USDA Seed Regulatory and Testing Division Fall 2022

ITEMS OF INTEREST IN SEED

EDITOR'S NOTES

This issue of the Items of Interest in Seed features an article on verification of seed dividers. This is a common practice for seed laboratories that are accredited. The goal of the accredited seed program is to promote uniformity between laboratories by auditing to the USDA standard and the Association of Official Seed Analyst rules. If you are interested in becoming a USDA Accredited Seed Laboratory, please contact us.

The Items of Interest in Seed team is starting a new list serve to announce when new issues are posted. If you would like to be included, please e-mail elizabeth.stewart1@usda.gov.

On behalf of the SRTD staff, I hope you enjoy these articles and continue to find them informative.

Elizabeth Stewart, IOI Editor

RECENT AND UPCOMING ACTIVITIES

CANADIAN GRADER TRAINING

SRTD will offer a Canadian Grader training in early 2023 to any Certified Seed Analysts or Registered Seed Technicians. Analysts who pass the exam will be issued a grader number by the Canadian Food Inspection Agency. They will be able to assign Canadian grade names to seed lots moving from the U.S. into Canada, which allows those lots to move directly into commerce without the need for further testing and grading. To sign up for the training, e-mail todd.erickson@usda.gov.

SRTD REGULATORY SUPERVISOR AND AGRONOMIST POSITIONS

Roger Burton, SRTD's Regulatory Supervisor, retired in July. SRTD is in the process of advertising for a new supervisor to oversee the Seed Marketing Specialists. SRTD is also posting a job opening for an Agronomist. This position runs the trueness-to-variety program, which monitors the correct labeling of variety names for seed traded in interstate commerce.

ISTA SEED SYMPOSIUM

Plant Physiologist Dr. Yujia Wu and SRTD Director Ernest Allen attended the International Seed Testing Association (ISTA) Seed Symposium on November 2–4, 2022, in Athens, Greece. Representatives from several countries participated. The symposium is held every three years to share and improve seed scientific research and technical development. Several presentations were given orally or by poster sessions.

Dr. Wu was invited to present "Polyacrylamide Isoelectric Focusing Electrophoresis for Differentiating Kentucky 31 Tall Fescue Varieties by Esterase Enzyme." Dr. Wu's presentation

described his test method that identified a unique four band pattern in the Kentucky 31 variety, which was not detected in some other commercial varieties of tall fescue. This type of variety differentiation was previously only determined by field grow-out tests. The laboratory test method can provide results in a much shorter time frame. The details of the IEF test method will be published by ISTA Seed Science and Technology Journal in the upcoming year.

Ernest Allen and Dr. Wu – ISTA Seed Symposium 2022

For more information regarding this article, contact Plant Physiologist Dr. Yujia Wu (704) 810-7267; yujia.wu@usda.gov.

DIVIDER VERIFICATION

ISO 17025, the ISTA Accreditation Standard, and the USDA Accredited Seed Laboratory Program all require that equipment which affects test results to be calibrated or verified at regular intervals. In seed testing, this equipment typically includes balances, germination chambers, and dividers. The laboratory is allowed to set the intervals, provided they are justifiable. The standard interval used is one year, but if the laboratory has records to show equipment stability over longer periods of time, they may extend the interval.

Calibration involves adjusting equipment that is performing outside of the accepted range. Verification ensures that the equipment is performing properly, but no adjustments are made. While balances and germination chambers can have their internal settings changed, dividers do not have settings that can be altered, aside from assuring that the divider is level. Divider verification ensures that a sample is divided into two equal halves, and that there is no selection bias for larger or smaller seed.

There are three main types of dividers used in seed testing today. The gamet divider has a cone shaped hopper which the seed are poured into. A spinner attached to a motor then moves the seed through the hole at the bottom of the hopper, where it then separates into two chutes. Receiving pans must be placed under the chutes to catch the falling seed before they are poured back into the hopper. The Boerner divider operates under a similar principal, except that gravity moves the seed through the divider rather than a motor. A series of baffles below the hopper divide the seed into the two chutes. Soil dividers can be used for larger seed like soybeans, or coated seed. Seed is poured into a rectangular hopper, and then passes directly through an array of baffles into one of two receiving pans.

The verification process is essentially the same for all three dividers. Two properties must be verified: that a sample passing through the divider results in two roughly equal halves, and that the contaminants passing through the divider, whether they are large or small seed, do not favor one chute over the other. These two properties can be checked with a single verification sample, made with a mixture of two different species of seed. The two species should be of different sizes, so they can be easily separated by sieving. One species should make up the bulk of the sample. For example, 80% watermelon seed and 20% tomato seed, by weight. The sample is divided a set number of times. The laboratory records the weights of seed in the two receiving pans, which should be approximately a 50:50 ratio, and the weights of the two species after dividing, which should closely match the initial ratio (example: 80:20 from the example above). This process should be repeated at least 10 times, and the weight averages calculated. The tolerance applied to these weights is determined by the laboratory and can be either a percentage (generally 1% to

5%) or based on standard deviations (2 or 3). If any of the reps are too far out of tolerance from the mean, the verification fails and must be repeated. The ISTA Seed Sampling Handbook also has a tolerance calculation that can be applied.

A divider which fails verification should be inspected before the process is repeated. Although rare, baffles can sustain damage and become mis-aligned. If a divider is biased towards one side, adjusting the level of the divider can sometimes bring it within tolerance. If moving the divider outside of the level position brings it within tolerance, then the laboratory must clearly state in their procedure that the divider level is not to be adjusted after verification.

Dividers should be clearly marked with a unique identifier (lab number or serial number) and date of last verification. Dividers which fail verification must be removed from service.

For more information regarding this article, contact Seed Laboratory Supervisor Todd Erickson (704) 810-8877; todd.erickson@usda.gov.

RECORD KEEPING FOR SEED

The Federal Seed Act (FSA) Section 202 requires that all persons transporting agricultural or vegetable seed in interstate commerce, shall keep the following records of a seed lot, for a minimum of three years: records of origin, treatment, germination, and purity.

What actually needs to be retained? Under the Federal Seed Act Regulations part 201.2(l) is the definition of complete records. This gives the information needed under the following sections: Section 201.4 **Maintenance and accessibility,** 201.5 **Origin**, 201.6 **Germination,** 201.7 **Purity** (including variety), and 201.7a **Treated Seed**. A great source to review is a publication on the AMS SRTD website, https://www.ams.usda.gov/rules-regulations/fsa, find the tab ***Seed Company Records and the Federal Seed Act***.

For more information regarding this article, contact Seed Marketing Specialist Rodney McNeace (704) 810-8879; rodneyb.mcneace@usda.gov.

FEDERAL SEED ACT CASES SETTLED

The Federal Seed Act (FSA) provides authority for the regulation of the interstate shipments of agricultural and vegetable seeds. The FSA requires that seed shipped in interstate commerce are labeled with certain information necessary for the seed buyer to make an informed choice. The labeling information and any advertisements pertaining to the seed must be truthful. Between September 1, 2021, and August 31, 2022, a total of 37 seed companies paid $98,100 to settle alleged violations of the FSA.

For specific information regarding these violations, please visit https://www.ams.usda.gov/rules-regulations/fsa then Filing a Complaint and View a list of settled FSA Cases . USDA's Agricultural Marketing Service (AMS) administers the FSA by leveraging its resources with State departments of agriculture. These investigations were a result of joint efforts with seed regulatory officials in Arkansas, Connecticut, California, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Michigan, Missouri, New York, North Carolina, Pennsylvania, Texas, Utah, and Virginia. By working collaboratively with State partners, Seed Regulatory and Testing Division helps promote uniformity among State seed laws and fair competition within the seed trade through the enforcement of the FSA.

For more information regarding this article, contact Seed Marketing Specialist Kevin Robinson (704) 810-7264; kevin.robinson2@usda.gov.

TRUENESS-TO-VARIETY OVERVIEW

Each year the Seed Regulatory and Testing Division (SRTD) conducts trueness-to-variety (TTV) field tests to determine if seed lots are correctly labeled as to variety. Varietal evaluations are conducted by crop experts at State Universities and State departments of agriculture in cooperation with SRTD. SRTD relies on State seed control programs to submit the samples for inclusion in the TTV tests.

This summer, sweet corn is being grown at Purdue University, West Lafayette, IN. In addition, melons, cucumbers, and garden beans, are

currently being evaluated at the Piedmont Research Station, Salisbury, NC.

SRTD would like to thank all the States for participating in the TTV program. Once results and information have been compiled, participating States will be notified of the evaluation results.

For more information regarding the TTV program or directions for submitting samples, contact Seed Marketing Specialist Alvin Allen (704) 810-8878; alvin.allen@usda.gov.

CALENDAR OF EVENTS

- OECD Technical Working Group Meeting
  Paris, France
  January 23-27, 2023

- ISTA Annual Meeting
  Verona, Italy
  May 29-June 3, 2023

- Association of Official Seed Certifying Agencies (AOSCA) Annual Meeting
  Bloomington, MN
  June 3-7, 2023

- AOSA/SCST Annual Meeting
  Saskatoon, Canada
  June 9-15, 2023

- Organization for Economic Cooperation and Development (OECD) Seed Schemes Annual Meeting
  Antalya, Turkey
  June 19-23, 2023

- SRTD Seed School
  Gastonia, NC
  August 2023