Cotton Seed Quality - Where It All Begins

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Producing a high-yielding cotton crop begins with establishing a good stand. Planting high-quality cottonseed is essential to promote stand yield potential. With current prices of most cotton varieties and the increased use of new planting equipment, many producers are reducing seeding rates. This consequently places even more importance on planting high-quality seed. Cotton seedlings often encounter multiple adverse stress conditions at the onset of the growing season. While high seedling vigor may not mitigate all of these factors, it can definitely help. One method to determine vigor is using the Cool-Warm Vigor Index (CWVI). Information provided by the CWVI test is not required by law; therefore it does not appear on the seed tag. However, some companies perform the Texas Cool Test (which is one of the components of the CWVI), and will provide this information upon request. Distributors can also obtain this information, but the seed lot identification number must be provided.

Cool-Warm Vigor Index Test: Currently, the tag of a bag of cottonseed provides information on viability (Standard Germination Test percentage) conducted in laboratory conditions under ideal moisture and temperature conditions; however, cotton is rarely planted under these ideal conditions in Texas. In some cases seed can have high viability (germination percentage), but have low vigor. The CWVI will not necessarily mirror emergence in the field, but will provide a more accurate estimate on the actual vigor of the seed/seed lots that are purchased. The CWVI combines information obtained from a Warm Germination Test and the Texas Cool Germination Test. The Warm Germination Test data are obtained from a test conducted at 68^{o}F for 16 hours and 86^{o}F for eight hours on a daily basis, with germinated seedlings counted after four days. Testing methodology for this portion of the CWVI is essentially the same as that used for the Standard Germination Test that is printed on the seed tag. The difference is that for the Standard Germination Test, seedlings are counted at seven days instead of four. If actual Standard Germination Test data are used (seven-day count instead of four-day count), producers should realize that the seven-day values would very likely be greater. The Texas Cool Test is conducted at 64^{o}F with seedlings counted after seven days. The Texas Cool Test data may be obtained from some seed companies or the CWVI can be determined by the following Texas Department of Agriculture Seed Laboratory:

Texas Dept. of Agriculture
Giddings Seed Lab Lubbock Seed
P.O. Box 629
Giddings, TX 78942
(979) 542-3691

To obtain CWVI analysis, submit a one-pound representative sample of acid-delinted seed to the TDA laboratory (contact information above). A representative sample should be a composite of small samples from three to five bags from the same lot. Be sure to not combine lots or varieties. A separate sample should be sent for each variety and for each lot. Seed can then be classified in the following categories: Excellent = 160 or greater; Good = 140 - 159; Fair = 120 - 139; Poor - Less than 120. This

knowledge enables producers to make more informed decisions on optimal planting time, planting conditions, and seeding rates for various seed lots. Seed with the highest possible vigor could be planted earlier in the season or when planting conditions are less than optimal. Lower vigor seed should be prioritized to be planted later in the season when soils have warmed or conditions are more optimal for cotton stand establishment.

This article was originally prepared by Drs. Todd Baughman, Randy Boman, and Robert Lemon.

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