Seed Regulatory and Testing Division

ITEMS OF INTEREST IN SEED

October 2011

www.usda.ams.gov/seed

USDA Agricultural Marketing Service

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EDITOR'S NOTES

"The golden rule for every business man is this: 'Put yourself in your customer's place.'"

Orison Swett Marden
American Writer
(1850-1924)

Welcome to another edition of the "Items of Interest in Seed" (IOI) publication. As the quotation above reminds us, reaching out to our customers to identify their current needs should be one of our highest priorities. So how can the Seed Regulatory and Testing Division (SRTD) help you meet your objectives? If you work in a State or private seed testing laboratory, would you like training on the identification of seeds from a specific plant species? Maybe you would like clarification on a testing procedure? The Federal Seed School is a good place to find the answers to your questions. Our five botanists, who are trained Certified Seed Analysts (CSA), conduct the classes. Every student has an opportunity to request specific study areas when registering for the classes and the instructors make every effort to include as many requests as time permits. There is no charge for Federal and State government employees to attend the training, but participants from non-government laboratories will be charged a fee. To learn more about the recent Federal Seed School, see Botanist Sandy Dawson's article "2011 Seed Analyst Training Workshop in Gastonia, NC."

This summer, a few SRTD employees had the opportunity to meet many of you while attending national and international meetings on behalf of USDA. SRTD Director Richard Payne, Ph.D., and Botanist Ernest Allen participated in the 2011 joint annual meeting of the Association of Official Seed Analysts (AOSA) and the Society of Commercial Seed Technologists (SCST) in Williamsburg, VA. Deputy Director/Laboratory Supervisor Susan Maxon attended the annual meeting of the International Seed Testing Association (ISTA) in Zurich, Switzerland. In addition, Office of Economic Cooperation and Development (OECD) Seed Schemes U.S. Program Manager Perry Bohn participated in the OECD Seed Schemes annual meeting in Istanbul, Turkey. Their IOI articles provide an overview of these important meetings.

Also included in this IOI publication is an interesting article on "Identification and Comparison of Seeds of Four *Bromus* Species." Botanist Charlene Burton sheds some light on ways to distinguish between these seeds.

The United States is now the OECD Seed Schemes Chair for the next two years. With the recent departure of Perry Bohn, SRTD Seed Marketing Specialist Gene Wilson will assume the duties of OECD Seed Schemes U.S. Program Manager. Please see page 8 for Gene's contact information.

Please let me know if you have suggestions for topics to be covered in the future by sending an e-mail to linda.vanderhoof@ams.usda.gov.

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

Linda Vanderhoof
IOI Editor

REVISION OF THE FEDERAL SEED ACT REGULATIONS

The recent amendment to the Federal Seed Act (FSA) Regulations went into effect July 5, 2011. The revisions include clarifications, corrections, and updates of the following:

- The list of prohibited noxious-weed seeds to reflect the recent addition of four species, deletion of two species, and nomenclature change of four species listed in the Federal Noxious Weed Act
- Seed labeling regulations
- Noxious-weed seed tolerances
- Seed testing regulations
- Seed certification regulations
- The nomenclature of kinds regulated under the FSA per current usages in the International Code of Botanical Nomenclature
- Labeling requirements for seed treated with the most toxic class of chemical compounds
- Several items that contained minor errors

These updated regulations should prevent potential conflicts between Federal and State regulations. They also reflect currently used terms and practices in the seed industry.

The text file that reflects the recent revisions of the FSA Regulations is available on the Seed Regulatory and Testing Division (SRTD) Web site. Access the text file by going to "Publications" on the SRTD Web site (www.ams.usda.gov/seed) and clicking on "FSA Regulations 7 CFR 201 – Text File." The PDF file will be updated in January 2012.

In addition, the SRTD includes the list of Federal prohibited noxious-weed seeds in its publication "State Noxious-Weed Seed Requirements Recognized in the Administration of the Federal Seed Act." The updated list of Federal prohibited noxious-weed seeds will be included in the next issue. Subscribers (Subscribe to Publications) will be notified when SRTD publishes the 2012 version of the State noxious-weed seed requirements.

For information regarding this article, contact Seed Marketing Specialist Jerry Irwin at jerry.irwin@ams.usda.gov.

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. The FSA helps promote uniformity among the State laws and fair competition within the seed trade.

The following cases were settled administratively under the FSA between February 19, and September 9, 2011. Under the administrative settlement procedure, the Seed Regulatory and Testing Division (SRTD) and the firms agreed to settle the cases, for the amount specified, with the firms neither admitting nor denying the charges. Official Program Announcements on each of these cases are accessible on the following Web site under the "Latest Releases" link: http://www.ams.usda.gov/news/newsrel.htm.

Allied Seed LLC, Nampa, ID, has paid $2,600 for cases involving three seed shipments to Georgia and Missouri. Seed regulatory officials in Georgia and Missouri cooperated in the initial sampling and inspection. The alleged violations, while not the same for all shipments, were:

- false labeling of germination percentage,
- failure to label the presence of noxious-weed seeds, and
- failure to test for germination within the prescribed time prior to interstate shipment.

Crop Production Services, Inc., Loveland, CO, has paid $3,150 for cases involving twelve seed shipments in Texas. Seed regulatory officials in Texas cooperated in the initial sampling and inspection. The alleged violation was:

- failure to label with certification tags, issued by an official seed certifying agency, when the variety has a Plant Variety Protection Certificate specifying that the variety be sold by name as a class of certified seed.

Gayland Ward Seed Company, Inc., Hereford, TX, has paid $2,800 for eight cases involving one seed shipment to Georgia and seven seed lots sold or offered for sale throughout Texas. Seed regulatory officials in Georgia and Texas cooperated in the initial sampling and inspection. The alleged violations, while not the same for all shipments, were:

- false labeling of pure seed and other crop seed percentages, and
- selling non-certified seed of a variety on which a Plant Variety Protection Certificate has been issued specifying that the variety be sold by name as a class of certified seed.

Green Thumb Commodities, Inc., Oldham, SD, has paid $2,275 for cases involving four seed shipments to Georgia, Missouri, and Texas. Seed regulatory officials in Georgia, Missouri, and Texas cooperated in the initial sampling and inspection. The alleged violations, while not the same for all shipments, were:

- false labeling of inert matter and germination percentages, kind name, and variety name;
- failure to label the presence of noxious-weed seeds; and
- failure to keep or supply complete records of the seed.

J. Lee Company, Hennessey, OK, has paid $1,225 for cases involving three seed shipments to Alabama and Georgia. Seed regulatory officials in Georgia cooperated in the initial sampling and inspection. The alleged violations, while not the same for all shipments, were:

- false labeling of germination percentage and noxious-weed seeds, and
- failure to label the interstate shipper's name and address or code designation.

James Reneau Seed Company, Shamrock, TX, has paid $6,125 for cases involving thirteen seed shipments to Georgia. Seed regulatory officials in Georgia cooperated in the initial sampling and inspection. The alleged violations, while not the same for all shipments, were:

- false labeling of germination percentage, noxious-weed seeds, test date, and variety name; and
- failure to keep or supply complete records of the seed.

Olean Seed, Olean, MO, has paid $450 for a case involving one seed shipment to Georgia. Seed regulatory officials in Georgia cooperated in the initial sampling and inspection. The alleged violation was:

- false labeling of germination percentage.

Ragan & Massey, Inc., Ponchatoula, LA, has paid $1,400 for cases involving three seed shipments to Georgia and Pennsylvania. Seed regulatory officials in Georgia and Pennsylvania cooperated in the initial sampling and inspection. The alleged violations, while not the same for all shipments, were:

- false labeling of germination percentage and test date, and
- failure to keep or supply complete records of the seed.

The Scotts Company LLC, Marysville, OH, has paid $2,275 for cases involving three seed shipments to Georgia, Kentucky, and Texas. Seed regulatory officials in Georgia, Kentucky, and Texas cooperated in the initial sampling and inspection. The alleged violations, while not the same for all shipments, were:

- false labeling of germination percentage and test date, and
- failure to keep or supply complete records of the seed.

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 samples for inclusion in the TTV tests.

Unfortunately, the SRTD carrot TTV planting at the Sandhills Research Station, Jackson Springs, NC, was destroyed by Hurricane Irene.

Testing of the summer squash and cucumber samples was completed this past summer at the Piedmont Research Station, Salisbury, NC. We are currently conducting cotton TTV testing at the Texas Department of Agriculture, Giddings, TX. This fall, winter small grain samples are scheduled to be planted at the Piedmont Research Station, with final evaluation in the early summer of 2012. In the spring of 2012, we will be doing TTV testing on **collards, onions, pumpkins, sweet corn, watermelon,** and **winter squash.**

We encourage all State seed control programs to submit seed samples of the previously mentioned kinds (in bold) for TTV testing. If there are any questions concerning the TTV program or directions for submitting samples, please contact Kevin Robinson at (704) 810-7264; kevin.robinson2@ams.usda.gov.

LABELING PESTICIDE TREATED SEED

Federal Seed Act (FSA) Regulations Section 201.31a specifies the information that must be printed on the label of pesticide-treated seed.

Agricultural and vegetable seed processed with a fungicide or insecticide must state that the seed has been treated and must include the name of the substance or the process used, for example, “Treated with Thiram” or “hot water treated.” The regulations state that the name of the treatment must be the commonly accepted name (e.g. Thiram or Apron) or chemical name (e.g. metalaxyl) of the pesticide.

In addition, the label must say "'Do not use for food," "Do not use for feed," "Do not use for oil purposes," or "Do not use for food, feed, or oil purposes,"' as appropriate, if the amount of pesticide present on the seeds is harmful to humans or animals.

If seed is treated with an Environmental Protection Agency (EPA) Toxicity Category I chemical, the label must exhibit a skull and crossbones emblem that is at least twice the size of the printed words bearing the message "Poison," "Treated with Poison," or "This seed has been treated with Poison." The wording must be printed in red ink on a background of contrasting color in type no smaller than 8 point. An EPA Toxicity Category I chemical is acutely toxic if inhaled, ingested, or absorbed through the skin.

The Federal Food, Drug, and Cosmetic Act regulations specify that seed for planting, treated with a poisonous substance, must be colored when the possibility of consumption by humans or animals exists. The coloring must differ enough from the natural color of the seeds that it is easily visible. The color signals that the seed is contaminated and should not enter the food supply chain. It also provides a means for detecting pesticide-treated seeds in lots destined for food or feed. See the Food and Drug Administration (FDA) regulations (21CFR2, Section 2.25).

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

QUESTIONS AND ANSWERS

Q. Are there required minimum germination standards, for agricultural and vegetable seed labeling, included in the Federal Seed Act?

A. The Federal Seed Act (Act) and regulations under the Act address minimum germination standards for vegetable seed when packaged in containers of one pound or less in weight. The Act does not contain minimum germination standards for agricultural seed labeling.

Q. What are the appropriate sections in the Act and regulations that address the required labeling including minimum germination standards for vegetable seed packaged in containers of one pound or less?

A. The appropriate information can be found in the Act Section 201(b)(1) and regulations under the Act Sections 201.29 and 201.31. A copy of the Act and regulations can be accessed at www.ams.usda.gov/Seed. Once at the site, go to Publications then to either Federal Seed Act or FSA regulations.

Q. Are there any requirements under the Act relating to minimum font size when labeling seed?

A. There are three instances where font size is specifically addressed in the Regulations under the Act. A copy of the Act and regulations can be accessed at www.ams.usda.gov/Seed.

1) Section 201.29: Germination of vegetable seed in containers of 1 pound or less

2) Section 201.31a(d): Labeling treated seed--(a) Contents of label

3) Section 201.36c(d): Hermetically sealed containers

Q. Does the Federal Seed Act have requirements as to the placement of the label on a seed container?

A. Section 201.8 of the FSA regulations states "Contents of the label.--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."

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

PERRY BOHN'S DEPARTURE

Seed Regulatory and Testing Division (SRTD) International Seed Marketing Specialist Perry Bohn has resigned after seven years of Federal service. In addition to administering the U.S. program of the OECD Seed Schemes and being responsible for SRTD's quality system, Perry was instrumental in the implementation and expansion of the accredited seed programs, including the Accredited Seed Laboratory (ASL), Accredited Seed Sampling Program (ASSP), Accredited Field Inspection Program (AFIP), and Accredited Seed Conditioning Program (ASCP). Perry represented the United States internationally at meetings of the OECD Seed Schemes and also served as vice chairman of that organization. We appreciate his years of dedicated service with SRTD and wish him well in the future.

NEW U.S. OECD SEED SCHEMES PROGRAM MANAGER

Effective August 29, 2011, Seed Marketing Specialist Gene Wilson assumed new duties as the U.S. Organization for Economic Cooperation and Development (OECD) Seed Schemes Program Manager. He replaces Perry Bohn who left Federal service to return to private industry. Gene has been with the Seed Regulatory and Testing Division for eight years and assisted with the U.S. OECD Seed Schemes Program for four of those years.

For more information concerning the OECD Seed Schemes, contact Gene Wilson at (704) 810-8888 or by fax (704) 865-1973; gene.wilson@ams.usda.gov.

GRADING AND VERIFICATION DIVISION

Effective July 5, 2011, the Livestock and Seed Program consolidated the Audit, Review, and Compliance (ARC) Branch and the Meat Grading and Certification Branch. The new division, named the Grading and Verification Division (GV), is under the leadership of Director Larry Meadows, assisted by Deputy Directors Stephen Cave and James Riva. In his oversight capacity for the grading, certification, and auditing services, Mr. Riva will continue to be responsible for the Process Verified Program for Seeds, which includes the Accredited Seed Laboratory (ASL) Program, the Accredited Seed Sampling Program (ASSP), the Accredited Field Inspection Program (AFIP), and the Accredited Seed Conditioning Program (ASCP). The accreditation processes for these programs will continue as in the past.

Requests for services should be sent by e-mail to ARCBranch@ams.usda.gov; by mail to USDA, AMS, LS, ARC Branch, 13952 Denver West Parkway, Building 53, Suite 350, Lakewood, CO 80401; or by fax to (202) 354-5279. For more information visit Accredited Seed Programs.

NEW NAME FOR THE SEED REGULATORY AND TESTING BRANCH

The Seed Regulatory and Testing Branch (SRTB) has been renamed the Seed Regulatory and Testing Division (SRTD) by Agricultural Marketing Service (AMS) leadership. Dr. Richard Payne's title is now Director of the Seed Regulatory and Testing Division. Susan Maxon's title has changed to Deputy Director of the Seed Regulatory and Testing Division. Additionally, Ms. Maxon continues in her role as Laboratory Supervisor. The SRTD will continue to enforce the Federal Seed Act (FSA) and provide seed testing services in the most efficient and cost-effective manner possible.

2011 OECD SEED SCHEMES ANNUAL MEETING HIGHLIGHTS

The Organization for Economic Cooperation and Development (OECD) Seed Schemes met May 10-13, 2011, in Istanbul, Turkey. U.S. OECD Seed Schemes Program Manager Perry Bohn participated in the meetings as the U.S. delegate. As Vice-Chair of the OECD Seed Schemes, Mr. Bohn led the Technical Working Group meeting. The Vice-Chair also serves on the OECD Seed Schemes Bureau, whose purpose is to decide direction and policy for the Seed Schemes. Representatives from the American Seed Trade Association (ASTA), the Association of Official Seed Analysts (AOSA), and the Association of Official Seed Certifying Agencies (AOSCA) also attended.

Some key accomplishments and areas of interest from the annual meeting follow:

- The United States is now the OECD Seed Schemes Chair for the next two years.
- Korea has expressed interest in joining the OECD Seed Schemes.
- The U.S. delegate and representatives from ASTA and AOSCA agreed to participate in the Ad Hoc Working Group for Biochemical and Molecular Techniques.
- Approval was given for the use of electronic signatures on OECD Seed Schemes certificates and other documents.
- The European Union (EU) is conducting an impact analysis of their current legislation and proposed changes to that legislation. Comment period is open. If changes are approved, they will likely not take effect until after 2014.
- The next Extended Advisory meeting is scheduled for January 24-27, 2012, in Paris, France, and the Annual Meeting is scheduled for July 9-13, 2012, in Helsinki, Finland.

For more details regarding this year's meeting or for more information regarding this article, contact Gene Wilson at (704) 810-8888; gene.wilson@ams.usda.gov. For more information on the OECD Seed Schemes, visit http://www.oecd.org.

ASSOCIATION OF OFFICIAL SEED ANALYSTS-SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS ANNUAL MEETING

The 2011 Joint Annual Meeting of the Association of Official Seed Analysts (AOSA) and the Society of Commercial Seed Technologists (SCST) was held June 5-10, in Williamsburg, VA. Division Director Richard Payne, Ph.D., Botanist Ernest Allen, and Seed Marketing Specialist Perry Bohn represented the Seed Regulatory and Testing Division (SRTD) at the meeting.

The meetings began on Sunday, June 5, 2011, with Perry Bohn and Ernest Allen presenting a half-day workshop on quality management for seed testing laboratories. The quality management training was attended by 14 seed industry professionals from both private

companies and State regulatory agencies. The SRTD representatives covered a wide array of topics including: developing and implementing quality management systems, writing work instructions and procedures, dealing with non-conformities, monitoring and calibrating laboratory equipment, types of available accreditations, accreditation pathways, and implementing an effective auditing program.

On June 6th, Mr. Allen attended a full day Teaching and Training Workshop presented by Mr. Elton Hall. The presentation focused on teaching speakers effective ways to communicate with an audience. Topics included preparing lessons, presenting lessons, using visual and audio aids while presenting lessons, and using past experiences and other resources as ways to build confidence during presentations.

The Cultivar Purity Committee met on June 8th to discuss proposed changes to the Cultivar Purity Handbook (CPH). The committee voted and passed a proposal to change the ryegrass fluorescence testing protocol involving final counts. Currently, the CPH states that non-fluorescent seedlings are not to be removed before the 14th day count. AOSA rules, however, allow ryegrass seedlings to be removed if the analyst is sure that maximum germination has been obtained (see §6.9(d)(3), AOSA rules vol.1). The new procedure will add a section to the current procedure that allows for testing to be "completed and reported before the 14th day if the analyst is positive that maximum germination of a sample has been attained." This change conflicts with FSA regulations (see §201.58b(10)). SRTD will continue to carry out ryegrass fluorescence tests for the full 14-day test period.

The Cultivar Purity Committee also received a request from the Association of Official Seed Certifying Agencies (AOSCA) to modify the existing number of perennial and annual ryegrass check seedlings for the AOSA grow-out test. AOSCA requested that the number of check seedlings be changed from 20 to 25 so that the CPH will be aligned with the AOSCA National Grass Variety Review Board. AOSCA requested that the procedure be listed as follows: "From the sample being tested, transplant all fluorescent seedlings and at least 25 random non-fluorescing seedlings (perennial ryegrass check). In addition, plant at least 25 annual ryegrass seedlings (annual ryegrass check) from a known annual ryegrass source." This request was accepted by the committee.

During the Open Rules Committee meeting, the AOSA Rules Committee presented 25 rule change proposals for review and adoption. Several proposals involved reassignment of species into different pure seed definitions that better characterize their seed morphological features. Other rule change proposals were intended to clarify existing testing procedures. At their business meetings, the AOSA and SCST voted to accept 24 of the proposed rule change proposals, which will become effective October 1, 2011.

Of the 24 proposals accepted, one conflicts with Federal Seed Act regulations. It involves "fine-tuning the current [uniform] blowing method of side-oats grama (*Bouteloua curtipendula*)." The new rule requires analysts to blow the side-oats grama at the same calibrated setting as currently stipulated in the rules, separating the sample into heavy and light fractions. The new method, however, will also require analysts to pick through the light portion in search of florets containing caryopses larger than 1/3 the length of the floret. Those florets are then placed into the pure seed portion. Regulatory samples of side-oats grama received by the SRTD will continue to be tested using the method included in the Federal Seed Act regulations, which does not require picking through the light portion for pure seed (see §201.51a(2)).

A proposal to add optional "nucleic acid assay methods" to the rules was not adopted. The two methods included in this proposal presented different approaches to distinguish between annual-like and perennial-like ryegrasses using associated genetic markers. Currently, few laboratories possess the equipment to conduct nucleic acid tests. In addition, high testing costs make the assays prohibitive for most commercial and regulatory testing laboratories.

Both AOSA and SCST recognized SRTD Director Richard Payne for upholding the division mission of "providing the global seed community and seed buyers with a service that promotes the truthful marketing of seed." The mission is accomplished by conducting various workshops and other training, representing U.S. seed industry interests at national and international meetings, and through regulatory and fee-for-service testing. AOSA presented Dr. Payne their Merit Award "in recognition of outstanding contributions to the advancement of seed testing." SCST presented him their Certificate of Honorary Membership "in recognition of signal service rendered to the Society."

Photo by Dr. Yujia Wu, USDA, AMS, 2011

Division Director Richard Payne, Ph.D., displaying awards received at the 2011 Joint AOSA/SCST Annual Meeting in Williamsburg, VA.

The meetings concluded with speeches by the outgoing and incoming presidents of both AOSA and SCST. Dan Curry will serve as president of AOSA until 2013. Michael Stahr, former AOSA president, will serve as vice president. Brent Reschly will serve as president of SCST until 2013. Neal Foster will serve as the SCST vice president. To view a complete list of board member changes for both organizations, visit their Web sites at www.aosaseed.com (AOSA) and www.seedtechnology.net (SCST).

For more information on this year's rule changes, please visit www.aosaseed.com. The 2012 AOSA/SCST annual meeting is scheduled to be held May 20-24, in Des Moines, IA.

For more information regarding this article, contact Botanist Ernest L. Allen at (704) 810-8873; ernest.allen@ams.usda.gov.

MEETING OF THE INTERNATIONAL SEED TESTING ASSOCIATION

Seed Regulatory and Testing Division (SRTD) Deputy Director Susan Maxon participated in the annual meeting of the International Seed Testing Association (ISTA), June 12-16, 2011, in Zurich, Switzerland.

The meeting opened with an informal welcome reception the evening of June 12. A very informative germination symposium was held June 13, followed by two days of equally informative technical committee meetings and presentations. At the Ordinary Meeting on June 16, Ms. Maxon served as the voting delegate on behalf of the Agricultural Marketing Service (AMS), which is the U.S. Designated Authority for ISTA. Of the 72 ISTA member countries, 44 were represented by Designated Members entitled to vote at the Ordinary Meeting, exceeding the required quorum of 29. ISTA President Joël Léchappé (France) gave the welcome address and chaired the Ordinary Meeting.

Decisions of the Ordinary Meeting:

- ISTA annual membership fees for 2012 were increased by 0.7 percent to cover the inflation rate of Switzerland.

- The ISTA Constitution was amended to provide for:

    - succession of the vice-president to the presidency in case of early vacancy of that office,
    - elections and voting on ordinary meeting agenda items "by correspondence" if the ordinary meeting is not quorate, and
    - a quicker process for comments and timely approval of the minutes of the ordinary meeting.

- Rule change proposals were adopted, which will take effect January 1, 2012. Notable among the many new rules are a test for *Orobanche* spp., a new vigor test for corn (*Zea mays*) based on radicle emergence, and new procedures for testing seed mixtures. The rules adopted for testing mixtures were amended at the meeting and are largely in line with those of the Association of Official Seed Analysts.

This year's meeting was originally to be held in Tsukuba, Japan, but due to the extenuating circumstances in Japan after the March 11 earthquake, the ISTA Executive Committee decided to change the meeting location to Zurich, near the Association headquarters. In the short time available, the ISTA Secretariat capably organized the meeting in Zurich, seemingly without a hitch. The delegation from Japan brought greetings to the participants at the meeting. Mr. Junya Endo (Director of Intellectual Property Division, Agricultural Production Bureau, Ministry of Agriculture, Forestry and Fisheries of Japan) gave the official address, and Mr. Madoka Koshibe (Chairman of the Board, Mikado Kyowa Seed Co. Ltd.) gave a presentation on the development of the seed industry in Japan.

Next year's ISTA Annual Meeting is scheduled for June 11-14, 2012, in Venlo, The Netherlands. For more information, contact Susan Maxon at (704) 810-8877; susan.maxon@ams.usda.gov.

AMERICAN SEED TRADE ASSOCIATION ANNUAL MEETING

Seed Regulatory and Testing Division (SRTD) Marketing Specialist Perry Bohn participated in the American Seed Trade Association (ASTA) annual meeting in Huntington Beach, CA on June 20-23, 2011. During meetings of the Seed Industry Relations Committee and the Legislative & Legal Concerns Committee, Mr. Bohn gave presentations that included updates regarding the USDA Process Verified Programs, Federal Seed Act (FSA) Regulations, and the U.S. OECD Seed Schemes program. The meetings were attended by representatives from the seed industry worldwide.

There were extensive discussions regarding the new Refuge-in-a-Bag (RIB) technology that is now available. The USDA Process Verified Program for Seed Conditioning may assist seed companies that are conditioning and blending this seed product. These benefits were explained by Mr. Bohn to seed company representatives who had questions about the program.

Mr. Bohn also met with seed industry representatives to discuss the development of a new USDA Process Verified Program for Trait Testing of Seed. This program may be available by the end of 2011.

The USDA Process Verified Seed Programs ensure, through audits, that procedural requirements are supported by a documented quality management system which conforms to the ARC 1001 Standard.

For more information about the Process Verified Seed Programs, check out the following link Process Verified Seed Programs, or for more information regarding this article, contact Gene Wilson at Gene.Wilson@ams.usda.gov.

2011 SEED ANALYST TRAINING WORKSHOPS IN GASTONIA, NC

During the week of August 15-19, 2011, the Seed Regulatory and Testing Division (SRTD) held Seed Identification (ID), and Variety and Seed Health training sessions in Gastonia, NC. Eight participants, representing five State seed testing laboratories, took part in the first session with three of those also taking part in the second. During the Seed ID training, SRTD botanists presented programs focusing on the identification of weed and crop seeds, along with a review of subjects such as seed structure, pure seed units, grass mix separation, various calculations, and the fluorescence test for distinguishing hard fescue from red fescue.

The Variety and Seed Health training was led by SRTD Plant Physiologist Yujia Wu, Ph.D., who demonstrated Polyacrylamide Gel Electrophoresis (PAGE) as a tool for variety testing, and SRTD Plant Pathologist Sandra Walker, who demonstrated an Association of Official Seed Analysts (AOSA) bioassay procedure for fungicide detection on seeds.

Photo by Mathew Arthen, USDA, AMS, 2011

Seed ID Workshop participants, (l to r): Ernest Allen (SRTD instructor), Nathan Wilder, NC, Carla Evans, FL, Michael Loos, NY, Charlene Burton (SRTD instructor), Laura Donaldson, IL, Dwayne Smith, UT, Todd Erickson (SRTD instructor), Pattsy Jackson (SRTD instructor), Elizabeth Tatum, NC, Minoo Faghihi, IN, Sandy Dawson (SRTD instructor), Susan Maxon (SRTD Deputy Director and Laboratory Supervisor), and Sarah Pollicove, NY

Photo by Sandy Dawson, USDA, AMS, 2011

Variety and Seed Health Workshop Participants: Seated, Sandra Walker (SRTD instructor). Standing (l to r) Sarah Pollicove, NY, Minoo Faghihi, IN, Laura Donaldson, IL, Dr. Yujia Wu (SRTD instructor)

It is the mission of the FSA 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 biannual (usually in May and August) workshops, offered to State and other seed industry personnel, also further these goals by promoting uniformity in testing and by fostering greater compliance with State and Federal seed-labeling laws.

In addition to learning new skills and acquiring new information, workshop participants enjoy discussing specific issues, problems, and solutions with other analysts. Through these interactions, participants often develop contacts that may be beneficial in the future.

For more information about this article, please contact Botanist Sandy Dawson at (704) 810-7270; sandy.dawson@ams.usda.gov or Ernest L. Allen at (704) 810-8873; ernest.allen@ams.usda.gov.

IDENTIFICATION AND COMPARISON OF SEEDS OF FOUR *BROMUS* SPECIES

Of the many *Bromus* species found throughout the United States, four are often found as contaminants in small grain and forage grasses. These four species are cheat/chess (*Bromus secalinus*), hairy chess (*Bromus commutatus*), soft chess (*Bromus hordeaceus*), and Japanese chess (*Bromus japonicus*) (fig. 1). Their lemmas are broad with the margins in-rolled to some degree and keeled just above the base. According to the Association of Official Seed Analysts (AOSA), Uniform Classification of Weed and Crop Seeds, soft chess can be designated as either crop or weed seed depending on the kind of pure seed it is a contaminant in. Japanese chess is classified as a weed seed and the other two *Bromus* species, cheat and hairy chess, are considered noxious-weed seeds in several States. Therefore, it is important for the analyst to identify them correctly.

Cheat and hairy chess seeds are very similar; however, with observation of the overall shape of the seeds and examination of specific characteristics, they usually can be distinguished (fig. 1 (a, b)). The overall appearance of cheat is thick and heavy due to the thickness of the caryopsis, which is laterally folded throughout the length of the seed and has a tight-fitting lemma. At maturity, the margins of the lemma are usually in-curved, nearly obscuring the palea and caryopsis from view. In lateral view, the rachilla is bowed outward with the scar visible between or slightly away from the margins of the lemma (fig. 2). The scar at the apex of the rachilla is tilted back at a 45° angle (fig. 2). The lemma, palea, and caryopsis are equal or almost equal in length (fig. 3).

Photo by Charlene Burton, USDA, AMS, 2011

Figure 1.—a: *B. secalinus* (cheat), b: *B. commutatus* (hairy chess), c: *B. hordeaceus* (soft chess), d: *B. japonicus* (Japanese chess)

Photo by Charlene Burton, USDA, AMS, 2011

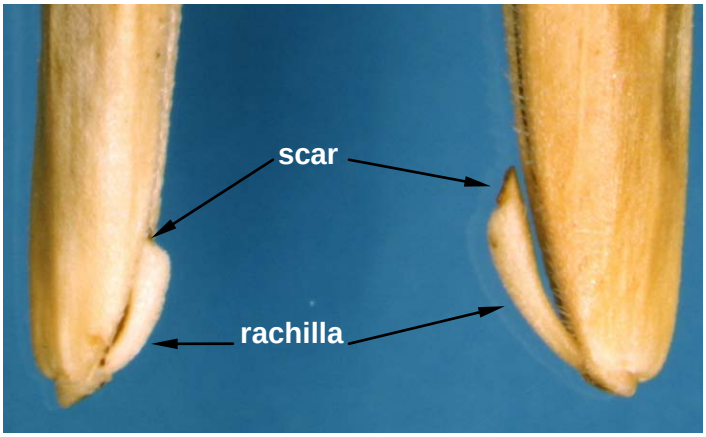

Figure 2.—*B. commutatus* (l) and *B. secalinus* (r). Lateral view showing rachilla position and scar angle

In comparison to cheat, hairy chess is thinner and boat shaped, flared toward the apex, and folded near the base. It is wider and flatter than cheat. The in-rolled lemma may obscure the edge of the palea and caryopsis from view. The lemma may be almost entirely in-rolled or the apex may be flared out (fig. 4). Although the rachilla is bowed outward, the scar at the apex is usually hidden between the margins of the lemma in the lateral view (fig. 2). The scar at the apex of the rachilla is tilted back at a 45° angle as it is in cheat (fig. 2). The lemma, palea, and caryopsis are not equal in length (fig. 3).

Photo by Charlene Burton, USDA, AMS, 2011

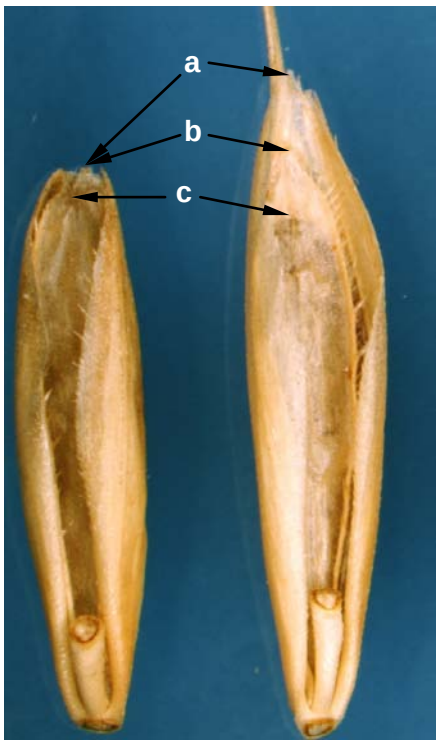

Figure 3.—*B. secalinus* (l) and *B. commutatus* (r), illustrating the relative length of a: lemma, b: palea, c: caryopsis

Photo by Charlene Burton, USDA, AMS, 2011

Figure 4.—*B. commutatus.* Lemma tightly in-rolled (l), lemma in-rolled and flared toward apex (r)

At first glance, soft chess may appear as a smaller, hairier version of hairy chess (fig. 1 (b, c)). However, upon closer examination of the seed's characteristics, distinct differences become apparent. The lemma of soft chess has transverse wrinkles between the nerves and the entire surface is densely pubescent (fig. 5). The caryopsis is visible through the thin, transparent lemma and palea. The lemma is longer than the palea and caryopsis, which are usually nearly equal in length; the palea may be narrower along the sides than the caryopsis (fig. 5). Although the scar at the apex of the rachilla is tilted back at a 45° angle, as in cheat and hairy chess, the rachilla is shorter and has fine, villous (long, soft) hairs (fig. 6).

Photo by Charlene Burton, USDA, AMS, 2011

Figure 5.—*B. hordeaceus* lemma view (l), palea view (r), a: lemma apex, b: palea apex, c: caryopsis apex, d: palea edge

Photo by Charlene Burton, USDA, AMS, 2011

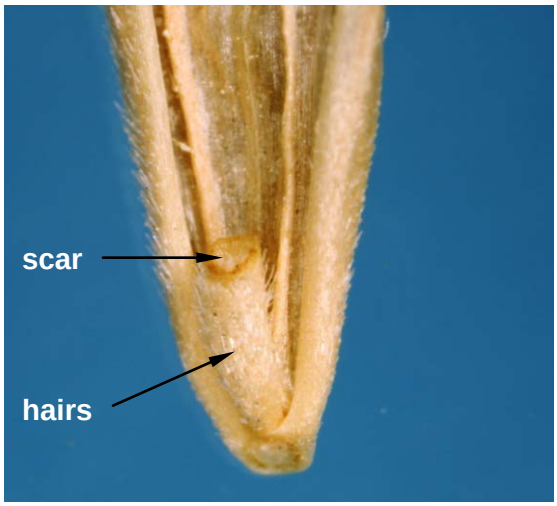

Figure 6.—*B. hordeaceus* rachilla

The last of these four *Bromus* species is Japanese chess. This seed is fragile and delicate in appearance. It is thinner and lighter in comparison to cheat and hairy chess (fig. 1 (a, b, d)). The awn, when present, is usually bent or divergent. The palea is semi-transparent, extends slightly beyond the caryopsis, and is frequently hidden from view by the in-curved lemma and folded caryopsis (fig. 7). One of the important differences between Japanese chess and the previous three (cheat, hairy chess, and soft chess) is the angle of the scar at the apex of the rachilla. The scar on the first three *Bromus* species is tilted at about a 45° angle to the longitudinal axis of the seed, in lateral view, whereas on Japanese chess the scar is parallel to the longitudinal axis of the seed (fig. 8). In palea view, the rachilla appears to be facing outward toward the observer (fig. 8). The lemma, palea, and caryopsis are not equal in length (fig. 9).

Note that the descriptions in this article are for typical, intact seeds. Similar species may be difficult to identify if they are immature, damaged, or have lost surface characteristics through seed processing.

Photos by Charlene Burton, USDA, AMS, 2011

Figure 7.—*B. japonicus* with tightly in-curved lemma (l), open lemma (r)

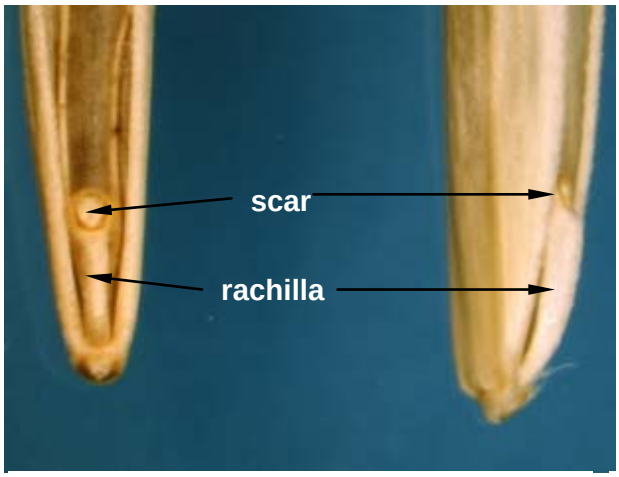

Figure 8.—*B. japonicus* rachilla and location of scar when facing observer (l) and in lateral view (r)

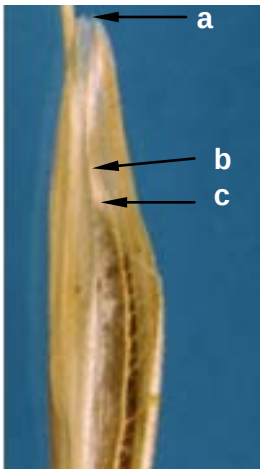

Figure 9.—*B. japonicus* illustrating the relative length of the a: lemma, b: palea, c: caryopsis

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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 Variety Review Board twice a year. Click on the Grass National Variety Review Board section of the Web site (http://www.aosca.org/VarietyReviewBoards/Grass/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. Access 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, access PVPO List of U.S. Protected Varieties. It may take time for the list to open due to its large size. These public access databases are updated monthly or as time permits.

CALENDAR OF EVENTS

Western Seed Association Kansas City, MO	November 5-8, 2011
American Seed Trade Association (ASTA) Farm & Lawn Seed Conference Kansas City, MO	November 6-7, 2011
American Seed Trade Association (ASTA) Corn & Sorghum and Soybean Seed Research Conference Chicago, IL	December 7-9, 2011
American Seed Trade Association (ASTA) Vegetable & Flower Seed Conference Tampa, FL	January 21-24, 2012
Organization for Economic Cooperation and Development (OECD) Seed Schemes Extended Advisory Meeting Paris, France	January 24-27, 2012
Association of Official Seed Analysts (AOSA) Annual Meeting Des Moines, IA	May 20-24, 2012
International Seed Testing Association (ISTA) Annual Meeting Venlo, The Netherlands	June 11-14, 2012
American Seed Trade Association (ASTA) 129th Annual Convention National Harbor, MD	June 20-23, 2012
Association of Official Seed Certifying Agencies (AOSCA) Annual Meeting Sun Valley, ID	June 24-27, 2012
Organization for Economic Cooperation and Development (OECD) Seed Schemes Working Group and Annual Meeting Helsinki, Finland	July 9-13, 2012
American Association of Seed Control Officials (AASCO) Annual Meeting	To be determined

Seed Regulatory and Testing Division (SRTD)-sponsored training schedule to be determined.

For further information regarding the Calendar of Events, contact Management Analyst Karen Sussman at (704) 810-7272; karen.sussman@ams.usda.gov.

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"Seeds are the final product of the flower, to which all its parts and offices are subservient."

Asa Gray

A description of a seed from the 1887 textbook,
The Elements of Botany
FOR BEGINNERS AND FOR SCHOOLS

(Contributed by Seed Regulatory and Testing Branch Botanist Sandy Dawson)

Additional information about American Botanist Asa Gray:
http://www.huh.harvard.edu/libraries/asa/asabio.html