USDA Seed Regulatory and Testing Division Winter 2023

ITEMS OF INTEREST IN SEED

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RECENT AND UPCOMING ACTIVITIES

SEED REGULATORY AND TESTING DIVISION (SRTD) HOST REGINAL MEETINGS

From January 23 to January 25, SRTD Seed Marketing Specialists hosted the first quarterly regulatory regional meetings for 2023. The regional meetings were initiated to allow more communication between State Seed Control Officials and AMS and to keep both sides aware of seed market trends. During the January meetings, SRTD staff clarified the differences between brand names and variety names and how they should be labeled. The next round of regional meetings will be in April.

NEBRASKA CROP IMPROVEMENT ANNUAL MEETING

On January 9 and 10, Seed Marketing Specialist Lan Chi Trinh, attended the Nebraska Crop Improvement Association Annual Meeting in Kearney, NE. At this meeting, Chi provided an overview of seed sampling and FSA labeling requirements. The presentation was well received by the participants.

OECD BRIEFINGS

The U.S. Organization for Economic Cooperation and Development (OECD) Seed Schemes Program staff hosted briefings for seed industry stakeholders and cooperating State seed certifying agencies on January 17, 2023. The purpose of these briefings was to review updates to the Seed Schemes Rules and Regulations approved in 2022. This forum also provides an opportunity for feedback and discussion with cooperators and stakeholders.

SRTD'S VISIT TO FLORIDA ENHANCES COOPERATIVE SEED ACT AGREEMENTS

On January 31, 2023, S&T Deputy Administrator Ruihong Guo met with the Florida Department of Agriculture Director, Kelly Friend, to discuss Florida's cooperative activities with AMS. The meeting was extremely productive with constructive discussions covering the agricultural economy in Florida, and ways to strengthen the Florida seed market by increasing Federal Seed Act monitoring throughout the state.

SEED OFFICIALS MEET IN WASHINGTON D.C.

The International Seed Testing Association (ISTA) held an Executive Committee meeting in Washington D.C. during the week of February 13th. The meeting was arranged to discuss ways to improve seed testing uniformity between nations. Ernest Allen, SRTD Director and ISTA Vice President, represented the U.S. Designated Authority, USDA AMS, at the meeting. On February 15th, ISTA invited seed organizations from the United States and Canada to attend the meeting. These included the Association of Official Seed Analysts (AOSA), the Society of Commercial Seed Technologists (SCST), the American Seed Trade Association (ASTA), and the Association of American Seed Control Officials (AASCO). Todd Erickson, SRTD Laboratory Supervisor, attended the meeting to represent SRTD. Discussion topics included harmonization of ISTA and AOSA Rules, promoting better communication between the organizations, and cooperation between the committees of ISTA and AOSA/SCST. As host to the meeting, AMS Associate Administrator Melissa Bailey conducted the keynote address to the group. Her presentation highlighted AMS's role in leading USDA's response to the President's Executive Orders to strengthen supply chains and ensure farmers have greater opportunities to access markets and receive a fair return for their products.

HISTORY AND USE OF THE PCR EXAM AT SRTD

In 1985, Kary Mullis developed the polymerase chain reaction (PCR), a scientific technique used to amplify copies of a specific DNA fragment which can be studied in greater detail for a variety of purposes. This revolutionary technique was picked up remarkably fast by the scientific community and has a wide range of applications and uses in the bio-technology field. SRTD regularly use this technique to test seed samples for Genetically Modified Organisms (GMO) for a variety of crops.

There are three major steps in PCR: denaturation, annealing, and amplification. In the first step, DNA is subject to a high temperature of 95°C or above which denatures the nucleic acids and results in the separation of the two strands of DNA. The temperature is then lowered to a specific primer temperature, and the selected primer anneals to the complimentary strands of DNA. In the final step, extension occurs at 72°C to create a complimentary strand of DNA. After about 32-35 thermal cycles, close to a million copies of the DNA fragment are produced and amplified. To see and quantify the result, the sample is run through an agarose gel with the help of an electrical current. Depending on the size of the DNA fragment, it is possible to see if sample contains the intended marker or not.

Several countries require proof that the seed exported from the United States do not contain the presence of GMOs. To verify this, SRTD uses PCR and gel electrophoresis as previously described. A universal 35S and NOS primers approach is used to search for any inserted foreign gene indicative of genetic modification. If the sample is genetically modified, then the primer will locate and amplify the gene, resulting in a clear band in the electrophoresis gel. The process itself is efficient and the turnover rate for GMO testing is high, which is fantastic news for US seed companies that need to provide that information to various countries overseas to sell their product.

The discovery of PCR also has an odd but interesting story attached to it. Kary Mullis, who not only developed the technique but won the 1993 Nobel Prize for it, claimed that before he came up with the idea he was visited by a talking, fluorescent, alien raccoon which appeared to him near his cabin the woods. While it is probably unscientific to correlate visions of glowing *Procyonidae* with the development of PCR, it is certainly fun to think about.

References:

- Joshi, M and Deshpande, J.D. 2010. Polymerase chain reaction: methods, principles, and application. International Journal of Biomedical Research. 5: 81-97.
- Mullis, K. 1998. Dancing Naked in the Mind Field. Vintage Books A Division of Random House, Inc. New York. 130-137.
- Press release. NobelPrize.org. Nobel Prize Outreach AB 2023. Fri. 27 Jan 2023.https://www.nobelprize.org/prizes/chemistry/1993/press-release/

For more information regarding this article, contact Botanist Kathryn McGinnis (704) 810-8872; Kathryn.mcginnis@usda.gov.

REQUIRED LABELING FOR VEGETABLE SEED IN CONTAINERS OF ONE POUND OR LESS

The Federal Seed Act (FSA) regulates agricultural and vegetable seed shipped in interstate commerce. It is important to note, the required FSA labeling for vegetable seed in one-pound containers or less may be different than what is required by State seed laws.

The labeling requirements of vegetable seed in containers of one pound or less with germination percentages ***equal to or above*** the standard in Section 201.31 of the FSA Regulations are as follows:

- the name of each kind and variety,
- if two or more kinds or varieties are present, the percentage of each must be listed,
- hybrid seed must be so designated, and
- the name and address of the interstate shipper or the name and address of the person to whom the seed was sold (for resale) and the AMS number of the interstate shipper.

The labeling requirements of vegetable seed in containers of one pound or less with germination ***less than*** the standard in Section 201.31 of the FSA Regulations are as follows:

- the name of each kind and variety,
- if two or more kinds or varieties are present, the percentage of each must be listed,
- for each kind and variety:
  - the germination percentage,
  - the hard seed percentage; if present,
  - the month and year the germination test was completed,
  - the words “Below Standard” (no smaller than 8-point type), and
  - the name and address of the interstate shipper or the name and address of the person to whom the seed was sold (for resale) and the AMS number of the interstate shipper.

These requirements can be found in Section 201(b) of the FSA and Sections 201.25 through 201.31 of the FSA Regulations.

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

NEW OECD SEED SCHEMES ASSESSMENT FEES EFFECTIVE JULY 1, 2023

Implementation of the Organization for Economic Cooperation and Development (OECD) Seed Schemes in the United States is administered by the USDA AMS which serves as the National Designated Authority (NDA). The program helps U.S. seed producers export seed to many international destinations.

Administration of the U.S. OECD Seed Schemes program is funded by assessment fees which SRTD collects quarterly from Seed Certifying Agencies (SCAs) based on the quantity of seed certified under the program. SCAs charge the seed companies accordingly along with their other normal charges for inspections and testing. Assessment fees are necessary to cover program costs because the program does not receive appropriated funds. Major costs include the annual country participation fee to OECD, salary and benefits for the U.S. OECD Seed Schemes Program Manager, partial salary and benefits for a Seed Marketing Specialist who serves as the program assistant, travel related to program delivery, share of facility costs at the Gastonia office, and S&T and AMS overhead.

Current assessment fee rates are 29 cents per hundredweight (cwt) for corn and 18 cents per hundredweight for all other crop species, which will remain through June 30, 2023. Effective July 1, 2023, the rates will increase by 4 cents/cwt across the board. The new rates will be 33 cents/cwt for corn and 22 cents/cwt for all other species.

SRTD will continue to monitor program costs and revenue so that we can continue to effectively manage the OECD Seed Schemes program on behalf of the U.S. seed industry.

For more information regarding this article, contact OECD Program Manager Steve Malone (704) 810-8888; stephen.malone@usda.gov.

LABELING AUSTRIAN WINTER PEA

SRTD often sees labeling of kind and variety names abbreviated or used as common names. This can be confusing in the marketplace since different common names are used in different geographical areas. This is commonly seen with labeling ‘Austrian Winter Pea’. Federal Seed Act (FSA) Regulations lists Field Pea as an agricultural kind requiring a kind and variety name (section 201.10(a)). ‘Austrian Winter’ was originally considered a variety name of field pea that is now considered a type.

When labeling ‘Austrian Winter’ pea, the label should show ‘Austrian Winter’ as a ‘type’. The correct kind name is ‘Field Pea’, and the variety name should be ‘Variety Not Stated’ per FSA requirements.

If a company would like to advertise the seed as Austrian Winter Pea, this can be accomplished by advertising as ‘**Type**: Austrian Winter Pea’. This statement should not be used in a manner which could be interpreted as a variety name.

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

CALENDAR OF EVENTS

- International Seed Testing Association Annual Meeting
  Verona, Italy; *May 29-June 3, 2023*

- Association of Official Seed Certifying Agencies Annual Meeting
  Bloomington, MN; *June 3-7, 2023*

- Association of Official Seed Analyst/ Society of Commercial Seed Technologist Annual Meeting
  Saskatoon, Canada; *June 9-15, 2023*

- Organization for Economic Cooperation and Development Seed Schemes Annual Meeting
  Antalya, Turkey; *June 19-23, 2023*

- Association of American Seed Control Officials
  Lafayette, IN; *July 11-14, 2023*

- Seed Regulatory and Testing Division Seed School
  Gastonia, NC; *August 14-16, 2023*