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Selecting Quality Wheat Seed

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<http://varietytesting.tamu.edu>

Most of the Texas wheat crop has endured drought and late-season freezes this year. Both of these environmental stresses can be detrimental to seed quality, especially the late-season freezes. Each of these factors should be considered before keeping, purchasing, and planting seed this fall. Remember, good seed equates to better plant stands, better fall growth, and higher grain yields, especially when planting conditions are less than ideal.

With the freezes that occurred on March 28-29 and April 5-6, much of the wheat crop across the state was at susceptible growth stages to be injured by freezing temperatures. Based on observations, Central Texas, the Blacklands, Northeast Texas, the Rolling Plains, and portions of the High Plains the late freezes will likely affect seed quality in these regions. In these regions, much of the wheat had headed or was very close to heading when the freezes occurred. At this stage, even temperatures as mild as 30-32 degrees can result in sterile flowers and halt seed development. If the flower was sterilized, no seed will be developed. However, if the wheat plant was in the seed development stage, much of the seed will be very small, shriveled, and will not likely germinate. So, special precautions should be considered this year before saving seed for planting or when purchasing seed. While there is most definitely reason for concern over next year's seed quality, availability, and price, there is no reason to panic at this point. As long as we take time to look at our potential seed quality and use some judicial precautions (listed below) we should be able to insure that our seed is worth keeping and planting.

There are several questions a person should ask before keeping or purchasing seed this year, including:

1. Does the seed look healthy? Plump seeds with good color are ideal. Large, plump seeds contain more energy and thus result in better plant stands and early season forage growth, than smaller shriveled seed. In addition, larger seeds are more forgiving on deeper planting depths and provide better seedling vigor. Keep in mind when comparing seed size that some varieties just naturally produce a larger seed than others. Always compare seed size of the same variety.
2. What is the test weight (bushel weight)? Test weight is a good initial indicator of seed quality, but is not an absolute. If the bushel weight is below 58 lbs/bu, then this warrants further investigation into the seed quality. If you are purchasing certified seed, the seed tags should state the test weight. Also, be aware that small shriveled

seeds can sometimes have a high test weight due to being more densely packed into a given volume (lbs/bu). So, test weight should always be considered along with seed size. Below as an example of the importance of test weight on germination, emergence, and yield. **See Table 1 below.**

3. Does the seed have good germination? Unfortunately, a germination test should not be conducted immediately following harvest because winter wheat has a natural seed dormancy mechanism that prevents the seed from germinating for about 4 weeks after harvest (some varieties even longer). So, the only option for determining the seed viability immediately after harvesting is to have a TZ (tetrazolium) test run through the TDA (Texas Department of Agriculture) seed laboratory or a private seed laboratory. The TDA laboratory locations are listed below, and the TZ test costs \$15/sample and requires 1 lb of seed. This TZ test is not equivalent to a germination test, but it can provide a good idea of the “viability” of the seed immediately following harvest. If producers run a TZ test or an early season germination test, they should still consider running a second test prior to planting to insure that the seed possesses a good level of germination.

Good quality seed should have a >85% germination. Seed (1 lb.) can be sent to the TDA Seed Quality Lab for a germination test and/or a vigor test (accelerated aging) for \$9 and \$12, respectively. See addresses below. For additional details on sending samples to TDA for testing, go to:

http://www.tda.state.tx.us/vgn/tda/files/1848/10887_procedures_and_fees_for_submitting_seed_samples_for_testing.pdf

Texas Department of Agriculture seed testing locations:

1. TDA Seed Testing Lab, P. O. Box 629, Giddings, Texas 78942, 979-542-3691
2. TDA Seed Testing Lab, 4502 Englewood Av, Lubbock, Texas 79414, 806-799-0017
3. TDA Seed Testing Lab, 241 East McNeil St, Stephenville, Texas 76401, 254-965-7333

4. What are the cleaning and storage factors to consider? Extra care should be taken in storing, conditioning, and cleaning seed this year. Producers should ask seed cleaners to set screens to insure that all shriveled and damaged seed is removed from planting seed this year. This is especially important this year since this shriveled and damaged seed will likely be of poor germination. Growers should also consider only treating seed immediately prior to planting. Seed that is of poor quality that is not treated can still be sold or fed, while treated seed will have to be properly destroyed. Remember the start to a successful wheat crop next year starts at planting and with the quality of seed that is placed in the ground.

Table 1. Relationship between wheat test weight (lb/bu) and seed quality characteristics and yield of the variety Wichita. Modified from Laude, 1950. Kansas State University.

	Heavy Seed	Light Seed
Test Wt (lbs/bu)	62.4	53.1
Germination	92%	86%
Emergence	68.0%	48.4%
Days to Emergence	21	25
Heads per plant	2.9	2.8
Test Wt of Crop	61.9	62.0
Yield (bu/acre)	50	45