Forage News

MISSISSIPPI STATE UNIVERSITY EXTENSION

Estimating the Cost of Certified Forage Crop Seed

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During times of limited annual-cool season seed production, livestock producers try to evaluate their inputs to identify where they can reduce expenses and usually seed cost in one of the first inputs considered. It is always important to protect your seed investment and there is not a better way than buying and using certified seed. Certified seed is defined as seed that has passed field inspection and testing standards for varietal purity. Certified seed has several benefits such genetic purity, purity (weed or other crop seed free), good seed quality (uniform size, vigor, and germination), low disease incidence and increased biomass potential.

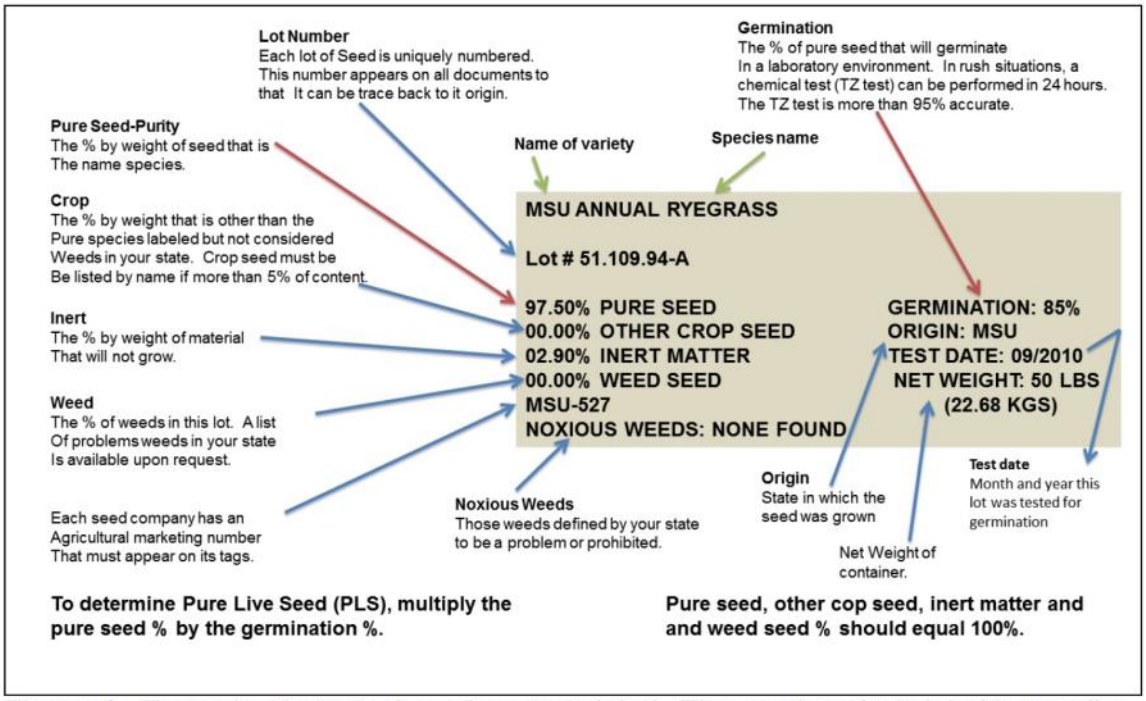

Figure 1. Example of a typical seed analysis label. The seed analysis label is usually included with the label indicating the certification class of seed (blue label).

Good crop production begins with high-quality planting seed. Standards may vary from crop to crop, but a certification tag on a bag of seed is the symbol of quality. It assures the purchaser that the seed inside the bag is the variety stated and it has met the standards for germination and purity. When purchasing certified seed, the bag will have a blue tag indicating that the bag contains the variety stated and has met the standards for germination and purity. All seed must also have analysis tag attached and this provides the information about the quality factors of the seed being sold (Fig. 1). Sometimes certification tags also contains the analysis information. Some of the information found in the tag includes:

1. ***Lot Number:*** This number allows to trace the seed back to a grower or field.
2. ***Kind*** *and* ***variety:*** They refer to the forage crop species and stated variety.
3. ***Purity:*** It is the percent of the variety named in the bag. High quality seed lots will be over 95% purity, but seed coating may reduce the seed purity to lower percentages.
4. ***Germination:*** The percent of seed that can get a stand. Test date is important because reported germination is reliable for six to nine months.
5. ***Dormant or Hard seed:*** Live seed that requires a longer time to germinate.
6. ***Other crop seed:*** It is the percent of crop seed not named on the tag that sometimes may become mechanically mixed during harvesting, storing and processing. A very low other crop percentage is desirable.
7. ***Weed seed:*** I tis the percent of foreign seed in the bag and it should be very low. This ensures that

no prohibited noxious weeds are in the bag or otherwise it will stop sale of the seed.

8. ***Inert matter:*** It refers to the percent of broken seed, dirt, stones, etc. in the bag that not contributes to yield, but may cause problems when planting.

In the past, most forage and livestock producers tend to plant seed without looking at seed cost and never the less the quality of the seed. Short of annual-cool season forage seed supply has pushed some lower quality seed into the market and there is a need to pay more close attention to seed quality to avoid paying high prices. To do, seed purchases of forage crops, especially grasses, should be done on the basis of ***pure live seed (PLS)***. Pure live seed in simple calculation based on two main variables found in seed tag, ***purity*** and ***germination***. This calculations will allow for accurate price comparison among distributors and will allow adjusting the seeding rates if necessary. To calculate PLS in a percentage basis simply multiply the percent total germination times purity and divide by 100. Note: Total germination will include percent germination plus the percent of dormant or hard seed in the bag.

PLS = pure seed x [total germination (germination + dormant or hard seed)]/100

For example, let's consider a certified seed with 98% purity, 75% germination and 10% hard seed. What is the percent Pure Live Seed (PLS)? Multiply percent purity times percent germination and divide by 100 to find PLS. This means that this seed lot has 83.3 pounds of actual live seed for every 100 lbs.

PSL = 98% purity * (75% germ. + 10% hard seed)/100 = 83.30% PLS

Can PLS be used to determine what seed to buy? Yes, PLS should be used to determine what seed to buy of the same species or variety since this will determine the plants that will could be produced in the hay field or pasture. Using PLS will allow to adjust seed cost per pound and accurately compared seed prices and find out the real seed cost. Pure live seed can also be used to adjust the needed seeding rate. If the calculate PLS is less than 85%, then it recommended to adjust the recommended seeding rate according to the calculated PLS percentage. For example, let assume that a producers buys an annual ryegrass that is 95% purity and has a 70% germination. In this case the PLS will be 66.5%. If the recommended seeding rate is 20 pounds PLS per acre, then producer will need to plant 30 lbs of actual bulk seed (20/0.665 = 30) to achieve the recommended seeding rate and make sure that there is a good number of plants to achieve the needed yield potential. If the producer does not make such adjustment, it means that he will be 50% under the target seeding rate. Very often seed lots might have high purity and germination than can give a PLS of 85% or higher and producers think that a significant adjustment in PLS seeding rate will be not necessary. A PLS of 85% still have 15% less viable seed that could impact establishment in adverse environmental conditions.

Table 1. Estimated cost per pound of pure live seed for different annual cool-season forages (annual ryegrass and small grains).

	Estimated Sale Price of 50-lb bag*				
PLS (%)	A. Ryegrass ($33)	Wheat ($11)	Cereal Rye ($16)	Oats ($15)	Triticale ($24)
	---------- Estimated seed cost ($/lb PLS) ----------				
95	$0.78	$0.23	$0.28	$0.32	$0.51
85	$0.82	$0.24	$0.30	$0.33	$0.53
80	$0.87	$0.26	$0.31	$0.35	$0.56
75	$0.93	$0.28	$0.33	$0.38	$0.60
70	$0.99	$0.29	$0.36	$0.40	$0.64
65	$1.06	$0.31	$0.38	$0.43	$0.69
60	$1.14	$0.34	$0.41	$0.46	$0.74
55	$1.23	$0.37	$0.44	$0.50	$0.80
50	$1.35	$0.40	$0.48	$0.55	$0.87

*Estimated prices are from different establishments within 50 miles radius of Mississippi State University and include average prices across different varieties within forage species.

Let's assume that a producer walks into his local COOP and find two seed lots being sold of the same annual ryegrass variety. One is being sold at a "discount" price of $0.48 per pound, and one is being sold at a "retail" price of $0.67 per pound. The discounted seed lot has a purity of 85% and germination of 67% (PLS = 56.95%) while the retail seed lot has a purity of 96% and germination of 90% (PLS = 86.40%). To determine the actual cost of the seed then dive the seed cost per pound by the PLS to get the actual cost:

Discounted seed = ($0.48/lb) ÷ (56.95/100) = ***$0.84*** per pound of PLS

Retail seed = ($0.67/lb) ÷ (86.40/100) = ***$0.77*** per pound of PLS

This comparison of retail and discounted seed per pound of PLS indicates that the discounted seed is actually more expensive. Table 1 provides some examples of seed cost per 50-pound bag for different cool-season annual grasses as PLS percentage declines. There is an exponential increase in seed cost with a decline in pure live seed percentage.

Summary—Livestock producers look at many costs when they are making a winter grazing plan, but one thing we do not hear is about the quality of the seed they are planting. Using certified seed can represent an opportunity for increased yield and the introduction of varieties with improved traits such as disease resistance, drought tolerance, and improve yield and forage quality. Check the label so you are not caught off guard when it comes to the cost of buying certified seed and what might seem cheap seed might not so cheap after all. Although a wide range of seeding rates might result in different forage stands, planting a new stand in pure live seed can help increase plant density, increased yield potential, and reduce weed competition. Seed quality (purity and germination) always differs from lot to lot.

Upcoming Events

September 24-25, 2018—GLCI Conference, Natchez, MS
September 27, 2018—Small Farm Outdoor Demonstration Workshop, Natchez, MS
September 27, 2018—Coastal Plain Fall Forage Field Day, Newton, MS
October 26, 2018—North MS Beef Expo, Batesville, MS
November 12, 2018—MCA Cattlemen's College, West Point, MS
November 13, 2018—MCA Cattlemen's College, Hattiesburg, MS

For upcoming forage related events visit: ***http://forages.pss.msstate.edu/events.html***

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