality that you will accept. Become knowledgeable in seed quality. Visit with different agencies that have responsibility in monitoring seed quality. Learn how seed testing is done. Becoming aware of the factors of seed quality will help make your job enjoyable and successful.

##### List of Helpful Publications:

Association of Official Seed Analysts. 1988. Rules for testing seeds. Contact your local seed laboratory for current address.

1991 Oregon Certified Seed Handbook. Oregon State University Extension Service, Corvallis, OR 97331.

Federal Seed Act and Rules and Regulations. Available from USDA-AMS, Beltsville, Maryland.

Hafenrichter, A.L., et al. 1979. Grasses and Legumes for Soil Conservation in the Pacific Northwest and Great Basin States. Agriculture Handbook 339, Soil Conservation Services, U.S. Department of Agriculture, Washington, D.C.