DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

Agriculture and Natural Resources

FSA3163

How to Read a Seed Tag

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History of Seed Tags

Federal and state seed laws require seed companies to regularly test seed lots for purity, germination, and weed contamination, as well as report the identity and origin of seed produced. For more information, please consult the Federal Seed Act as well as the Arkansas Department of Agriculture's Circular 10: Regulations on the Sale of Planting Seed in Arkansas.

Reading Seed Tags

In addition to selecting the best seed variety for the operation, farmers must also identify the best bag of seed for their operation. Reading seed tags can help farmers identify higher quality seed options, price out seed costs, and adjust seeding rates to improve emergence in the field.

Finding the seed tag is the important first step: do not purchase seed without a seed tag. Once a seed tag is located, look for the following key features:

1. **Species and variety** will be listed. Variety not stated (VNS) might be listed for some common bermudagrass seed. Mixtures can have multiple varieties or species listed. Before purchase, ensure that the species and variety are suited to your forage management goals. Additionally, some species, such as cereal rye and ryegrass, have similar names but are quite different. Checking the seed tag before purchase ensures you have the correct seed.
2. **Pure seed** describes the percentage of the bag that consists of the desired species. Purity is one of the most crucial points when considering a seed lot. Seed fields will often have some inert matter, other crop, or weed seed as a byproduct of harvesting. Different seed lots can have higher or lower purity.
3. **Pure live seed** (PLS), is a calculation of germination and purity that reflects the percentage of seed that will produce seedlings in a timely manner. This calculated value may not be on the seed tag but is often provided for species with a high level of dormancy.
4. **Germination** describes the percentage of seedlings that will emerge from the pure live seeds in a timely manner. Germination is a viability metric; a seed may germinate

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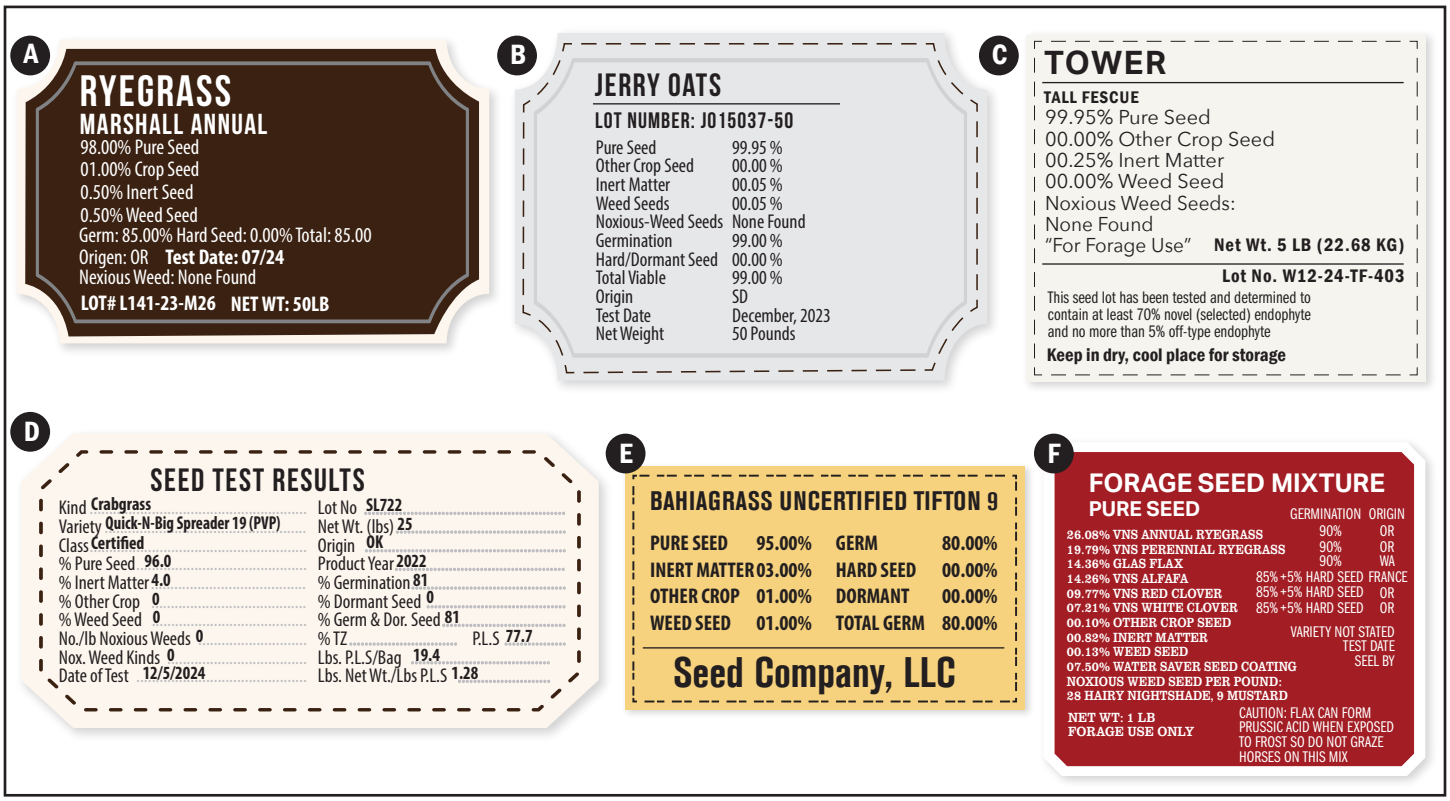
Figure 1. Common Seed Tags. Images A and B are common annual winter forages (rye, wheat, etc.) Image C is an example of a cool-season perennial grass seed tag. Image D is an example of a summer annual forage seed tag. Image E is an example of a warm-season perennial grass seed tag. Image F is an example of a multispecies mixes seed tag.



but can still fail to emerge from the soil when planted. Total germination may include hard or dormant seed that will not germinate soon after planting. The percentage of seed that will germinate soon after planting is more important than total germination for most forage crops. Test date for germination is important, too. Select seed that has been tested within the past 6 months to 1 year. Germination often declines rapidly in local storage.

5. **Inert matter** can consist of coatings, crop residue, soil, or other particulate matter in the sample. Sometimes a carrier product is included with light or fluffy seed to help the seed move through planting equipment.

6. **Other crop** refers to other crops that may have volunteered in the seed field. Corn would be considered other crop in a bag of soybean seed; soybean would be considered other crop in a bag of corn seed. Cheap tall fescue seed lots often have orchardgrass or ryegrass contamination that would be considered other crop.

7. **Weed seeds** are identified as part of laboratory purity tests. Listed weeds will be planted with the desired seed, so understanding potential weed challenges is critical. Noxious weeds can be prohibited from traveling across certain state lines.

How to use Seed Tag Information

Comparison shopping is the primary benefit of reading a seed tag. Farmers can identify seed with the best germination and purity, and the least amount of inert matter or weed seed out of available commercial options. Seed tags can be used to hold seed dealers accountable for the quality of their product and identify reputable distributors and vendors for seed.

Other information that is sometimes included on seed tags:

- **Hard seed** of legumes will not germinate immediately after planting. Clover seed frequently has some proportion of hard seed.

- **Dormant seed** of grasses will not germinate immediately after planting. For example, eastern gamagrass seeds need to go through a cold, wet period of 6-8 weeks to germinate.

- **Seed coatings** have been used for a suite of forage crops to improve flow through drills, provide starter fertilizer, and carry pesticides and fungicides. When deciding between coated and uncoated seed, farmers should identify which coatings may be beneficial. Insect and fungal pressure will be lower in a conventional seedbed than in a no-till planting. Legumes might have rhizobial inoculant coatings to guarantee that they can engage in symbiotic nitrogen fixation. This inoculant is often ideal when a certain legume has not been grown in a field for a few years.

Adjusting Seeding Rates

Seed tag information can also be used to adjust seeding rates. Most forage crop seed in Arkansas can be planted at recommended rates straight from the bag. Please consult FSA2139, *General Traits of Forage Grasses Grown in Arkansas*, and FSA3137, *Annual and Perennial Clovers in Arkansas*, for seeding rates of common forage grasses and clovers, as well as other forage fact sheets available at the local county extension office. However, low germination rates (<75%) or impure seed lots will require higher seeding rates to get suitable stands. Seeding rates can be adjusted using a pure live seed calculation.

% Pure live seed (PLS) = % Purity x % Germination

To adjust the seeding rate, divide the recommended seeding rate by the % Pure Live Seed to get a new seeding rate. Adjusted rates are always higher than the recommended seeding rate.

Example:

100 lb/acre recommended seeding rate for wheat
95% pure seed and 80% germination
76% Pure live seed
100/76% = 132 lb/acre adjusted seeding rate

This same calculation can be used to evaluate different seed lots for cost.

Calibrating Drills and Broadcast Seeders

Determining how much bulk seed is needed to meet germination needs is important for calibrating drills and broadcast seeders. Seeding rates in Arkansas are in bulk rates for most forages, but these bulk rates assume that seed germination is 85% or greater. Please refer to FSA3111, *Calibrating Drills and Broadcast Planters for Small-seeded Forages*, for more information on getting a chosen seed planted in the field.

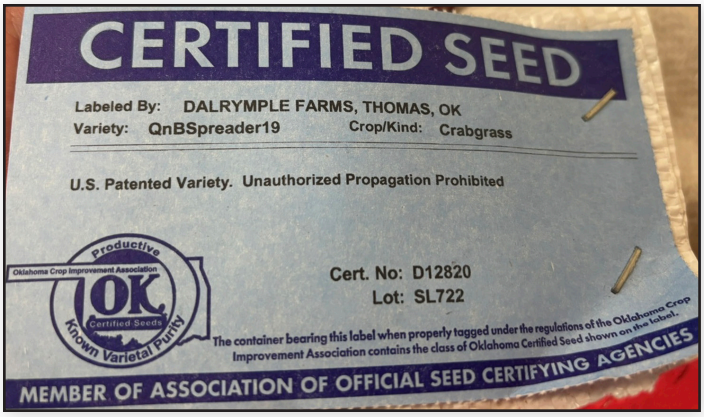


Figure 2. An example of a certified seed tag.

Additional Information and Considerations from the Seed Tag

Seed tags can be used to identify whether older seed varieties are being blended into mixtures, as sometimes happens with food plot seed. VNS seed can have variable performance, but some older varietal names may not guarantee that the seed inside is actually from that variety. Trade name varieties include 'Marshall' and 'Gulf' annual ryegrass, 'Kentucky-31' tall fescue, and 'Dixie' crimson clover. Seed certification seeks to unambiguously provide a certain variety.

Tag color indicates whether seed is certified or not. Blue seed tags generally indicate that seed is certified, either by a state government or public agency. Seed certification tracks the provenance of seed from breeder seed to the regular market. This process often sets standards for keeping seed clean. Certified seed will have passed through more regulatory scrutiny than most commercial seed. For many perennial forage crops, certified seed is preferred.

Gathering a Seed Sample

Before planting seed, gather a sample of all the seed loaded into the broadcast spreader or drill. Place this seed in a heavy-duty plastic freezer bag and store in a refrigerator or cool, dry place and maintain the seed tag. This sample will be useful in troubleshooting

potential issues with the seed should the stand fail to germinate. A 0.5-1 lb sample is sufficient for most forage crops. Please consult FSA3149, *How to Conduct a Seed Germination Test at Home*, should there be a concern with seed quality, or if seed is carried over from one year to the next.

Seed is a unique agricultural product that is often poorly handled between purchase and planting. After identifying the best seed for a planting, that seed should be acquired and planted in a timely manner.

Acknowledgement is given to Johnanna Beuerlein who initially trained Dr. Kubesch in seed testing and Joey Kubesch who supported his seed collection efforts.

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