

# **Rick Novak**

## **Director of Colorado Seed Programs**



**Seed Certification**  
**Seed Testing & Labeling**



# Colorado Seed Growers Association

## Function

- *To adopt and implement Seed Certification standards that help maintain the pedigree of a specific variety. We provide verification and documentation of the process.*
- *Varietal purity is our first consideration, but other factors such as weeds, diseases, viability, and mechanical purity are also components of the Certification process.*





Colorado Seed Growers Association  
APPLICATION FOR FIELD INSPECTION

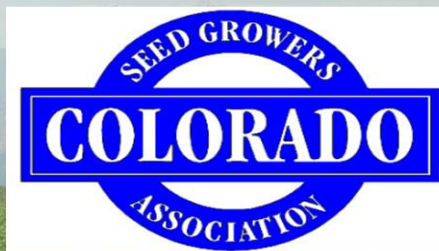
1. Applicant Information: Name, Address, Phone, Email, Crop, Variety, Seed Quantity, etc.

2. Field Information: Location, Acreage, Soil Type, etc.

3. Inspection Schedule: Date, Time, Inspector, etc.

4. Signature: Inspector, Applicant, etc.

## Field Application



## Field Inspection

Colorado Seed Growers Association  
FIELD INSPECTION REPORT

Inspector: Name, Address, Phone, Email, Crop, Variety, Seed Quantity, etc.

Field Information: Location, Acreage, Soil Type, etc.

Inspection Schedule: Date, Time, Inspector, etc.

Signature: Inspector, Applicant, etc.

### Inspectors

- Danielle Vollert - southeastern Colorado
- Ruthanne Koch - I-70
- Dora Gregory - Phillips & Sedgwick counties
- Ken Namuth - Sterling area
- David Sharman - Adams & Morgan counties
- Robyne Cote - south/western Colorado
- George Novatny - western Colorado
- Calvin Pearson - western Colorado
- Don Henderson - San Luis Valley
- Sam Smart - San Luis Valley



### Growing Certified Seed

A one page summary of how to grow Certified seed in Colorado

**Making Decisions:** The first step in growing certified seed is deciding which variety to grow. When growing many crops (wheat, beans, barley, oats, etc.) PVP status and possible royalty structures need to be considered.

**Planting:** Next, find a source of Foundation or Registered seed (or germplasm in the case of natives). You may need to be authorized by the genetics provider to receive and plant this seed (see above). Let the CSGA office know you plan to produce Certified seed. Review the land requirements in the CSGA Standards book. Select a clean piece of land, preferably free of any noxious weeds. Thoroughly clean out the drill before planting.

**Prepare Fields:** In the spring or summer, fill out an Application for Field Inspection, which also serves as a Membership application. The deadline for each crop is listed on the form. The appropriate fees are due with the application. Treat the fields with herbicides if necessary to control weed infestations. Rogue fields of unwanted plants prior to arranging field inspection. Know the field standards for the crop you are producing!

**Inspections and Harvesting:** call the CSGA office to arrange field inspection approximately two weeks prior to your expected harvest date. Meet with the inspector to provide directions to fields and discuss any problem areas. Observe good harvest practices by cleaning combines, grain carts, trucks, and bins between varieties. Send in a preliminary germination sample, if desired, to make sure the seed is of proper quality to merit conditioning.

**Conditioning:** Condition the seed through an Approved Conditioner to meet certification requirements. If you condition your own seed, you must be a Class V conditioner. If the seed is custom conditioned, it must be done by a Class I Approved Conditioner. You may transfer seed to an approved conditioner or to another seed grower who will sell the seed with his label. Notify CSGA of the transfer by filling out a Transfer Form.

**Testing:** While conditioning the seed, pull a sample for analysis at the lab. See the CSGA Standards for the proper way to pull a sample. Send 2 pounds of seed in a clearly marked container to a seed testing lab. Most seed is sent to the Colorado Seed Lab at CSU with a Seed Sample Form to clearly identify the seed and requests tests. If the seed passes all specifications, the CSGA will issue a Certification certificate for the seedlot.

**Selling:** Once the seed has been certified by the CSGA office, it can be marketed, labeled, and sold as Certified seed. You must label the seed, either with a Bulk Sales Certificate or Bulk Invoice Label (if sold in bulk), or a bag tag (adhesive or sew-on) if sold in a bag. Labeling the seed is a requirement of CSGA, the Colorado Seed Act, and the Plant Variety Protection Act. Not labeling the seed is a serious violation which can lead to expulsion from CSGA and legal action from both the State and the variety owner.

## Seed Labeling

## Seed Analysis

Form ID: \_\_\_\_\_

Seed Sample Identification Form for Certification

Colorado Seed Growers Association

Inspector: Name, Address, Phone, Email, Crop, Variety, Seed Quantity, etc.

Field Information: Location, Acreage, Soil Type, etc.

Inspection Schedule: Date, Time, Inspector, etc.

Signature: Inspector, Applicant, etc.

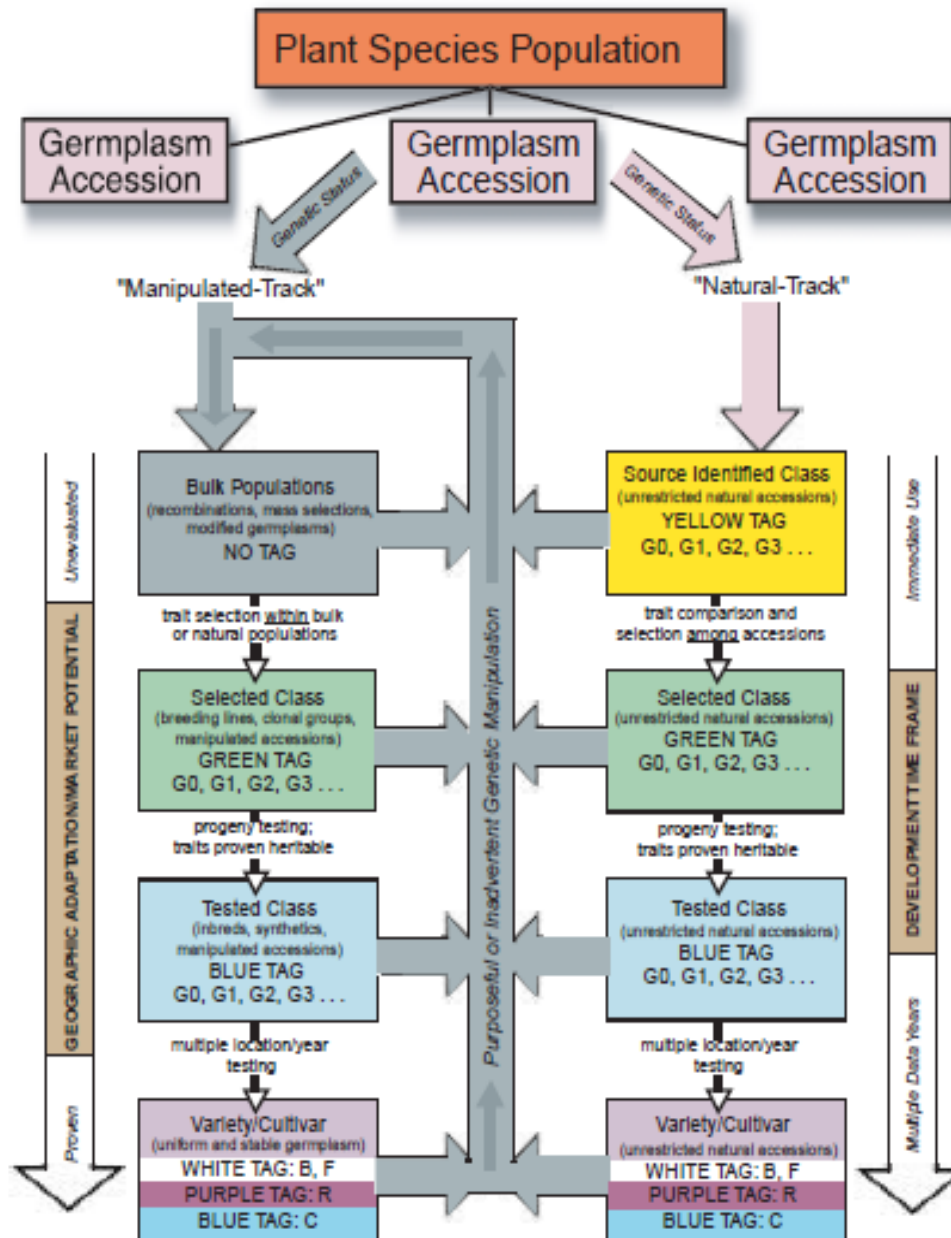


## Seed Certification





# SEED CERTIFICATION NOMENCLATURE AND LABELING FOR PLANT GERMPLASM TYPES



- > Home
- > About AOSCA
- > Programs/Services
- > Event Calendar
- > News
- > Seed Links
- > Alfalfa/Legumes
- > Corn
- > Cotton
- > Grass
- > Small Grains
- > Soybean
- > Sunflower
- > Español Version



## Native Plant Connection

Large-scale natural and human-caused ecosystem disturbances generate a voluminous demand for native plant reproductive materials intended for restoration, revegetation and stabilization of natural communities.

AOSCA has implemented certification requirements and standards that accommodate plant germplasm of native grasses, forbs and woody plants.

AOSCA seed certification agencies (acting as a third party) require seed collectors/producers to follow established requirements, procedures and standards to assure seed native plant restoration, revegetation and stabilization identity and purity for the consumer.

Download a PDF version of the [AOSCA Native Plant Connection](#) booklet for native plant restoration, revegetation and stabilization certification procedures.



[Crop Certification >>](#)

[Seed Certification >>](#)

[Germplasm/OECD  
Seed Schemes >>](#)

[Organic Certification  
>>](#)

[Native Plant  
Restoration >>](#)

### Variety Review Boards

[Alfalfa/Legumes >>](#)

[Grass >>](#)

[Small Grains >>](#)

[Soybean >>](#)

[Sunflower >>](#)

# “Seed Quality” is measured by?

- Seed Viability (broad term)
- Tetrazolium (TZ)
- Germination (time sensitive)
- Dormancy ?
- Pure Seed
- Other Crop ?
- Weed Seed (common & Noxious)
- Inert Matter



## About

### Overview:



The Association of Official Seed Analysts (AOSA) is an organization of member laboratories. Members include official state, federal, and university seed laboratories across the United States and Canada. To assure a high standard of quality, many individuals within the AOSA member laboratories have acquired AOSA Certified Seed Analyst status through extensive training followed by a mandatory certification testing process.

### Primary Functions:

Establish the AOSA Rules for Testing Seeds which are generally adopted by most states as the rules for testing seeds in their respective states

- Contribute to the refinement and modification of the rules and procedures for seed testing Ensure that testing procedures are standardized between analysts and between laboratories
- Influence and assist in enforcement of appropriate seed legislation at state and federal levels

Membership is extended to allied laboratories (those of government agencies and institutions outside the associate members (individuals not assigned to a member laboratory but contribute in a supportive role), and honorary members (those who have distinguished themselves in contributions to the Association and /or industry).

### History:

AOSA was formed in 1908 in response to initial attempts by individual states to develop seed laws. This was the beginning of regulated seed commerce in the United States. Initial priorities included, as was defined in the constitution, an attempt to seek uniformity and accuracy in methods, results, and reports. It set as its objective an effort to perfect and make publicly known, through publication, uniform rules for seed testing.

# Seed Viability

- A broad term used to indicate if the seed contains structures and substances that give it the capacity to germinate under favorable conditions in the absence of dormancy.





# Germination

- Is defined as the emergence from the seed embryo of those essential structures which, for the kind in question, are indicative of the ability to produce a normal plant under favorable conditions.



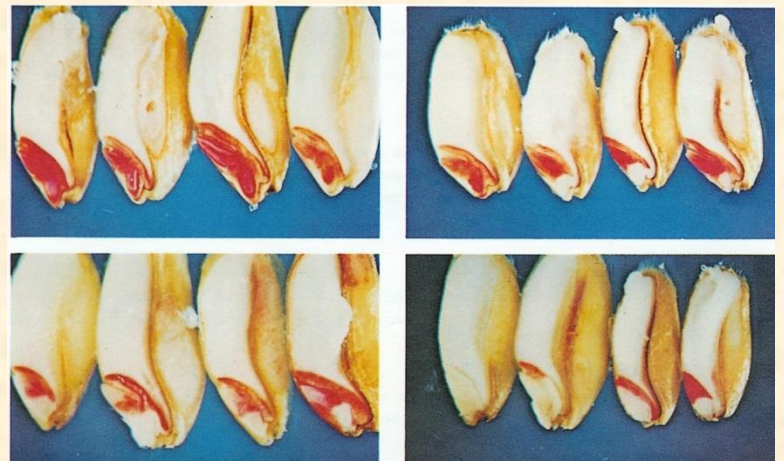
# Seed Dormancy

- *This term defined as a seed failing to germinate under environmental conditions optimal for germination, normally when the environment is at a suitable temperature with proper soil moisture.*
- **Physical dormancy** or **hard seed coats**, occurs when seeds are impermeable to water.
- **Chemical dormancy**, considers species that lack physiological dormancy, but where a chemical prevents germination.
- **Morphophysiological dormancy**, seeds with underdeveloped embryos, and also have physiological components causing dormancy.
- **Physiological dormancy**, means the embryo, due to physiological causes, cannot generate enough power to break through the seed coat.
- **Photodormancy**, or light sensitivity affects germination of some seeds. These seeds need a period of darkness or light to germinate.
- **Thermodormancy**, Seed that has sensitivity to heat or cold to germinate.

“Dormancy is necessary for species survival”

# Tetrazolium (TZ)

Tetrazolium chloride, water soluble colorless chemical used to determine seed viability. In respiring tissues, dehydrogenase enzymes reduces TZ to form a water insoluble reddish compound, Formazan. This test cannot be used for labeling all seed in Colorado only those without AOSA tests.





# Purity Terminology

**Purity** – “The analysis performed, on the kind in question, to determine the percentage of pure seed, other crop seed, weed seed and inert material present in the seed lot.” -as defined in the AOSA Rules and reported in percentage of the sample weight.

**Pure Seed**

**Other Crop Seed**

**Inert Matter**

**Weed Seed**



# Common & Noxious Weeds

- Test to determine weed contaminants, bulblets or tubers of individual noxious weeds by weight. This test determines presence in the sample content of;
- Prohibited Noxious Weeds (none allowed)
- Restricted Noxious Weeds (restricted quantity)
- Refer to the Colorado Weed List (*handout*)



# “Seed Law”

## Standard Format for Seed Labeling

Variety

Kind

Genus / Species

Purity Analysis

Viability Analysis


Other Crop Seeds

Weed Seeds

Noxious Weed Seeds

Test Date


Remarks

CERTIFIED SEED			
		Seed in this container are from a lot of seed which was produced, conditioned and inspected in accordance with the regulations of the North Carolina Crop Improvement Association and is the Class of Seed shown on this label. The producer or vendor whose name and/or certification number appears on this label is solely responsible for the information hereon and for the proper use of the label.	
Kind:	Tall Fescue	Variety:	Kentucky 31
		Origin:	Oregon
Lot Number:	01B98	Vendor and address:	XYZ Seed Company
Net Weight (lb):	60	Pure Seed (%):	98%
Germination (%):	90	Inert Matter (%):	0.5%
Hard Seed (%):	0	Weed Seed (%):	0.8%
Test Date:	12/1/00	Other Crop Seed (%):	0.5%
Noxious Weed/lb: 18 Curley Dock			
MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES			



# “Seed Law” Standard Format for Seed Analysis Report

Variety  
Kind  
Genus / Species  
Purity Analysis  
Viability Analysis  
Other Crop Seeds  
Weed Seeds  
Noxious Weed Seeds  
Remarks  
Signature



**COLORADO SEED LABORATORY**  
Dept. of Soil & Crop Sciences, Colorado State University, Ft. Collins, CO 80523  
**REPORT OF SEED SAMPLE ANALYSIS**

Account No.  
[REDACTED]

Date Received  
08/11/14

Date Completed  
09/15/14

Lab Number  
[REDACTED]

**Sender's Information\***

Variety/Product AP503 CL2  
 Kind Wheat, hard red winter  
 Genus/Species Triticum aestivum  
 Lot Number [REDACTED]  
 Class [REDACTED]

\*The information provided here is that of the sender and not of the laboratory.

**Purity Analysis**

<u>Pure Seed Components</u>		Purity
In 101.335 grams.		
Wheat, hard red winter	Triticum aestivum	98.68%
Purity Grams Required	100	Weed Seed 0.01%
Noxious Grams Required	500	Crop Seed 0.00%
Grams Submitted	2183	Inert Matter 1.31%

**Viability Analysis**

Germ Date	Germination %	Dormant %	Hard %	Total Viable
08/25/14	98	-N-	-N-	98

**Other Crop Seeds** None Found

**Weed Seeds:**

Brome, downy Bromus tectorum 9 per lb

**Status:** None.

**Noxious Weed Seeds:** None Found  
 States: WY  
 In 500 Grams.  
(P) Prohibited Noxious (R) Restricted Noxious

**Other Determinations**

Seed count 19,485 Seeds/lb

**Remarks**

Sample has passed the CLEARFIELD CONFIRM SM Test

**Tests Requested** Purity, Germination, Seed count, Clearfield. No other tests requested.

WARRANTY: The Association warrants that the purity and germination test results reported on this form have been carried out in accordance with AOSA rules unless otherwise specified. Test results reflect the condition of the submitted sample and may not reflect the condition of the seed lot from which the sample was taken.  
 DISCLAIMER OF WARRANTIES: THE ASSOCIATION MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Signature: Pam Bridgeman

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# Thank You



Colorado  
State  
University

Extension

