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Seed Academy

Oilseed Testing Services

OILSEED PURITY & NOXIOUS WEED EXAMINATIONS

METHODS

Purity and Noxious weed seed examination or Other Seed determination can be conducted using the Association Official Seed Analysts (AOSA) Rules for Testing Seed or International Seed Testing Association (ISTA) testing methods. Samples are physically examined for inert, weed and crop seeds.

WHAT IS REPORTED

Pure seed, inert matter and other seed percentages by weight. For AOSA Rules other seeds are reported as other crop seed and common weed seeds per Handbook 29 classification.

Noxious weeds seeds in specific state(s) or the entire lower 48 states are reported. ISTA examination also available.

VALUE OF RESULTS

Purity and noxious results are required on the seed bag label.

OILSEED GERMINATION

METHODS

Testing is conducted according to the Association Official Seed Analysts (AOSA), International Seed Testing Association (ISTA) Rules for Testing seeds or Canada Methods and Procedures (Canada M&P) based on customer need. Each germination test consists of four hundred randomly selected pure seeds. Media utilized is top of paper (TP or TPS) and duration is dependent upon species.

SEED DORMANCY

Sunflowers may possess primary dormancy immediately after harvest in 10-30% of the seed population. Sunflower seed produced in Northern California seems most prone to primary dormancy due to 100F plus air temperatures during seed maturation. These high temperatures at maturation maybe causing more dense or thicker suberin (testa layer) accumulation in seed coats or accumulation of a germination inhibitor, such as, abscisic acid (ABA). Within the laboratory after seven days of germination testing, we encounter firm, imbibed viable (post germ TZ testing) seeds not showing signs of radical protrusion. We have utilized several dormancy breaking treatments: 1) adding ethephon to the media moisture, 2) pre-drying for 48 hours and 3) storage at 10C for seven days, and all have shown limited success in breaking dormancy. Storage time and moving air through the seed lot seems to be the best solution to help seeds after-ripen and become non-dormant. This initial dormancy does complicate decision making on suitability for seed conditioning and meeting production contract quality specifications.

WHAT IS REPORTED

Percentages of normal seedlings, abnormal seedlings, and dead seeds. Abnormalities and fungal species present are reported in comments.

VALUE OF RESULTS

The standard germination test is required by the Federal Seed Act (FSA) for labeling. The report of analysis will contain germination percentage and date of test utilized for labeling.

OILSEED TETRAZOLIUM TEST

METHODS

Tetrazolium tests are conducted on a 200 seed sample. Seeds are typically imbibed for 16 hours and bisected through the embryo or pierced then soaked in 0.1% or 1% tetrazolium solution.

WHAT IS REPORTED

A percentage of viable seed (normal staining embryos and any dormant seeds).

VALUE OF RESULTS

Tetrazolium is a quick estimate of germination and can be useful in determining viability of hard seeds.

FIGURE 1. Sunflower seeds being screened for broken seeds and inert matter.

FIGURE 2. White blotter germination test on canola, seedling growth represents seven days at 20°C.

FIGURE 3. Topographical Tetrazolium staining of sunflower embryos, red tissue normally viable, white tissue non viable.

ISTA ORANGE AND ISTA BLUE CERTIFICATES

SoDak Labs is an ISTA accredited laboratory (USML1100) and conducts seed testing for export according to the ISTA (International Seed Testing Association) Rules for Testing Seed. Results are reported on either an Orange or Blue ISTA certificate. ISTA certificates are similar to a passport for seeds and allow seed lots to travel seamlessly across the globe. The certificate is standardized by ISTA therefore regardless of where the seed is shipped, staff at inspection stations are trained to interpret results from these certificates.

Orange certificates are considered a seed lot certificate utilized for exporting seed to other countries and requires sampling by an ISTA authorized sampler.

Blue certificates are considered seed sample certificates and are commonly used for shipping seed from the United States to Canada. Blue certificates do not require sampling to be conducted by an ISTA authorized sampler.

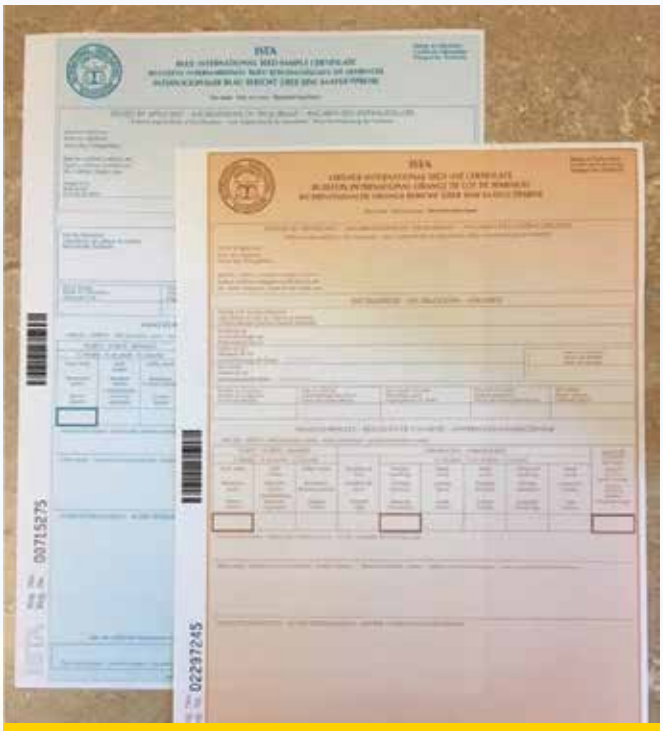

FIGURE 4. ISTA Orange and ISTA Blue Certificates

ISTA AUTHORIZED SEED SAMPLER TRAINING

SoDak Labs offers courses to become an "Authorized Seed Sampler" for ISTA (International Seed Testing Association) Orange Certificates by participating in our Seed Sampling Online Series. This course targets seed production or laboratory staff involved in seed sampling who desire a better understanding of principles and concepts. We offer several training options such as sampling training opportunity, continuing education for current authorized samplers or achievement of ISTA authorized seed sampler. Upon completion of the online course, written exam and on-site practical exam attendees are eligible to draw samples for ISTA Orange certificate testing. This course allows staff to attend the majority of the training at their facility greatly reducing the travel time and expenses for training.

FIGURE 5. Pie halving method for chaffy species.

FIGURE 6. Double tube probe for many small seeded vegetables.