SEED HEALTH TESTING
INFORMATION YOU CAN TRUST

SGS North America’s Agricultural laboratories have the equipment and experience necessary to service your complete seed health testing needs. With cutting edge technology and the latest testing methods, our knowledgeable scientists can help you identify which plant diseases are affecting your crops, allowing you to make informed decisions about your domestic sales and exports. Our laboratory is accredited by the National Seed Health System (NSHS) and International Seed Testing Association (ISTA), and is ISO 9001 certified.
Seed Health Analysis is an important part of domestic and international seed safety. SGS uses classical and modern methods for the detection of many seed pathogens (ie. bacteria, fungal, viruses and other contaminants). SGS offers our clients: analysis 7 days a week/365 days a year, consultation to assist you in choosing appropriate test methods, and staff who are attentive to your results and turnaround time needs.

**TYPES OF TESTS**

SGS can test for a wide variety of organisms on many species of seed.

**WASH TEST (NEMATODES, CYSTS, SPORES)**
Seeds are washed for an extended period and resulting solution is observed under a microscope and any present pathogens like *Ditylenchus* spp., *Ustilago* spp., and *Tilletia* spp. are recorded.

**BLOTTER TEST (FUNGI, BACTERIA)**
Seeds are typically surface sterilized and planted on blotter paper. They are incubated for 7-10 days. Blotters are observed for the development of fungal pathogens such as *Fusarium* spp. and *Alternaria* spp. The pathogens are confirmed by microscopic examination to identify typical characteristics. Results are recorded and the percent of infected seed is reported.

**PLATE CULTURE TESTS (FUNGI)**
Seeds are typically surface sterilized and placed on selective and semi-selective culture media. They are incubated for 7-10 days. *Phomopsis* spp., *Fusarium* spp. and *Verticillium* spp. are some of the pathogens that can be identified by this method. Suspect organisms are confirmed by microscopic examination and the number of infected seeds are recorded.

**PLATE CULTURE TESTS (BACTERIA)**
Seed samples are washed and that liquid is diluted. The dilutions are plated on selective and semi-selective media and incubated. This method can be used for bacteria such as *Xanthomonas* spp. and *Pseudomonas* spp. The results are typically completed in 5-7 days.

**ELISA TEST (VIRUSES AND BACTERIA)**
Seeds are typically ground then extracted with a standard extraction buffer. The solution is then collected and analyzed using 96 well plated coated with specific antibodies. The plate is read on an ELISA plate reader alongside positive and negative controls to identify pathogens such as Stewart’s Wilt, Soybean Mosaic Virus, and Bean Pod Mottle Virus.

**PCR TEST (BACTERIA)**
Seeds are extracted for contaminating pathogen DNA. Solution is examined by PCR for bacteria like *Acidovorax* spp. and *Xanthamonas* spp.

**EMBRYO COUNTS**
Barley can be tested for *Ustilago* spp. by employing the embryo count method. This test is completed in 3-4 days and is reported as percentage of infected seeds.

**WHEN TO TEST**
Seed health testing should be done when pathogens are suspected for crop or seed damage. Seed health testing should also be conducted when state, federal, or international rules apply to seed and crop shipping. Each state and country will have specific guidelines on how to sample and acceptable levels of pathogens allowed in the sample.

**PHYTOSANITARY CERTIFICATES**
SGS North America is also approved for seed sampling, laboratory testing and visual inspections for phytosanitary analysis.

Phytosanitary certificates can be given for organisms on the list of accreditations. A clear and concise report is sent to the State requiring pathogen-free verification, and that State then sends a phytosanitary certificate to all necessary parties.

**SEED SAMPLING**
SGS has the ability to issue ISTA Orange and Blue Certificates, providing the added security companies require when shipping seed internationally.

SGS also offers ISTA authorized seed sampler workshops, providing the training and certification necessary to draw samples for the issuance of ISTA certificates.

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