

## **What's Behind the Label on a Bag of Seed?**

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The seed label, or tag as it is often referred, is like the inside jacket of a novel. It tells you everything that's important about your bag of seed. The United States is frequently cited as one of the most reliable producers of food in the world. One of the reasons for that is because we have some of the most stringent seed laws in the world. The seed label reflects those laws. Strong seed laws provide the means to ensure plant breeder's rights, encourage biodiversity, and greater opportunity for financial success by the grower community. Of course, the ultimate benefit is the consumer.

When you look at a seed label you'll see a lot of numbers. But on closer look, all of those numbers are significant. The Federal Seed Act and all state seed laws require a seed label, although they vary slightly in their requirements. Most of these laws were created over 80 years ago and variances have evolved, but they generally all have the same means to an end. Some of the notations on a label are obvious, some not so much. Here's what most states require on a seed label and what each item means:

- Product name: the brand name and/or species name, so the consumer knows what they are getting
- Pure seed: percentage by weight of the desired seed(s) based on the entire contents of the bag
- Other crops seed: percentage by weight of seeds not considered weed. If the amount is over 5% (generally) then those species are considered Pure Seed and are to be listed by name. In some cases those species present at 5% or less may also be listed as Pure Seed if so desired by the seller.
- Weed seed: the percentage by weight of weed seeds unless they are considered restricted noxious weed seeds by law where the seed will be sold. If they are restricted noxious weed seeds, then they must be listed individually by name and are limited to the amount in the state law (usually around 0.25%). (NOTE: prohibited noxious weed seeds are not allowed at all)
- Inert matter: the percentage by weight of whatever is in the package that doesn't grow (i.e. broken seed that are half or less what was originally there, seed coats, insects, etc.).
- Address: the contact information for the company providing the seed
- Origin: state where the seed was grown
- Lot number: a unique number so that the seed can be traced to its origin
- Test date: month and date that this lot was tested. The date of the standard germination test must be listed, even if it is different from the dates of other tests done.
- Germination: the percentage of seed in the bag that is expected to grow (based on a lab test)
- Treatment: coatings generally used to enhance germination, protect the seed, or assist in growth
- Other items deemed necessary by the state, as this list is not all-inclusive.

The seed label is generally backed up by a test from a seed lab. It is required that the person from a seed lab signing the report of analysis be certified in testing or that the person conducting the testing be certified. Certification is in purity testing which includes conducting the mechanical purity test & the noxious weed seed exam and also in germination testing. The Association of Official Seed Analysts (AOSA, which is composed of state, federal, university and some crop improvement labs) and the Society of Commercial Seed Technologists (which is composed of analysts from seed companies, private labs, crop improvement labs and some AOSA labs) jointly give certification exams. A person must

provide evidence of training (related college courses; workshops and training within their lab) and experience to qualify to take the exams. A person passing both exams becomes a Registered Seed Technologist (RST) and is able to sign and put their seal on reports of analysis. Certified analysts must show evidence of continuing education & proficiency testing to remain in good standing.

Seed labs can conduct more than 50 distinct types of tests. A number of these are not used to provide information for the label, but rather provide supporting information (such as vigor) to the seed company. Many states require testing for the label to be done according to the AOSA Rules for Testing Seeds and seed produced in one state and sold in another must meet the requirements of the Federal Seed Act and its regulations. Others don't list the AOSA Rules. A mechanical purity test is done on approximately 2,500 seeds, while a noxious weed exam is approximately 25,000 seeds. Seeds aren't counted out, but rather a table in the Rules lists the required weight for more than 700 species of seed. Some seeds are easy to identify, but others (example: Quackgrass from Western Wheatgrass) take a highly trained person with good eyes and a lot of patience. The standard (or warm) germination test is conducted under conditions considered ideal and so its results are likely the maximum germination rate of that seed. It must be remembered that fields (gardens, etc.) vary in soil type, fertility, fungal & insect population, environmental conditions, etc. and so the germination percentage or the result of a vigor test may or may not match field emergence. Vigor of a seedling isn't considered in the germination test, but rather that the parts of a seedling are present and not badly damaged mechanically or by fungi or insects. Volume four of the AOSA Rules provides information on how to classify seedlings as normal or abnormal according to the species of seed. Also determined in the germination test is the percentage of dead seed, dormant seed (those that take up moisture, but don't grow) and hard seeds (certain types of seeds that can have a seed coat that doesn't allow water to penetrate until later).

As you can tell, there is more to a bag of seed than meets the eye. However, a grower can find out all they need to know by studying the seed bag label. And then, like reading a novel, they'll know the rest of the story.

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