

Corn Seed Tests

GERMINATION AND SAND GERMINATION

Standard (Warm) germination on crepe cellulose paper spreads out seed which facilitates identification of dead seeds and abnormal seedlings (Figure 1). Shredded leaves, stunted shoot growth and insufficient roots are the most common abnormalities identified. Fungal species present are also reported in addition to the germination percentages. At SoDak Labs, clients may designate additional and retesting thresholds based on specific quality parameters. Warm and sand germination tests are performed in accordance with the AOSA *Rules for Testing Seeds*. Orange and Blue International Certificates based on ISTA Rules are also available.

TRAY COLD GERMINATION

Seed is planted on 10C chilled moist crepe cellulose paper and then covered with cold sand to provide immediate cold imbibition shock (Figure 2.). Samples are moved after seven days at 10C and evaluated after four days at 25C or 120 Growing Degree Day (GDD), normal seedling percentage and uniformity are reported. Freshly harvested samples received in September–October are preconditioned (recommended) for 48 hours prior to initiating the cold germination. This preconditioning helps moisture equilibration within the seed structures prior to cold testing.

SATURATED COLD GERMINATION

The saturated cold germination test is a high stress vigor test. For this ten day test, seed is placed embryo down onto cold 10C saturated soil and kept at 10C for seven days (Figure 3. and 4.). The 25C grow-out period lasts three days on 100 GDD. Normal and abnormal seedlings, dead and slow normals or UV (uniformity varies) are recorded. Saturated cold testing emulates imbibitional chilling shock and low oxygen microclimate, similar to planting at 50F soil temperature and receiving significant rain immediately after planting. See our “Evolution of Saturated Cold Testing” flyer for more information.



FIGURE 1. Standard germination test on crepe cellulose paper.



FIGURE 2. Corn emerges after 7 days at 10C and 120 GDD

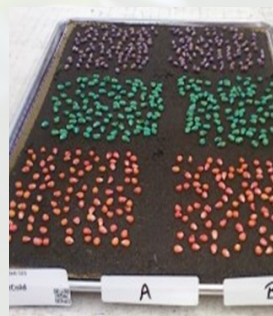


FIGURE 3. Saturated cold test



FIGURE 4. Saturated cold seedlings after 7 days at 10C and 100 GDD

Corn Seed Tests, *CONTINUED*

HERBICIDE BIOASSAY

SoDak Labs conducts Glyphosate, 2,4-Dichlorophenoxyacetic (2,4-D; Enlist™) and Glufosinate (LibertyLink®) herbicide bioassays to confirm trait purity or adventitious presence (Figure 5). Non-trait and trait check seeds are used on each test to assure presence of herbicide. Contact SoDak regarding additional herbicide bioassays.

INSECT AND DROUGHT TRAIT TESTING

An immunoassay (ELISA) is used to test 90 seeds for the presence of the protein produced which provide Corn Borer or Rootworm trait protection (Figure 6). Clients select the protein to be tested and the number of seeds that they wish to test. Our sample submission process allows you to choose the protein based on the event or protein. If you have any questions, contact Kalyn Brix for assistance in test selection.

DIAGNOSTIC SERVICE

We are here to assist in troubleshooting your quality issues. Our website, www.sodaklabs.com has reference articles and a terminology index along with images for us to assist in determining cause of a seed quality issue.

SoDak Labs is located in Brookings, South Dakota. Our laboratory offers quick and accurate service. Our Agronomist has over 30 years of experience in corn, soybean, sorghum, small grains, vegetables, and grass seed testing. Our staff is comprised of RSTs, RGT and trained seed technologists with over 100 years of experience in seed testing.

Contact us to set up an account and receive a personal demonstration of our online data management system.

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ACCOUNT SETUP AND SUBMITTING SAMPLES

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FIGURE 5. Non trait seedling (left) and one glyphosate tolerant seedling (right)

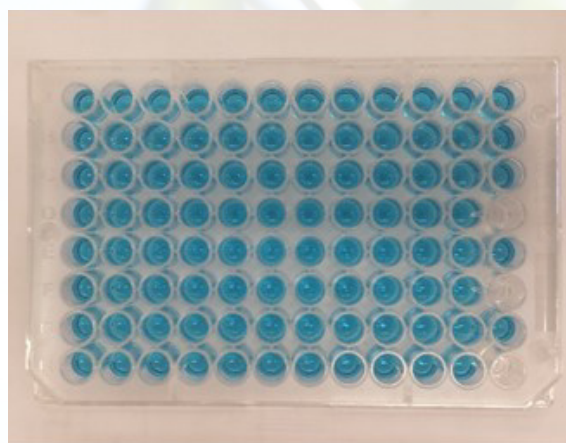


FIGURE 6. ELISA Plate showing negative (clear) results in lower right cells