



Cornell University
Cooperative Extension

Cereal Grains: Should I Plant That Seed In My Bin and Sell Some To My Neighbor???

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It is so tempting!!



- Saving seed of that “hard to find” or expensive variety
- Growing extra cover crop seed to sell
- Planting my own cereal grain seed

What's the problem??



**Mixed varieties
or crops,
genetic purity**



Disease propagules

http://cropwatch.unl.edu/image/image_gallery/uuid%3Db3bccbdd-f7fb-4da8-b8ac-f988df45ffe9%26groupId%3D1841%26t%3D1346353851742



Weed seeds

**Spreading
seed borne diseases
(ie. Fusarium
seedling blight)**

<http://www.extension.umn.edu/agriculture/horse/pasture/weed-seeds/img/4.jpg>



<http://www.apsnet.org/edcenter/intropp/lessons/fungi/ascomycetes/Article%20Images/Fusarium15.jpg>

Types of Seed

Certified (85% germ., 0.03% weed)

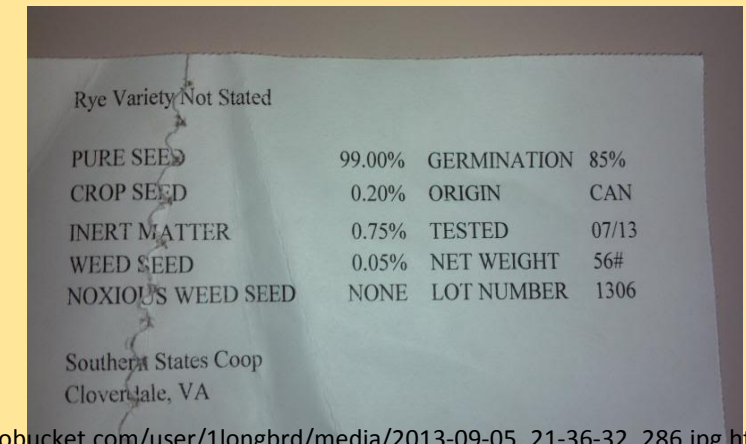


<https://www.forageseeds.com/byron-seeds-esker-oats-seed.html>

Quality Assurance (85% germ., 0.03% weed)



Agricultural Seed (56% germ., 1.0% weed)



http://s154.photobucket.com/user/1longbrd/media/2013-09-05_21-36-32_286.jpg.html

Untested bin-run seed
anything goes!!



<http://www.extension.umn.edu/agriculture/horse/pasture/weed-seeds/img/4.jpg>



**Planting Certified seed or Quality Assurance seed
is your best management
(even for cover crops)
but, you are not required to.**

It is wise to test your own seed before planting.



The law does require that all seed
being sold for planting
get tested and labelled.

Why is testing & labelling important?

Who does it protect?



http://cropwatch.unl.edu/image/image_gallery/uuid%3Db3bccbdd-f7fb-4da8-b8ac-f988df45ffe9%26groupId%3D1841%26t%3D1346353851742



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<http://www.apsnet.org/edcenter/intropp/lessons/fungi/ascomycetes/Article%20Images/Fusarium15.jpg>



The Law



“ Article 9 of Ag & Markets Law Chapter 631

INSPECTION AND SALE OF SEEDS

- Any seed sold for planting must be tested and labelled
 - ❖ It must meet minimum germination standards
 - ❖ It must meet purity standards (weed seed limits)
- If the farmer does not advertise, and sells the seed to another person/business who will prepare the seed for sale, then this “middleman” is responsible for the testing and labelling.

Ag & Markets randomly samples and tests seed lots

The logo features a stylized map of New York State in green and blue. The text "The New" is in a small font above "NY", which is in a large, bold font. Below "NY" is the word "WORKS" in a large, bold font, and "for Agriculture" is in a smaller, italicized font at the bottom.

The 2012 Seed Report

Produced by the New York State Department of Agriculture and Markets in conjunction with the New York State Seed Testing Laboratory

A close-up photograph showing a pair of hands cupped together, holding a large quantity of small, light-brown, oval-shaped seeds. The hands are positioned over a dark, rich, and textured soil surface.

The New York State Department of Agriculture and Markets Horticultural Inspectors take official seed samples for regulatory purposes pursuant to Agriculture and Markets Law (AML) Article 9 Section 140 “New York Seed Law.”

The seed samples are those found for sale in the State in unopened containers. The samples are sent to, among others, the New York State Seed Testing Laboratory for analysis. The seed is analyzed to compare the lab findings with the labeling of the product. The sampling and testing of seeds ensures “Truth in Labeling.”



Seed Certification

Ag & Markets assigns Seed Certification responsibilities to Cornell,
who administers it through the
New York Seed Improvement Project (NYSIP)

Classes of Certified Seed:

Breeder Seed → Foundation Seed → Registered Seed →
Certified Seed (seed planted by farmers for crops)

- The Quality Assurance Program is a program of third party inspection by NYSIP, but is not “certified seed”. You get an official QA label.

Figure 10: This seed chain shows the seed labels that identify each class of seed.

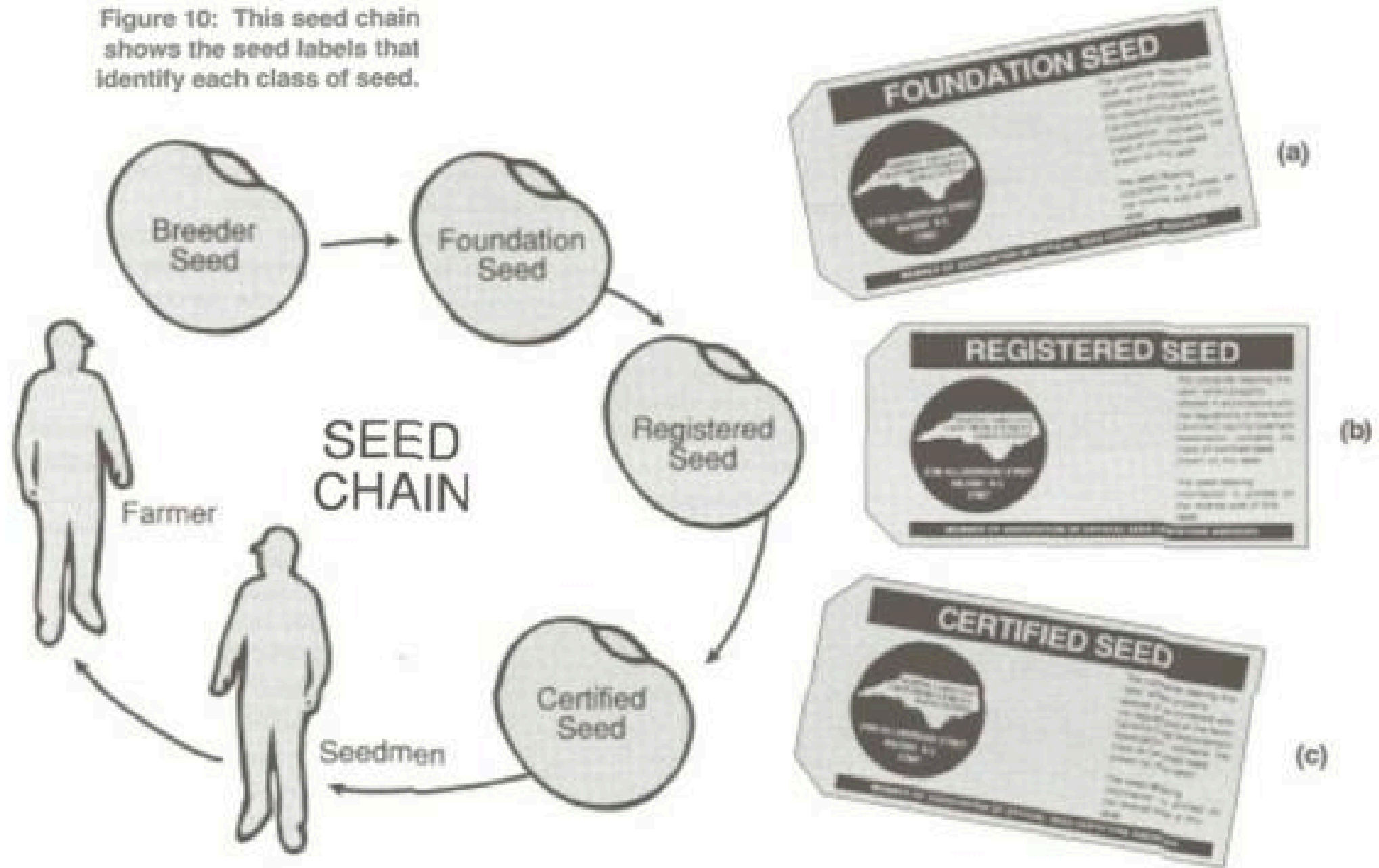


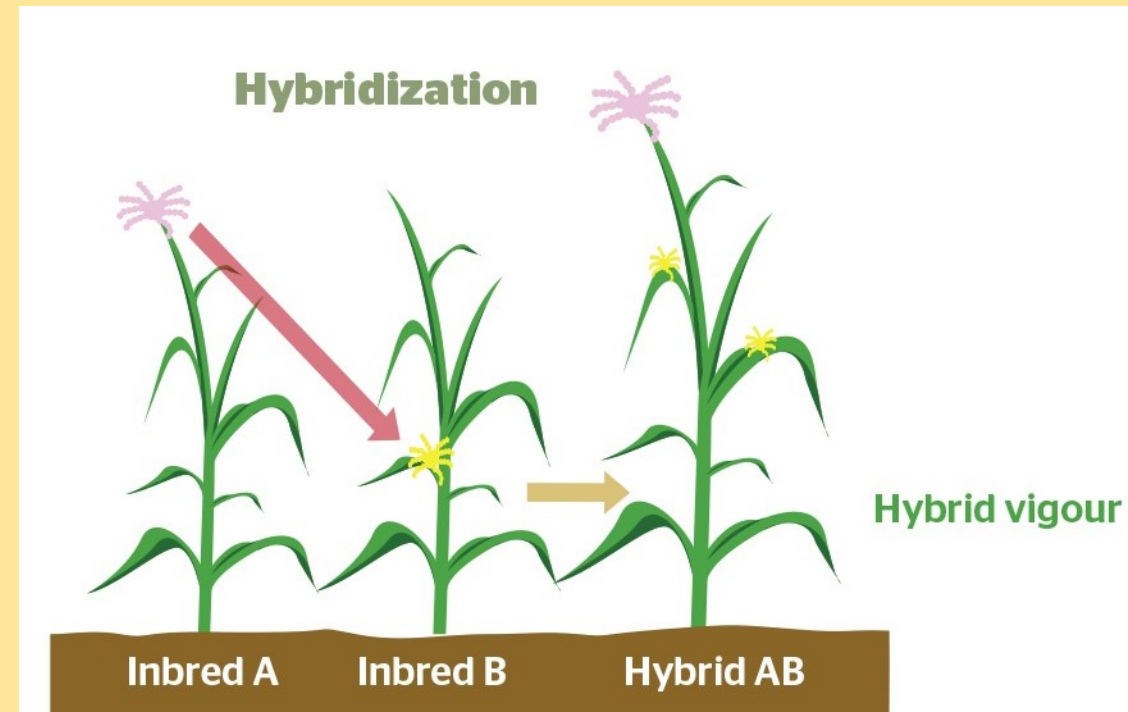


Figure 1. Official identification symbol of the Plant Variety Protection Office.

Some seed varieties are patent protected and cannot be planted without legal agreements.

<http://www.ams.usda.gov/services/plant-variety-protection>

Seed harvested from hybrids will not be like the parent plant (ie. hybrid rye)





Options for growing seed for planting?

- Grow “agricultural” seed and have it tested and labelled (voluntarily follow certified seed standards)

Join the NY Seed Improvement Association and:

- Grow certified seed
- Grow under the Quality Assurance Program (follows certified seed rules)

Crop, Variety
LOT # XXXXXXXXX

Pure Seed 98.00% Weed Seed 0.50%
Inert Matter 0.50% Crop Seed 1.00%
Noxious Weed Seed: None
Germination 80% Test Date MM, YYYY
Origin: New York

Net Weight 50 LBS.

SEED COMPANY
Address
Town, State ZIP



The standards and rules for growing certified seed are on line:

Part 96 General Seed Certification Standards

[https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I52b8d280ab3a11ddb79a18800159157&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I52b8d280ab3a11ddb79a18800159157&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

Part 97 Small Grain Seed Certification Standards

[https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I52f7d750ab3a11ddb79a18800159157&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)&bhcp=1](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I52f7d750ab3a11ddb79a18800159157&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)&bhcp=1)

This presentation and more information is posted on our blog:

<http://blogs.cornell.edu/capitalareaagandhortprogram/>

Testing Seed Is Cheap

New York State Seed Laboratory Fee Schedule effective April 1, 2010

Agricultural, Flower, and Vegetable Seeds:

Purity \$22.50

Germination \$20.00

a few dollars of testing can
prevent a ruined crop



=



Cereal Grain germination standards for “Agricultural Seed”

- Must have two-thirds the germination required for “Certified Seed”
- 85% (certified wheat, barley, oat seed germination) X 66.7% = 57%
- 80% (certified rye germination) X 66.7% = 53%

Agricultural Seed Germination:

Min. 57% for wheat, oats, barley

Min. 53% for rye



Purity Standards for “Agricultural Seed”

- Weed seed content cannot exceed 1% by weight
- Less than 10 noxious weed seeds per pound

Noxious Weeds – New York

Bedstraw	<i>Galium spp.</i>
Bindweed	<i>Convolvulus arvensis</i>
Bluegrass, annual	<i>Poa annua</i> (in lawn seed) 1/
Corncockle	<i>Agrostemma githago</i>
Dodder	<i>Cuscuta spp.</i>
Horsenettle	<i>Solanum carolinense</i>
Knapweed, Russian	<i>Acroptilon repens</i>
Onion, wild	<i>Allium canadense</i> or <i>A. vineale</i>
Quackgrass	<i>Elytrigia repens</i>
Spurge, leafy	<i>Euphorbia esula</i>
Thistle, Canada	<i>Cirsium arvense</i>



Objectionable weeds (in certified seed program):

quackgrass

vetches

horsenettle

bindweed

leafy spurge

Russian knapweed

Canada thistle

bedstraw

corn cockle

wild onion / garlic

Brassicas (mustards, yellow rocket, Shepherd's purse, w. radish)

Rye seed in winter barley or wheat





Potential weeds you get from planting Certified vs Agricultural seed

Weed	<u>Certified Seed</u>	sq ft / weed	<u>Agricultural Seed</u>	sq ft / weed
	0.48oz/ac weed seed (50%) # plants @ 0.03% weeds		1 lb/ac weed seed (50%) # plants @ 1.0% weeds	
Lambsquarters	6,191	7	206,364	0.2
Pigweed, redroot	15,133	2.9	504,444	0.1
Foxtail, Giant	4,697	9.3	156,552	0.3
Crabgrass, Giant	3,096	3.3	436,538	0.1
Ragweed, common	2,838	15.4	94,583	0.5
Mustard, wild	4,006	10.9	133,529	0.3
Shepherd's purse	41,909	0.7	2,063,636	0.02
Campion, white	11,741	3.7	391,379	0.1
Velvetleaf	757	57.6	25,222	1.7
10 noxious seeds/lb	0		50	871



Roughly Estimated Max Weed Populations in Small Grain Fields Harvested for *Certified Seed*

Assuming 2000 lbs/acre grain yield

Zero noxious weeds seeds allowed legally

0.6 lbs weed seed is the 0.03% legal limit on a 2000 lb grain yield/acre for certified seed (w/o cleaning)

Common weeds	seed wt	Plants/ac	Sq Ft./plant	Area/weed	Seeds / plant
	mg	for 0.6 lb weed seed/ac	for 0.6 lb weed seed/acre		used in calculations
Lambsquarters	1.1	619	70.4	8.4	400
Pigweed, redroot	0.45	605	72.0	8.5	1000
Foxtail, Giant	1.45	783	55.6	7.5	240
Crabgrass, Giant	0.52	361	120.6	11.0	1450
Ragweed, common	2.4	23	1918.9	43.8	5000
Mustard, wild	1.7	80	543.7	23.3	2000
Shepherd's purse	0.11	825	52.8	7.3	3000
Campion, white	0.58	94	463.7	21.5	5000
Velvetleaf	9	6	7196.0	84.8	5000

Seed Borne Diseases

- Seeds are not tested for diseases
- Fields in the Seed Improvement Association are scouted before seed maturity and accepted or rejected

Black chaff & bacterial leaf streak	<i>Xanthomonas campestris</i> spp.
Seedling blight	<i>Fusarium</i>, <i>Alternaria</i> spp.
Loose smut & smuts	<i>Ustilago tritici</i>; <i>U. nuda</i>
Common bunt	<i>Tilletia caries</i> & <i>T. foetida</i>
Glume blotch (seedling blight)	<i>Parastagonospora nodorum</i>
Ergot	<i>Clavicep purpurea</i>





What Should I Do??

Do not sell (or plant) seed without testing & labelling

1. Join the NYS Seed Improvement Association and grow certified or Quality Assured Seed
2. Intensively manage your fields for agricultural seed,
 - have them tested
 - Label seed accurately (avoid “truth in labelling” violations)
 - sell only good quality seed

Do you want to be responsible for a crop failure or weed infestation!!

**Approximate Amounts of Seed Needed for Testing
(Cups and Quarts)**

Kind	Germination only	Purity/Nox. Weed Exam/Germ.
Beans	1 quart	2 quarts
Lima beans, dry beans	1 quart	2 quarts
Corn	2 cups	2 quarts
Grains	1 cup	2 quarts
Grasses, sm. Grass mixes	$\frac{1}{4}$ cup	$\frac{1}{2}$ cup
Legumes, sm. (forages)	$\frac{1}{4}$ cup	$\frac{1}{2}$ cup
Legumes, lg. (peas, soybeans)	2 cups	2 quarts
Flowers, tiny	$\frac{1}{2}$ tsp	1 tsp
Flowers, small	1 tsp	$\frac{1}{2}$ cup
Flowers, large	1 cup	1 quart
Vegetables, small	2 tsps	$\frac{1}{2}$ cup
Vegetables, large	1 cup	1 quart

Growing Grain for Seed

- *Follow the regulations for growing certified seed*
- Know the field well – weed and disease history
- Proper rotation
- Plant only certified seed and treated it with a fungicide (organic fungicides are available)
- Control weeds
- Scout for diseases and control them
- Especially before maturity: rogue out weeds and atypical plants
- Harvest with a good combine
- Run seeds through a seed cleaner
- Send seeds to the NYS Seed Testing Lab for germination & purity testing
- Print labels and use them.





New York State Seed Testing Laboratory
Department of Horticultural Sciences –
Sturtevant Hall
New York State Agricultural Experiment Station
630 W. North Street, Geneva, NY14456

Call: 315-787-2242
Fax: 315-787-2216

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Questions?

