



Seed Regulatory and Testing Division

ITEMS OF INTEREST IN SEED

October 2014

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TABLE OF CONTENTS

Federal Seed Act (FSA) Settlements	3
AMS Administrator Anne Alonzo	3
New SRTD Deputy Director and Laboratory Supervisor Ernest L. Allen	5
TTV.....	6
SRTD Donates Fresh Produce in Support of USDA’s Feds Feed Families And People’s Garden Initiatives	7
Peanut Testing Workshop held in Tifton, GA by SRTD Botanists.....	8
2014 Association of Official Seed Analysts – Society of Commercial Seed Technologists (AOSA/SCST) Annual Meeting.....	8
USA Chairs the OECD Seed Schemes Annual Meeting.....	9
SRTD Represents the Seed Industry at 2014 Ag-Discovery Summer Camp for High School Students in North Carolina	10
Meeting of the International Seed Testing Association (ISTA).....	11
SRTD Plant Pathologist Attends Seed Summit Hosted by the APHIS	12
28 th Annual Meeting of the Association of American Seed Control Officials (AASCO).....	13
2014 Seed Analysts Training Workshops in Gastonia, NC	14
Ensuring Quality Germination Media for Seed Testing	16
Trait Testing in Seeds	17
Questions and Answers	18
Coated Seed.....	18
Company City and State Address on Seed Labels.....	20
Variety Name Changes	20
Changing Lot Number	21
Brand Names and Variety Names – Labeling and Advertising	21
Reserve Seed Collection.....	22
Personnel Changes	23
Ryegrass Fluorescence List.....	24
Calendar of Events	25
Staff Directory	26
IOI Staff Contributors	27

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FEDERAL SEED ACT CASES SETTLED

The Federal Seed Act (FSA) regulates the interstate shipment of agricultural and vegetable seeds. The FSA requires that seed shipped in interstate commerce be 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 3, 2013, and September 2, 2014, a total of 47 seed companies paid \$58,375 to settle alleged violations of the Federal Seed Act (FSA). For specific information regarding these violations, please visit [Federal Seed Act Cases Settled - PDF](#). The USDA's Agricultural Marketing Service 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, Georgia, Indiana, Kentucky, Minnesota, Missouri, North Carolina, Pennsylvania, Texas, Utah, Virginia, and West Virginia. By working collaboratively with State partners, the FSA also helps promote uniformity among State laws and fair competition within the seed trade.

AGRICULTURAL MARKETING SERVICE (AMS) ADMINISTRATOR ANNE ALONZO HAS BROWN BAG LUNCH WITH FIELD EMPLOYEES IN GASTONIA, NC.

AMS Administrator Anne Alonzo and Science and Technology Program Deputy Administrator Ruihong Guo had a very informative and eventful visit with the staff of the Gastonia, NC USDA office and laboratory complex on Monday June 23, 2014. The visit began with a brown bag lunch with employees from the Seed Regulatory and Testing Division (SRTD) and the National Science Laboratory (NSL) during which Administrator Alonzo personally shook hands with and greeted each employee individually. She then introduced herself, told the staff about her background, and answered or discussed various questions and ideas concerning a broad range of topics. She also asked for comments and suggestions from employees about things that can be done to improve their work environment and services.



AMS Administrator Alonzo (center) and Science and Technology Program Deputy Administrator Ruihong Guo (left), observe SRTD Botanist Charlene Burton (right) evaluating seedlings.

After the informal brown bag lunch and group discussion, Administrator Alonzo toured the SRTD, meeting employees from each testing area and encouraging them to describe their duties. She let them know that their jobs are both interesting and important. The tour started in the SRTD greenhouse where Seed Marketing Specialists Kevin Robinson and Roger Burton explained how Trueness-to-Variety trials relate to the Federal Seed Act (FSA). The FSA is a truth-in-labeling law that ensures seeds shipped in interstate commerce are truthfully labeled so seed customers can make informed decisions. Mr. Burton then explained how truth-in-labeling complaints are submitted from the general public and State regulatory agencies and how SRTD conduct tests to determine if those complaints are valid. Botanists Todd Erickson, Charlene Burton, and Patsy Jackson explained how the laboratory uses standard testing methods to determine seed quality for both regulatory and fee for service purposes. SRTD seed analyst Anitra Walker explained one of SRTD's main outreach efforts; converting the SRTD seed herbarium with over 30,000 samples into a digital library and online reference guide for colleges, universities, regulatory agencies, and the seed industry. Hopefully, this new online digital herbarium will help identify and prevent noxious weed seed contaminants from being spread around the United States. Seed Physiologist Dr. Yujia Wu and Plant Pathologist Sandra Walker explained SRTD capabilities using advanced testing techniques (PCR, GMO detection, ELISA testing, Isoelectric Focusing, seed health determinations, etc...) to fulfill SRTD mission requirements to enforce the FSA. They also explained that SRTD activities and outreach efforts, aimed at the seed industry, help expand the customer base of small businesses by offering testing services required by buyers to determine seed quality.



SRTD Deputy Director Ernest L. Allen (left), AMS Administrator Anne Alonzo (center), and Seed Marketing Specialist Kevin Robinson (right) discuss SRTD's Trueness-to-Variety (TTV) trials in the SRTD greenhouse.

Overall, the Administrators visit to the Gastonia, NC laboratories and offices was a very exciting and successful event. The staff from both divisions would like to thank the Administrator for her visit and for making the day memorable!

For information regarding this article, contact SRTD Laboratory Supervisor Ernest L. Allen at (704) 810-8883; Ernest.Allen@ams.usda.gov.

SEED REGULATORY AND TESTING DIVISION SELECTS ERNEST L. ALLEN AS DEPUTY DIRECTOR

The Seed Regulatory and Testing Division (SRTD) is happy to announce the selection of Ernest L. Allen as its new Deputy Director and Laboratory Supervisor. Mr. Allen assumed his new role on June 30, 2013 and has been actively involved in managing the day to day activities of the SRTD laboratory and engaging with stakeholders at industry meetings.

Mr. Allen started his career with the USDA in 2004 as a seed analyst and has played an integral role in administering the Federal Seed Act and carrying out seed testing activities for industry customers. He currently serves as a member of the Association of Official Seed Analysts rules committee and the International Seed Testing Association's nomenclature committee. He is currently the designated voting representative for the United States at the International Seed Testing Association's annual meetings. In addition, Mr. Allen also represents SRTD and the U.S. seed industry at numerous events aimed at promoting uniformity and truth in labeling.

Mr. Allen is also a certified lead auditor (ISO 9001:2008 and 17025) and regularly performs audits of commercial and State seed laboratories that participate in the USDA Process Verified Program for seed; a growing and important service provided to the seed industry.

Prior to his time with USDA, Mr. Allen held several management positions in the entertainment industry where he handled administrative, personnel, and financial issues. In 2007, he earned a Masters in Biology from Winthrop University in Rock Hill, SC.

The position of Deputy Director and Laboratory Supervisor will allow Ernest to capitalize on his past experiences and training to advance the mission and goals of SRTD.



Mr. Ernest Allen inspects a pea sample for noxious weed seeds and purity.

FALL 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 properly labeled for variety, as required by the Federal Seed Act (FSA) and State seed laws. Field testing is 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, the SRTD conducted TTV tests on peppers, squash, and sweet corn at Piedmont Research Station, Salisbury, NC.



SRTD Plant Physiologist, Dr. Yujia Wu evaluates squash for trueness-to-variety.

The 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 any truth-in-labeling violations.

If there are any questions concerning the TTV program or for directions for submitting samples, please contact Seed Marketing Specialist Kevin Robinson, at (704) 810-7264; kevin.robinson2@ams.usda.gov.

SEED REGULATORY AND TESTING DIVISION DONATES FRESH PRODUCE IN SUPPORT OF USDA'S 2014 FEDS FEED FAMILIES AND PEOPLE'S GARDEN INITIATIVES.

This year USDA employees have donated approximately 5 million pounds of food in support of Agriculture Secretary Tom Vilsack's 1999 People's Garden initiative and the government-wide

“Feds Feed Families” campaign. Both initiatives are intended to support communities around the country by collecting and distributing food to local food banks, food pantries, and shelters. In Gastonia, NC, the Agricultural Marketing Service’s Seed Regulatory and Testing Division (SRTD) donated more than 3,500 pounds of fresh squash, tomatoes, beans, peppers, and corn to local food banks.

The majority of the fresh produce is a by-product of the regulatory mission of the Seed Regulatory and Testing Division. The division grows various types of agricultural and vegetable crops each year to verify that crops being sold in the United States are accurately labeled. This practice helps to ensure that businesses, farmers, and the home gardener gets the product that they expect in seed packets.

The remainder of the fresh vegetable donation was harvested from the SRTD People’s Garden. SRTD maintains a People’s Garden year round at its facility. This winter SRTD will grow tomatoes which will be harvested and donated to a local food bank.



SRTD Plant Pathologist Sandra Walker harvests fresh beans from the SRTD People’s Garden.

To learn more about the USDA’s Peoples Garden Initiative or the Feds Feed Families campaign, visit www.USDA.gov and type your inquiry in the search bar. You may also contact SRTD Director Dr. Fawad Shah at (704) 810-8882; fawad.shah@ams.usda.gov.

PEANUT TESTING WORKSHOP HELD IN TIFTON, GA BY SEED REGULATORY AND TESTING DIVISION BOTANISTS

On May 1, 2014, the Seed Regulatory and Testing Division (SRTD) conducted a one day seed testing workshop in Tifton, GA. The need for the workshop stemmed from significant discrepancies between peanut testing laboratories on results obtained from the same peanut seed lots. Prior to SRTD’s involvement, several attempts between the laboratories to see common ground regarding subjective testing results were not successful. In an attempt to

resolve the uncertainty created by the varying results, laboratory managers and supervisors from several States contacted the SRTD to request input on the issue.

Ninety six percent of all peanuts grown in the United States are grown and tested in States located in the southeast. SRTD invited all State laboratories heavily involved in peanut testing to attend a peanut workshop aimed at creating uniformity in peanut testing procedures and methods.

The workshop was led by SRTD Laboratory Supervisor Ernest Allen and Botanist Charlene Burton. Approximately 30 botanists from five States; Alabama, Florida, Georgia, Mississippi, and Virginia, participated in this workshop. The attending botanists and analysts were able to agree on several procedures that will make testing more uniform. They also agreed to work together to prepare a proposal which will make various aspects of peanut testing less subjective. When complete, the rule proposal will be submitted to the Association of Official Seed Analysts/ Society of Commercial Seed Technologist rules committee for consideration and adoption into the rules.

For information regarding this article contact Botanist Charlene Burton at 704-810-8880; charlene.burton@ams.usda.gov; or Ernest Allen at 704-810-8877; ernest.allen@ams.usda.gov.

2014 ASSOCIATION OF OFFICIAL SEED ANALYSTS – SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS ANNUAL MEETING

The 2014 Joint Annual Meeting of the Association of Official Seed Analysts (AOSA) and the Society of Certified Seed Technologists (SCST) was held May 31- June 5 in Fargo, North Dakota. Seed Regulatory and Testing Division (SRTD) Deputy Director Ernest Allen and Botanist Anitra Walker gave presentations and represented the USDA's Agricultural Marketing Service and SRTD at the meeting.

The purpose of the annual meetings is to update and vote on proposed changes for the AOSA rules. These rules are used by testing laboratories and State departments of agriculture around the country to help keep seed testing methods uniform in the United States. The meetings also provide an opportunity for members, which include regulatory agencies, universities, certification entities, and private seed companies, to collaborate and discuss current issues important to the seed industry.

As requested by AOSA/SCST, Ms. Walker and Mr. Allen gave presentations to the Teaching and Training committee and the Regulatory Laboratories meetings, respectively. Ms. Walker gave a presentation that focused on classifying noxious-weed seeds using AOSA rules and Federal Seed Act (FSA) regulations. Mr. Allen gave a presentation consisting of an update of SRTD activities over the past year. In addition, Mr. Allen and Ms. Walker participated in numerous other meetings by answering questions, responding to comments, and explaining and clarifying FSA regulations and SRTD positions on various issues.

Mr. Allen also serves as a member of the AOSA rules committee. The rules committee receives submissions for rule change proposals to ensure that they contain all of the necessary information before submitting them to the AOSA/SCST membership for review and vote. This year, there were 15 proposals for changes to the AOSA rules for testing seeds. Several

proposals involved adding new species to Table 2A of the AOSA rules. There were also several proposals recommending the addition of new rules for germination, purity, or the assignment of species to pure seed definitions that best characterize their morphological characteristics. Other proposals were intended to clarify existing testing procedures. All of the submitted proposals were accepted by the membership to be added to the AOSA rules. None of the proposals submitted are expected to conflict with the Federal Seed Act or its regulations. A complete listing of the 2014 rule proposal voting results can be found on the AOSA and SCST websites at www.aosaseed.com/rules_committee.htm and www.seedtechnology.net/rules_committee.htm.

For more information on this year's AOSA/SCST joint annual meeting, please visit www.aosaseed.com or www.seedtechnology.net. The 2015 AOSA/SCST annual meeting is scheduled for May, in Tampa, FL.

For more information regarding this article, contact Botanist Anitra Walker at (704)810-7269 or anitra.walker@ams.usda.gov.

USA CHAIRS THE OECD SEED SCHEMES ANNUAL MEETING

In June 2014, Seed Regulatory and Testing Division Director, Dr. Fawad Shah, represented the United States as chair of the OECD Seed Schemes annual meeting in Zagreb, Croatia. In attendance were 58 member countries, several observer countries, and international organizations such as FAO (Food and Agriculture Organization of the United Nations), ISF (International Seed Federation), ASTA (American Seed Trade Association), AOSCA (Association of Official Seed Certifying Agencies), AOSA (Association of Official Seed Analysts), ISTA (International Seed Testing Association), UPOV (International Union for the Protection of New Varieties of Plants), ESA (European Seed Association), and the EU (European Union). A number of policy and rule proposal documents were discussed and adopted while several other proposals were sent back to the Technical and Ad hoc Working Groups for revisions. As outgoing chair, the U.S. currently serves as a member of the OECD Seed Schemes Bureau until 2016. The Bureau acts in an executive advisory capacity for all 58 OECD Seed Schemes member countries.



SRTD Director Dr. Fawad S. Shah (second from right) represented the US at the OECD Seed Schemes annual meeting. It was the first time in 20 years that the US has chaired this meeting.

For more information regarding this article, please contact Dr. Fawad Shah at (704) 810-8884; fawad.shah@ams.usda.gov.

THE SEED REGULATORY AND TESTING DIVISION REPRESENTS THE SEED INDUSTRY AT 2014 AG-DISCOVERY SUMMER CAMP FOR HIGH SCHOOL STUDENTS IN NORTH CAROLINA

Ag-Discovery camps sponsored by the USDA's Marketing and Regulatory Programs are held for two weeks each summer at several universities across the United States. They are designed to introduce high school students to careers in agriculture. The application process is competitive and open to high school students from across the country. North Carolina State University (NCSU) hosted one of the Ag-Discovery sessions on its campus from June 16-27, 2014. Sixteen students were accepted and invited to attend this event. An opening session and luncheon introduced the students to the role and the purpose of the USDA. USDA representatives from the Agricultural Marketing Service, Forest Service, Veterinary Services, Animal and Plant Health Inspection Service, and the NCSU Plant Pathology Department greeted the students and answered questions on their various organizational and job roles.



SRTD Plant Pathologist Sandra Walker assists AgDiscovery students in setting up germination tests on vegetable seeds using the rolled towel method.

Seed Regulatory and Testing Division (SRTD) Plant Pathologist Sandra Walker taught a session on conventional and advanced seed testing. Ms. Walker also helped the students conduct germination tests and evaluate several kinds of vegetable seeds. She also answered questions about the regulatory mission of SRTD and the fee for service testing conducted for quality assurance and export. The students really enjoyed the hands on experiments and the opportunity to speak with professionals in their area of interest. This is the third year that SRTD has participated in the Ag-Discovery program and looks forward to working with APHIS and other organizations, within and outside the USDA, to continue to provide this valuable experience for students interested in careers in agriculture.

For more information on this article, please contact Plant Pathologist Sandra Walker at (704) 810-7268; sandrak.walker@ams.usda.gov.

MEETING OF THE INTERNATIONAL SEED TESTING ASSOCIATION

Seed Regulatory and Testing Division Deputy Director Ernest Allen participated in the annual meeting of the International Seed Testing Association (ISTA) on June 17-19, 2014, in Edinburgh, Scotland, UK.

The meeting consisted of several reports from committees within ISTA that included updates on finalized projects, current and future projects, and rule proposals submitted by the committee. Ernest Allen presented the Nomenclature Committee report on behalf of the chairman, John Wiersema (USDA Agricultural Research Service), who could not be present at the meeting.

At the Ordinary Meeting on June 19, Ernest Allen served as the voting delegate on behalf of the Agricultural Marketing Service, which is the U.S. Designated Authority for ISTA. Of the 76 ISTA member countries, 35 were represented by Designated Members entitled to vote at the Ordinary

Meeting, exceeding the required quorum of 40%. ISTA President, Joël Léchappé (France), gave the welcome address and chaired the Ordinary Meeting.

Decisions of the Ordinary Meeting:

- The membership voted to amend the ISTA Articles by changing the “Corporate Membership” category to “Industry Membership.” The change will allow for different levels of membership depending on the size (number of employees) of the organization.
- ISTA annual membership fees for 2015 will remain unchanged. No increase was proposed by the Executive Committee.
- Rule changes which will take effect January 1, 2015, include the following:
 - Clarification on rounding procedure in the purity test. 3.6.1.3 “Fraction percentages must be rounded to one decimal place.”
 - Clarification of the need to retain the component parts found during the purity analysis. 3.2.5(4) “After weighing, the components must be retained and stored for reference until sample disposal.”
 - Clarification of how to report when seed cannot be identified with certainty to species level. 4.7 “...Where it is impossible to determine with certainty on the basis of seed characteristics, the genus name only is reported (e.g. *Malus* sp.).”
 - Clarification on the need to retain any seeds found during the other seed determination analysis. 4.5.2 “Seeds of the other species found must be retained and stored for reference until sample disposal...”
 - Allowing the combinations of suitable substrates. 5.4.1 “Any combination of growing media listed in 5.4.3.1 is permitted, provided that each component is verified and meets specifications prescribed in 5.4.2.”
 - Revision of GMO Chapter 19 Text. 19.4.1 “...For quantitative methods, if a laboratory aims at quantifying the presence of a single seed in the working sample then the size of the sample must be consistent with the limit of quantification.”
 - For a complete list of changes approved during the Ordinary meeting please visit the ISTA Web site at www.seedtest.org.

Next year’s ISTA Congress is scheduled for June 15-18, 2015, in Montevideo, Uruguay. The following year, ISTA’s Annual Meeting is scheduled for June 14-22, 2016, in Tallinn, Estonia.

For more information, contact Deputy Director Ernest Allen at (704) 810-8877; ernerst.allen@ams.usda.gov.

SEED REGULATORY AND TESTING DIVISION PLANT PATHOLOGIST ATTENDS SEED SUMMIT HOSTED BY THE ANIMAL PLANT HEALTH INSPECTION SERVICE (APHIS)

Seed Regulatory and Testing Division Plant Pathologist Sandra Walker was invited to attend an APHIS Seed Summit held in Riverdale, MD on July 15-17, 2014. Seed health professionals and organizations from around the country attended this meeting to discuss ways of preventing

imported seed borne pathogens from negatively affecting American agriculture. The main focus of the meeting involved a recent outbreak of a virus in cucurbits that occurred in 2013. The outbreak was traced to imported seed. Participants discussed ways to prevent another occurrence while minimizing the need for additional regulation. No new regulations or restrictive actions were implemented at the meeting. Participants are hopeful that through further research, discussions, and meetings, a workable solution will be implemented.

For more information about this article, contact Plant Pathologist Sandra Walker at (704) 810-7268; sandrak.walker@ams.usda.gov.

28TH ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN SEED CONTROL OFFICIALS

Seed Regulatory and Testing Division (SRTD) Seed Marketing Specialist Roger Burton attended the 28th Annual Meeting of the Association of American Seed Control Officials (AASCO) on July 20-24, 2014. The meeting was hosted by the Colorado Department of Agriculture in Denver, CO. Representatives from 20 State seed control programs, the American Seed Trade Association (ASTA), the Association of Official Seed Analysts/Society of Commercial Seed Technologists (AOSA/SCST), the Association of Official Seed Certifying Agencies (AOSCA), and five seed company representatives attended the meeting.

In the general session, Roger Burton gave a report on 2013 Federal Seed Act (FSA) activities. Other presentations included Jane Demarchi (ASTA) "Protecting Intellectual Property in Seed and Seed Treatment Stewardship," Dave Stimpson (Dow AgroSciences) "RIB Industry Update and Seed Testing Uniformity," Rick Novak (Director Seed Programs and Extension Seed Specialist) "Overview of the Colorado State Seed Lab," Larry Nees (Office of Indiana State Chemist and Seed Commissioner Purdue University) "Novelty Seed Containers and Wild Product Claims," Jennifer Greminger (Monsanto Company) "Down Stream Seed Treatment," Sharon Davidson (Agri Seed Testing, Inc.) "Accurate Reporting of Fluorescence Test Results and Ryegrass Purity and 'Agar' Media for the Future," Laura Pottorff (Colorado Department of Agriculture) "Industrial Hemp – Role of the Seed Control Official," John Heaton (California Department of Food and Agriculture) "How not to spread disease when sampling seed," and Harold Armstrong (Monsanto Company) "'Agar' Media for the Future."

Other discussions included:

- A proposal by Greg Helmbrecht (Treasurer) to approve payment of travel fees for Board of Directors with an annual review of continuation;
- The continuation of the Scholarship Program with a maximum of \$1500 per scholarship. There was only one application received to date and it was suggested to better publicize the program;
- Intellectual Property Program is soon to be launched by ASTA with vegetable seed coming first followed by agricultural seed;
- Rick Novak (Director CO Seed Program) spoke of his responsibilities in Extension and Education and made reference to their ongoing Seed Technology Education Program (STEP) where one can access their Web site www.seedimages.com which is a subscription based Web site; and

- Larry Nees (IN) brought up the issue of advertising claims that are in many cases inaccurate. Nearly all SCO'S at the meeting spoke of encountering inaccurate packaging claims. It was suggested that perhaps AASCO could formulate a letter to be sent out pertaining to this issue.

The Regional Association meetings consisted of the Southern Seed Control Officials Association, the Association of Seed Control Officials of the Northeastern States, the North Central Seed Control Officials Association, and the Western Association of Seed Control Officials. Roger Burton reported FSA activities for the individual regions at the combined regional meeting of the Southern Seed Control Officials Association and the Association of Seed Control Officials of the Northeast States.

The current AASCO officers are:

- President Steve Malone (MN)
- First Vice-President Jim Drews (MD)
- Second Vice President Johnny Zook (PA)
- Treasurer Greg Helmbrecht (WI)
- Secretary Larry Nees (IN)

The 2015 AASCO Annual Meeting will be held in St. Louis, MO. Meeting dates and hotel information will be announced at a later date.

For more information about AASCO, visit their website at <http://www.seedcontol.org>

For information regarding this article, contact Seed Marketing Specialist Roger Burton at (704) 810-7265; roger.burton@ams.usda.gov.

2014 SEED ANALYSTS TRAINING WORKSHOPS IN GASTONIA, NC

The Seed Regulatory and Testing Division (SRTD) held two Seed Analysts Training Workshops in Gastonia, NC on August 4-6, 2014 and August 18-20, 2014. Twenty-eight seed analysts from 16 States representing public and private laboratories attended the workshops. Both workshops focused on purity and identification of similar crop and weed species, with emphasis on identification of noxious-weed seeds. Other topics included: seed and seedling structures, pure seed unit definitions, grass mixture separations, uniform blowing procedure, ryegrass fluorescence testing procedures, and various calculations. Following the second workshop, AOSA purity and germination exams were given to analysts wishing to become Certified Seed Analysts or Registered Seed Technologists.

The mission of the Federal Seed Act is to promote uniformity in seed laws and fair competition within the seed industry. This effort is supported by State seed control programs through authorization provided by cooperative agreements between the States and the USDA's Agricultural Marketing Service (AMS). The SRTD workshops further these goals by promoting uniformity in testing and by fostering greater compliance with State and Federal seed-labeling laws.



August 4-6, 2014 Federal Seed Workshop Participants, (L to R): Dr. Fawad Shah (SRTD Director), Anitra Walker (SRTD instructor), Aaron Cargle (AL), Todd Erickson (SRTD instructor), Amy Vogt (CO), Charlene Burton (SRTD instructor), Patsy Jackson (SRTD instructor), Cindy Telfort (FL), Amad Karwandyer (TN), Victor Vankus (USDA Forest Service), Faye Jorgensen (MT), Terry Freeman (UT), Perphyria Douglas (LA), Kristiaan Merritt (SC), and Ernest Allen (SRTD Laboratory Supervisor). Valerie Spencer (LA) and Nancy Hand (GA) not pictured.



August 18-20, 2014 Federal Seed workshop Participants, (LtoR): Ernest Allen (SRTD Laboratory Supervisor), Patsy Jackson (SRTD instructor), Charlene Burton (SRTD instructor), Anitra Walker (SRTD instructor), Amy Smeltzer (IN), Todd Erickson (SRTD instructor), Julia S. Henderson (CA), Jean Tolliver (WA), Ben Alkire (IN), Robin Lambert (SC), Gil Waibel (IN), Robin Plexico (SC), Tracy Lamb (SC), Joshua Arbaugh (WV), Angela Kutzbach (SD), Sandra Walker (SRTD Plant Pathologist), Evan Jensen (SD), Chase Mowry (SD), Ginger McNickle (SD), Ametra Berry (GA), and Carrie Lewis (OR). Dave Palmer (VA) not pictured.

For more information about this article or to request a pre-registration form for next years Seed Analysts Workshop, please contact Botanist Patsy Jackson at (704) 810-8881; patsy.jackson@ams.usda.gov.

ENSURING QUALITY GERMINATION MEDIA FOR SEED TESTING

Planting media can have a strong influence on the final outcome of a germination test. Samples which perform poorly, due to seed or seedling decay or entrapment within the seed coat, will often exhibit a higher germination rate when planted in soil. However, few laboratories have the luxury of planting all of their samples in soil, so the decision to use soil is rare and often made on a case by case basis. An important factor to consider when determining what type of paper substrate to use, (sheet paper, blotters, crepe cellulose, etc.), is the potential phytotoxicity of the substrate. Phytotoxicity has been known to cause root and other physiological problems that inflate abnormal seedling percentages in seed lots. For this reason, it is vital that laboratories test their media for any potential phytotoxic chemicals before those batches are used for germination testing.

Federal Seed Act (FSA) regulations, Association of Official Seed Analysts (AOSA) rules, and International Seed Testing Association (ISTA) rules all mention the importance of testing planting media.

FSA 201.58 (a) (9) states, "Paper substrata must be free of chemicals toxic to germinating seed and seedling growth. If root injury occurs from toxicity of a paper substratum or from the use of potassium nitrate, retests shall be made on soil or on a substratum moistened with water."

AOSA Vol. 4 Seedling evaluation 3.4.9 gives further guidance on how to check for phytotoxicity. "Germination substrata or water from new or unknown sources should be tested for phytotoxicity prior to routine use. Plant seeds of sensitive species (e.g. timothy, lettuce, celery, or sorghum) on the substrate to be tested as well as on a similar substrate known to be non-phytotoxic. Stunted roots or hypocotyls, or roots that arch away from the substrate are signs of phytotoxicity. A comparison of the test and control samples should be made daily, because the symptoms may be more difficult to see once the roots become entangled."

The ISTA Handbook on Seedling Evaluation section A.5.6.3 outlines a possible procedure for testing media:

"To verify that a batch of media is suitable for germination tests seeds of certain species evaluated in the laboratory that are known to be sensitive to toxic substances are used: *Agrostis gigantea*, *Eragrostis curvula*, *Festuca rubra*, *Hordeum vulgare*, *Lepidium sativum*, *Petunia sp.* and *Phleum pretense*.

At least 400 seeds each of two sensitive species are tested on four samples of the media taken at random from the batch of media being evaluated.

Evaluating the tests requires the assessment of:

The percentage of germinated seeds at an early stage;

The occurrence of normal and abnormal seedlings with symptoms due to toxic substances, non-germinated seeds;

Specific symptoms among them: shortened roots, sometimes discolored tips, roots raised from the substrate, root hairs 'bunched', short and thick hypocotyls."

The ideal time to test media is when it is first received from the vendor. Additional testing may be conducted periodically at the lab's discretion if the paper is kept in storage. Testing laboratories should develop a procedure that describes how the test will be performed, what substrate will be used as a control, which sensitive species will be used to detect toxicity, and how the results will be compared. The laboratory should also test the pH of the new media.

In addition to national and international rulemaking organizations, various accreditation standards such as ISO 9001 or ISO 17025 also require that laboratories "establish and implement inspection or other activities" on products that could affect the quality of the final product (the laboratory report) and ensure that the product will perform according to the laboratory's testing specifications.

For more information on this article, please contact Botanist Todd Erickson at (704) 810-7266; todd.erickson@ams.usda.gov.

TRAIT TESTING IN SEEDS

What are Genetically Engineered (GE) Seeds?

Genetically engineered (GE) seeds are also called genetically modified organisms (GMO). These are seeds whose natural genetic information was modified in their parents' generation. The parent plants received artificially transferred foreign gene(s). Scientists can now use new methods to modify genes instead of traditional breeding. For instance, inserting pieces of foreign DNA into a plant cell's nuclear region enhances specific qualities sought by the breeder. Genetically engineered (GE) plants may be resistant to herbicides, pesticides, or both. Depending on the trait introduced to the plant genome, planting fields may be sprayed with various chemicals that kill unwanted plants and pests but leaves the modified plants unharmed.

GE seeds are generally detected at the molecular level which most often includes either protein or DNA analysis.

- ELISA- Enzyme Linked Immunosorbant Assay is a test in which antibodies bind to antigens if present in a solution. The process has several steps that must be carried out in a specific order to generate accurate results. In this test, antibodies or antigens bind to the surface of the holding container or another molecule that is used to detect the specific antigen in question. The test utilizes a series of washes with a buffer solution to remove excess molecules during the process. The final step is the addition of a substrate that binds to the molecules attached to the surface of the holding container. This produces a color change that may be used to detect the presence and concentration of a specific antigen in the solution.
- Lateral Flow Strip- Another common way to detect GE traits in seeds is to use a lateral flow strip test in which a wick draws a sample buffer solution up to a region of the strip where specific antigens can be detected. If the targeted protein is not present, only one background control line will appear on the strip. If the targeted protein is present, the targeted protein line and background control line will appear on the strip.

- PCR- Using specific sequences of DNA, such as promoters, terminators, and targeted genes, PCR allows scientists to generate many copies of DNA fragments. Thus, if the transferred gene of interest is present in the sample, it will be multiplied to detectable levels.

What tests do the Seed Regulatory and Testing Division use to detect genetically engineered seeds for regulatory or service requests?

USDA-AMS Seed Regulatory and Testing Division (SRTD) seed laboratory provides GMO seed testing services for all crops using PCR, ELISA, or immune-Strip test. SRTD is a full service laboratory capable of conducting most all tests required for domestic trade or international shipments. These tests are available as a fee for service basis.

For more information about these advanced seed testing methods or other testing methods and services available at the SRTD laboratory, please visit the [SRTD Web site](#).

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

QUESTION AND ANSWER – COATED SEED

Q. In 2010, the Association of Official Seed Analysts (AOSA) implemented changes to the procedures for testing coated/pelleted seed. Do the new procedures differ from Federal Seed Act (FSA) procedures and if so, how?

A. The current AOSA procedures differ from FSA procedures, primarily in relation to whether de-coating is required prior to purity testing, or prior to planting for the germination test. See the tables below for a comparison of FSA, AOSA, and International Seed Testing Association (ISTA) de-coating requirements.

Notes:

- The current AOSA Rules specify that when pelleted-seed units are de-coated for a purity analysis, the Uniform Blowing Procedure is not used. De-coated seed units must be examined for the presence of at least one caryopsis with some degree of endosperm to be considered pure seed.
- FSA and AOSA both specify that coated seed samples must be de-coated prior to performing a noxious weed-seed test. ISTA Rules also specify the removal of pelleting material (de-coating) for the determination of the number of seeds of other species, which would include examination for noxious weed-seeds.
- See the applicable rules or regulations for details of coated-seed testing, for definitions of coated-seed categories, for de-coating procedures, and for information on which categories are covered under each organization’s coated-seed procedures.

PURITY TEST – Treatment of Coated Seed before Separation

	Single Component Kinds	Mixtures That Can Be Separated Visually	Mixtures That Cannot Be Separated Visually
FSA	De-coat	De-coat	De-coat
AOSA	De-coat <i>Poaceae</i> kinds. De-coat other kinds by request only.	De-coat	De-coat
ISTA	Test in the condition received. De-coat by request only.	Test in the condition received. De-coat by request only.	Test in the condition received. De-coat by request only.

GERMINATION TEST – Treatment of Coated Seed Before Planting

	Single Component Kinds	Mixtures That Can Be Separated Visually	Mixtures That Cannot Be Separated Visually
FSA	Plant in the condition received. Kinds for which soaking or washing is required per FSA Regulations, Part 201, Section 201.58 (such as beet, Swiss chard, and rescuegrass) are not soaked or washed.	Plant in the condition received.	De-coat, air dry, separate and plant by kind.
AOSA	Plant in the condition received with the two exceptions below. 1. If sample is de-coated for the purity test (<i>Poaceae</i> kinds), plant from the de-coated pure seed component. 2. If seed is a <i>Poaceae</i> and was received for a germination test only, de-coat the seeds before planting. Kinds for which soaking or washing is specified in section 6.8 of the AOSA Rules (beet, Swiss chard, and rescuegrass) are not soaked or washed before planting.	Plant in the condition received.	De-coat, air dry, separate and plant by kind.
ISTA	Plant in the condition received from the pure seed component of the purity separation.	Plant in the condition received from the pure seed fraction of the purity separation.	N/A—ISTA does not have test procedures for mixtures.

Links

AOSA: www.aosaseed.com

FSA: www.ams.usda.gov/seed

ISTA: www.seedtest.org

(Article written by Botanist Sandy Dawson (retired) and originally published in the April 2011 IOI publication.)

QUESTIONS AND ANSWERS

Company City and State Address on Seed Labels

- Q. If a company puts the company name and web address on the seed label, does the city and state address have to be on the label also?
- A. Section 201.23 of the Federal Seed Act (FSA) Regulations states: "The full name and address of either the shipper or consignee shall appear upon the label. If the name and address of the shipper are not shown upon the label, a code designation identifying the shipper shall be shown." "Address" is interpreted to mean the city and state location. The code designation refers to the "AMS number" that can be obtained from our office. An interstate shipper has two options for fulfilling this labeling requirement. The company shipping seed in interstate commerce can put either their own name and address on the label or the name of the consignee (the company to whom the seed is shipped for resale) and their own AMS number identifying them as the interstate shipper.

(Article originally published in the April 2008 Items of Interest publication.)

Variety Name Changes

- Q. Can we change the name of our variety to a more appealing name?
- A. If a variety has been sold by a variety name, it must continue to be sold by that name. A possible exception to this rule would occur if there is a legal reason that the existing variety name must be changed. One example might be legal action forcing a company to stop using a variety name because that name is a trademark of another company. In this case, another variety name would have to be chosen. Another example of the need to change a variety name would be if there are two different varieties being sold with the same name. In this case, the company that first sold the seed would keep the variety name and the second company would have to choose a new name for their variety. In addition, if seed is imported into the U.S. for sale with the same name of an existing variety in the U.S., a new name would have to be chosen for that variety before it could be sold in the U.S.

It is not legal under the FSA for two varieties to have the same name or for one variety to have two names. Once a variety has been named, the name cannot be changed except as noted above, and the name of an old variety cannot be used for a new variety, even if the old variety is no longer being sold.

The Seed Regulatory and Testing Branch Web site contains a publication titled “Facts About Naming and Labeling Varieties of Seed” that can provide guidance about naming varieties. Our Web site address is www.ams.usda.gov/lsg/seed.htm.

(Article written by Dr. Richard C. Payne (retired) and originally published in the April 2008 IOI publication.)

Changing Lot Number

Q. When is it necessary to change a lot number?

A. A lot of seed is defined in 201.2(v) of the Federal Seed Act Regulations Part 201 as a definite quantity of seed identified by a lot number, with every portion or bag being uniform—within permitted tolerances—for the factors which appear in the labeling.

A lot number is the primary identifying tool on a label and is used for tracking a specific quantity of seed. The lot number should be unique to that specific lot or specific quantity of seed. The lot number should be changed anytime the seed in the lot is altered.

Some examples are as follows:

- If the seed lot is blended with another lot;
- If coating material or seed treatment is added to an existing lot;
- If the lot is reconditioned resulting in a change in seed quality; or
- If a lot is subdivided into portions that are no longer uniform because of treatment, conditioning, different storage conditions, or other factors.

(Article written by Seed Marketing Specialist Kevin Robinson and originally published in the October 2007 IOI publication.)

BRAND NAMES AND VARIETY NAMES – LABELING AND ADVERTISING

Past issues of the Items of Interest in Seed (IOI) give detailed information regarding distinctions between variety names and brand names. One desired outcome of Federal Seed Act (FSA) enforcement is proper seed labeling that will be consistent and help the consumer accurately identify the products they are purchasing. Using brand and variety names interchangeably, in addition to being in violation of the FSA, can ultimately mislead the seed consumer.

A brand designation is generally used to identify the owner or seller of seed. Brand labeling is not specifically regulated under the Federal Seed Act. However, section 201.8 of the FSA Regulations states, “The label shall contain the required information in any form that is clearly legible and complies with the regulations in this part. The information may be on a tag attached securely to the container, or may be printed in a conspicuous manner on a side or the top of the container. The label may contain information in addition to that required by the act, provided such information is not misleading.” This means that if brand designations are used in labeling, they cannot be misleading. To avoid being misleading, brand designations should be clearly identified when part of a seed label. In addition, using a variety name as a brand designation or

as part of a brand designation would be considered misleading because this practice would imply varietal content of the labeled seed. A brand designation does not insure the varietal content of seed. In some instances the varietal content of a brand has changed from year to year and in cases of turf seed brands, even within the same year.

Section 201.36b(e) of the FSA Regulations deals with advertising and states in part, "Brand names and terms taken from trademarks may be associated with the name of the kind or variety of seed as an indication of source: *Provided*, that the terms are clearly identified as being other than part of the name of the kind or variety." This means that when advertising seed by a brand name, the brand name must be clearly identified as such. Section 201.36b(e) of the FSA Regulations also states in part, "Seed shall not be advertised under a trademark or brand name in any manner that may create the impression that the trademark or brand name is a variety name." This means that in advertising, a variety name cannot be used as a brand name or as part of a brand name.

Section 201.36b(e) of the FSA Regulations further states in part "If seed advertised under a trademark or brand name is a mixture of varieties and if the variety names are not stated in the advertising, a description similar to a varietal description or a comparison with a named variety shall not be used if it creates the impression that the seed is of a single variety." This means that a brand of seed containing several varieties cannot be compared to a single variety in an advertisement unless the varieties comprising that brand are also listed in that advertisement.

Section 101(19) of the FSA states "The term "advertisement" means all representations, other than those on the label, disseminated in any manner, relating to seed within the scope of this Act." This section of the FSA has been interpreted to mean advertisement of all types, including seed company Internet Web sites. Therefore, the advertising requirements in the FSA Regulations that pertain to brands and varieties apply to those contained in seed company Internet Web sites.

(Article written by Dr. Richard C. Payne (retired) and originally published in the October 2007 Items of Interest publication.)

RESERVE SEED COLLECTION

The Reserve Seed Collection contains more than 600 different species of agricultural, vegetable, tree, and flower seeds that are available from the Seed Regulatory and Testing Division (SRTD) to compliment other seed testing laboratories' seed herbariums or for addition to seed analysts' individual collections. The species in the Reserve Seed Collection are in numerical order respective to an organized list that is found on the SRTB Web site, www.ams.usda.gov/lsg/seed/reserve.htm. Available species are in a numbered list by scientific names correlating to the seeds on file. The purpose of the collection is to provide State, commercial, and foreign seed analysts with seeds to enhance seed identifications at their laboratories. This is a complimentary service. We also appreciate donations of any seeds that can replenish our supply, as well as add more species to the Reserve Seed Collection. To have requests filled, customers should provide envelopes labeled with the numbers (placed in numerical order) and corresponding scientific names. Notation is made on the list as to which species we have a limited supply of. We ask that no more than 150 requests be sent at a time.

For information regarding the Reserve Seed Collection, contact Botanist Anitra Walker at (704) 810-7269; anitra.walker@usda.gov.

PERSONNEL CHANGES

Ms. Anitra Walker and Ms. Beth Tatum were hired for the botanist positions.

Ms. Walker has most recently served the Seed Regulatory and Testing Division (SRTD) as a Biological Science Laboratory Technician since 2005. She holds a B.S. in Biology with a minor in Chemistry from the University of South Carolina in Columbia, SC. In addition, she has completed courses at Colorado State University in Fort Collins, CO, with a focus on seed development and metabolism, seed germination and viability, and seed anatomy and identification among other related plant science classes. She has successfully completed her AOSA Certifications as CSA in purity and germination.



SRTD Botanist, Anitra Walker

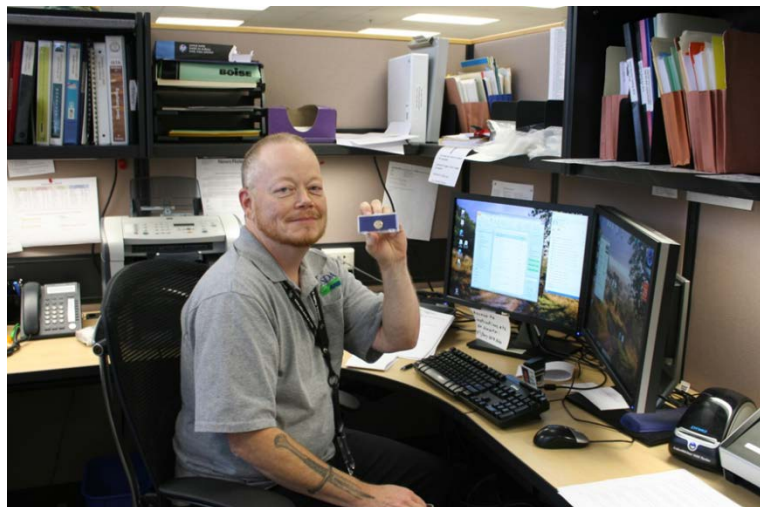
Ms. Tatum holds a B.S. in Botany and a Graduate Certificate of Horticulture, both from NC State University in Raleigh, NC. For seven years, Ms. Tatum served as a seed analyst at the NC Department of Agriculture in Raleigh, NC, prior to joining SRTD. She has also worked as a Research Technician at Bayer Environmental Sciences in Clayton, NC. She has successfully completed her AOSA certification as a CSA in germination.



SRTD Botanist, Beth Tatum

SRTD welcomes both Ms. Walker and Ms. Tatum to their new roles as Botanists.

Seed Marketing Specialist Jerry Irwin will retired on October 31, 2014, after more than 30 years of Federal service. Jerry was a procurement specialist in Washington, DC, for AMS' school lunch program before coming to SRTD in 1989. In 2003 he followed SRTD from Maryland to North Carolina where his primary duty was investigating Federal Seed Act (FSA) cases. Jerry



SRTD Seed Marketing Specialist Jerry Irwin

was also responsible for projects such as updating the State Noxious-Weed Seed Requirements, Recognized in the Administration of the FSA, developing the SRTD-Authorized ISTA Seed Sampler Program, and the ISTA Seed Sampling Guidelines for the SRTD, contributing to the 2006 AASCO Handbook on Seed Sampling, and for a few years, editing the Items of Interest in Seed. Jerry's dedication, expertise, and friendly manner contributed to the overall success of the SRTD mission. We wish him well in his retirement.

For more information on this article contact Director Fawad S. Shah at 704-810-8884; fawad.shah@ams.usda.gov.

RYEGRASS FLUORESCENCE LIST

The Association of Official Seed Certifying Agencies (AOSCA) revises its report of the Variety Fluorescence Levels Recognized by the AOSCA National Grass Ryegrass Review Board twice a year. Click on the Grass National Variety Review Board section of the Web site (<http://www.aosca.org/VarietyReviewBoards/Grass.html>) then click on the link for the National Perennial Ryegrass Variety Fluorescence Report to view the most current list.

PLANT VARIETY PROTECTION CERTIFICATE STATUS

The Plant Variety Protection Office (PVPO) posts a public version of the Certificate Status Database. Visit the [PVPO Certificate Status Database](#) to check the status of certification or to search for expired certificates. To view PVPO's list of U.S. protected varieties, visit the [PVPO List of U.S. Protected Varieties](#). It may take time for the list to open due to its large size. PVPO updates these public access databases monthly or as time permits.

CALENDAR OF EVENTS

American Seed Trade Association (ASTA) Corn & Sorghum and Soybean Seed Research Conference Chicago, IL	December 9-12, 2014
American Seed Trade Association (ASTA) Vegetable & Flower Seed Conference Tampa, FL	January 24-27, 2015
Organization for Economic Cooperation and Development (OECD) Seed Schemes Ad Hoc & Technical Working Group Meetings Paris, France	January 27-29, 2015
Association of Official Seed Analysts and Society of Commercial Seed Technologists (AOSA/SCST) Annual Meeting City, State (TBD)	June 2015
Organization for Economic Cooperation and Development (OECD) Seed Schemes Working Group and Annual Meeting Paris, France	June 2-5, 2015
International Seed Testing Association (ISTA) Annual Meeting Uruguay	June 15-18, 2015
American Seed Trade Association (ASTA) 132 nd Annual Convention Washington, DC	June 17-20, 2015
Association of Official Seed Certifying Agencies (AOSCA) Annual Meeting Vancouver, British Columbia	June 21-24, 2015
American Association of Seed Control Officials (AASCO) Annual Meeting City, State (TBD)	July 2015

Seed Regulatory and Testing Division sponsored training schedule to be determined.

For further information regarding specific events, please visit organization Web sites.

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