2001-2002 SCST EXECUTIVE BOARD

Past President
Michael O'Neil
Pioneer Hi-Bred Intl.
P.O. Box 227
Johnston, IA 50131-0227
515-254-2796
Fax 515-254-2789
michael.oneil@pioneer.com

President
Pat Brownfield
Syngenta Seeds, Inc.
P.O. Box 167
Twin Falls, ID 83303
208-733-1777
Fax 208-733-1305
pat.brownfield@syngenta.com

First Vice-President
Tim Gutormson
Mid-West Seed Services
236 – 32nd Ave.
Brookings, SD 57006
605-692-7611
Fax 605-692-7617
timg@mwseed.com

Second Vice-President
Diane Mesa
J.C. Robinson Seed Co.
100 J.C. Robinson Blvd.
P.O. Box A
Waterloo, NE 68069
402-289-0241
Fax 402-779-4370
dmesa@jcrob.com

Membership Director
Barbara Atkins
STA Laboratories
P.O. Box 1257
Longmont, CO 80502
303-651-6417
Fax 303-772-4003
barbara.atkins@stalabs.com

Research Director
Loren Wiesner
National Seed Storage Lab
1111 S. Mason Street
Fort Collins, CO 80521
970-495-3223
Fax 970-221-1427
lwiesner@lamar.colostate.edu

Executive Director
Anita Hall
101 East State Street
PMB #214
Ithaca, NY 14850
607-256-3313
Fax 607-256-3313
scst@twcny.rr.com
2001-2002 AOSA EXECUTIVE BOARD

Past President
Richard Lawson
Idaho State Seed Lab
2240 Kellogg Lane
Boise, ID 83712
208-332-8630
Fax 208-334-3482
dlawson@agri.state.ed.us

President
Kathleen Willey
AZ Dept. of Ag.
2422 W. Holly
Phoenix, AZ 85009
602-253-1920
Fax 602-253-2247
KathleenW@sal.ah.state.az.us

Vice-President
Lee Daughtry
Miss. Dept. of Ag.
P.O. Drawer S
Miss. State, MS 39762
601-325-3992
Fax 601-325-8397
Lee@mdac.state.ms.us

Secretary/Tres.
Daniel Curry
ISU Seed Science Center
Ames, IA 50011
515-294-6821
Fax 515-294-2014
curry@iastate.edu

Board Members:
Mark Hafdahl
North Dakota State Seed Dept.
Box 5257
Fargo, ND 58105
701-237-7210
Fax 701-239-7214
NDSEED@rrnet.com
Lois Capshaw
Maryland State Seed Lab
50 Harry S. Truman Parkway
Annapolis, MD 21401
410-841-5960
Fax 410-841-5969
capshalt@mda.state.md.us

Aaron Palmer
Arkansas State Seed Lab
1 Natural Resources Dr.
Little Rock, AR 72205
501-225-1598
Fax 501-225-7213
aaron.palmer@aspb.state.ar.us

Larry Nees
Indiana State Seed Lab
1154 Biochemistry Bldg.
W. Lafayette, IN 47907
317-494-1556
Fax 317-494-4331
neesl@isco.purdue.edu
Steve McGuire
Michigan Dept. of Ag.
1615 S. Harrison Rd.
East Lansing, MI 48823
517-337-5084
Fax 517-337-5084
MCGUIRES@state.mi.us

Kelly Book
Texas Dept. of Ag.
241 East McNeill
Stephenville, TX 76401
817-965-5097
Fax 817-965-2808
KBOOK@agri.state.tx.us

Aida Galarza
Georgia Dept. of Agriculture
Rm. 536 Ag. Bldg.
19 M.L. King Jr. Drive, SW
Atlanta, GA 30334
404-656-3635
Fax 404-657-8378
Subscription: $35.00 per year, U.S. Funds. Includes three newsletter publications and the conference proceedings. For subscriptions, contact Anita Hall, SCST Executive Director, or Jan Osburn, AOSA Business Office, 505-522-1437

The Seed Technologist Newsletter is published jointly by the Society of Commercial Seed Technologists, Inc. and the Association of Official Seed Analysts, Inc.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Article</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCST Executive Board</td>
<td>2</td>
</tr>
<tr>
<td>AOSA Executive Board</td>
<td>3</td>
</tr>
<tr>
<td>Newsletter Editorial Staff</td>
<td>4</td>
</tr>
<tr>
<td>Notes from the Editors</td>
<td>6</td>
</tr>
<tr>
<td><strong>Committee and Officer Reports</strong></td>
<td></td>
</tr>
<tr>
<td>AOSA President’s Message</td>
<td>7</td>
</tr>
<tr>
<td>SCST President’s Message</td>
<td>8</td>
</tr>
<tr>
<td>SCST Executive Director’s Report</td>
<td>9-10</td>
</tr>
<tr>
<td>SCST Library Report</td>
<td>11</td>
</tr>
<tr>
<td><strong>2002 Annual Meeting Information</strong></td>
<td></td>
</tr>
<tr>
<td>Convention Information</td>
<td>12</td>
</tr>
<tr>
<td>Meeting Agenda</td>
<td>13-15</td>
</tr>
<tr>
<td>Registration Forms</td>
<td>16-17</td>
</tr>
<tr>
<td>Pre-Convention Workshops</td>
<td>18-19</td>
</tr>
<tr>
<td>Symposium</td>
<td>20</td>
</tr>
<tr>
<td>Abstracts</td>
<td>21-36</td>
</tr>
<tr>
<td>SCST Long-Range Planning Agenda</td>
<td>37-39</td>
</tr>
<tr>
<td><strong>Analyst News and Regional Reports</strong></td>
<td></td>
</tr>
<tr>
<td>CSAAC Update</td>
<td>40-41</td>
</tr>
<tr>
<td>Front Range Seed Analysts</td>
<td>41</td>
</tr>
<tr>
<td>Federal Lab 50th Anniversary</td>
<td>42</td>
</tr>
<tr>
<td>Malcom Sarna Retires</td>
<td>43</td>
</tr>
<tr>
<td>Dellie Brown</td>
<td>44</td>
</tr>
<tr>
<td>Charles C. Abbott</td>
<td>45</td>
</tr>
<tr>
<td><strong>General and Technical information</strong></td>
<td></td>
</tr>
<tr>
<td>AOSA Referee Projects Update</td>
<td>46-47</td>
</tr>
<tr>
<td>Species Without Testing Procedures</td>
<td>48</td>
</tr>
<tr>
<td>ISST Board of Directors Meeting</td>
<td>49-54</td>
</tr>
<tr>
<td><strong>Workshops and Seed Schools</strong></td>
<td></td>
</tr>
<tr>
<td>Mid-West Seed Services</td>
<td>55-56</td>
</tr>
<tr>
<td><strong>Notices and Announcements</strong></td>
<td></td>
</tr>
<tr>
<td>SCST Quilt</td>
<td>57</td>
</tr>
<tr>
<td>Seed Technologist Training Manual Order Form</td>
<td>58-59</td>
</tr>
<tr>
<td><strong>Attachments</strong></td>
<td></td>
</tr>
<tr>
<td>AOSA Publications Order Form</td>
<td></td>
</tr>
</tbody>
</table>
Notes from the Editors

Please join us in Sioux Falls for the joint AOSA/SCST Publications Committee Meeting. We will discuss Newsletter format, content as well as Electronic publication.

For those members interested in getting involved in writing and editing the Newsletter, the southern regional editor position is still vacant.

We accept articles anytime, but don’t wait for the deadline, send things now. Anyone can submit an article, but we consider the appropriateness and timing, and will not break copyright laws. We reserve the right to edit, but will not change content.

Some suggestions for articles:
- Seed testing or method ideas
- Analyst news
- Spot light on a lab
- General interest
- Technical information
- Position announcements/Employment opportunities
- Workshop announcements
- Seed school announcements
- Meeting summaries or announcements

Deadline for the September 2002 Issue: August 31, 2002

Submit articles on disk or by email to Anita Hall, Lois Capshaw or your regional editor. Find the names and addresses, on page 4. The preferred word processing software is WORD 6.0 for Windows. If you have a very large file, it is easier if you mail a diskette rather than attach a file to an email message. You can either insert photos or drawings directly into your document or send the photo (we’ll return it to you) by mail and it will be scanned in.

Anita Hall, SCST Editor
Lois Capshaw, AOSA Editor
Spring is finally here. After a long, cold, and somewhat wet winter season around the country it is nice to see new life emerge. Easter is just around the corner and I believe that everyone is looking forward to getting outside and enjoying the weather. I guess one could say that cabin fever has kicked in and it is time to kick back and enjoy the season.

The annual meeting will be here before too long. I hope that all of you can attend. The planning committee in South Dakota is working hard on putting together an interesting meeting for all. For information on the meeting and the activities planned visit either the AOSA or SCST web site. Information about committee meetings, spouse activities, and registration can be found there. If you don’t have access to the web please contact Brent Turnipseed at the South Dakota State University seed lab for more information.

Speaking of the annual meeting there is a couple of points that I would like to bring to everyone’s attention.

- The meeting is going to be a day shorter this year then last year. This means that a lot of work is going to have to get done in a shorter time frame. Committee chairs please have your reports and other paperwork prepared in advance of the meeting to expedite committee meetings
- Two workshops are going to be held before the meeting “officially” starts. I would strongly encourage anyone who can to attend these workshops. They will be informative and relative to seed analysis work.
- All members please review and discuss the rule proposals as printed in the Feb. 2002 Newsletter. AOSA and SCST members will have an opportunity to review and discuss these changes in the open Rules Committee meeting. AOSA delegates please discuss these proposals with the SCST members in your state and get their input on the proposals. We all have to use these rules, we should all have input in to them.
- There are going to be a few committee chair positions open this year. If you are interested in chairing a committee please let me know and I will fill you in on the details of what is involved.

There are a few issues I would like you all to think about before the meeting and be prepared to discuss.

- The first issue is the use of a three-part purity. The analyst would do a regular purity analysis on a sample but separate it into 3 parts, pure seed, inert matter, and other seeds. This is a practice used in ISTA. As a matter of fact it was suggested to AOSA and SCST as a possible discussion topic and harmonization point at the ISTA meeting in France last year. Mull this issue over and discuss it with your co-workers. Be prepared to discuss this issue at the annual meeting.
- AOSA now has the “trilogy” available on CD. All AOSA members, in good standing, should have received their copy. We, the AOSA board, have discussed putting the Newsletter in email or on the websites. I ask that you and your co-workers discuss this issue and be prepared to provide feedback at the business meeting.
- As of this point in time no one has stepped forward to host the meeting in 2004. If you have been toying with the idea of hosting a meeting now is the time to speak up and do it! It is a lot of work, but it is very gratifying.

I look forward to seeing all of you at the meeting in June in South Dakota. Have a great spring.
SCST President’s Report
By Pat Brownfield

While in the grips of old man winter it often seems as if spring will never arrive. However, once again we find ourselves in the cycle of renewal with summer just around the corner. Many of us find this rhythm to life seems to move faster with each year, and yes once again our annual meeting is upon us. This is usually a busy time for committee’s as we attempt to finish our projects before the annual meeting dates. You know, the ones that last year we swore we were going to do as soon as we got back from the meeting.

Even now as we wrap up last year we are busy thinking ahead to what we need to do in the coming year. This is an ever widening challenge as resources continue to become more limited for many in the business we call agriculture. The general state of economy in the industry will present SCST with both opportunities and challenges. More now than ever the Society will need each of you if we are to meet the many changes in today’s market place. Committee’s will be finalized in the coming weeks and I encourage all of you to find an area that you can participate in.

While we are a small organization SCST has had a tremendous impact in the science of seed testing. However, this will not continue without your input and talents, as a select few cannot carry the weight of all. This year more than ever we need input from each and every one of you on the many topics that will be discussed. Elsewhere in this newsletter you will find an article concerning details and background on the topics to be discussed at the long range planning. Please take a minute to look at the issues and come prepared to share your input. If you know that you will not be able to attend this years meeting send Anita a quick note with your thoughts. She will compile a bullet point sheet with any views received. This means of communication can be used for those who will be at the meeting but wish to have their views remain anonymous, yet presented. Please remember your silence is seen as agreement!!!

The first step in our planning process will be registration and attendance at the meeting. Meeting agenda’s are currently on-line and registration forms can be downloaded from our web site. You will see that the long range planning session is a four-hour block of time. While I know that seems like a long meeting I trust the topics on this years agenda will keep things moving right along. However, if the board does not receive your input we cannot represent your best interests.

Another change in format this year concerns role call. Roll call for all RST’s will be taken at the start of the long range-planning meeting. With time constraints on this years meeting we will start into the voting process for the rules at the long-range meeting. Also, an absentee ballot will be possible for any of you not able to attend the meetings this year. Please contact Sharon Davidson, SCST rules committee chair, for an absentee ballot.

As always I personally look forward to June and find that the annual meeting is a great way to renew my enthusiasm for the craft I have chosen. I look forward to seeing old friends and making new. One of the most exciting parts of the meeting is to welcome the new RST’s, RGT’s, and CGT’s to our organization. I encourage each of you to help make these new members of our group feel welcomed. Please plan to join me in South Dakota in June.
SCST Executive Director’s Report
By Anita Hall

MEMBERSHIP UPDATE

Current Membership
RSTs 140
CGTs 16
Research Members 12
Associate Members 64

New Associate Members

- Ha Huyhn
  Agri-Seed Testing
  1930 Davcor Court SE
  Salem, OR 97302
  Phone: 503-585-1440
  Fax: 503-588-0733

- Bradley Johnson
  AgReliant Genetics
  22827A Shissler Rd.
  Elmwood, IL 61529
  Phone: 309-742-2651
  Fax: 309-742-2661
  Email: brad.jpohnson@agreliantgenetics.com

- Stephen A. Schaefer
  Illinois Foundation Seed
  PO Box 722
  Champaign, Ill. 61824
  Phone: 217-485-6260
  Fax: 217-485-3687
  Email: sschaefer@ifs.com

New Research Member

- David Reddel
  Alliance Production
  101 Pleasantview Dr.
  Kellog, IA 50135
  Phone: 319-444-2001
  Email: dared@nteins.net

Changes

- Pat Jennings has moved to:
  ASI
  PO Box 425
  Greenleaf, ID 83628
  Phone: 208-455-0225
  Fax: 208-455-0229

RST to RMI

- Tanis Cuff- WI Crop Improvement, WI.
- Martha Gehrik- Gehrik Seed testing, CA.
- Mary Wilhoit- Reeds Seeds, MO.
- Janet Letteer- Southern States Co-Op., VA.
- Gary Thomas- WI Crop Improvement, WI.
CGT to CMI
• Christina Sternhagen- Mid-West Seed Services, South Dakota.

Announcements

RST and RGT Study Guides

I am pleased to announce that an updated version of the RST Study Guide and the new RGT Study Guide are now available for download from the SCST web site. Updates to the Study Guides will be made at least once a year, and announced on the website, in Board Notes and in the Newsletter. These Guides are valuable tools for anyone preparing to take SCST examinations now or in the future.

SCST Examinations

The Society of Commercial Seed Technologists Executive Board has voted to allow members of other organizations to take SCST exams without becoming members of our Society. The catalyst for this decision was outside interest in the new Genetic Technologist exams offered by the SCST. Use of these exams will allow other organizations to offer their applicants this type of membership without going through the process of creating their own exam.

Applicants for the RGT/CGT exam will have to fulfill all training, education and experience requirements as outlined in the application for membership. In addition to paying the exam fee a one-time non-member $50 fee will be required for both the written and the practical exams. Analysts will only be required to pay this fee once even if they chose to take different portions of the written and practical exams at different times and locations. Yearly proficiency testing will be offered on a fee for use basis.

Applicants who write the SCST exams but chose not to become members of the Society will not have use of the title RGT/CGT, a Seal, Seal number or a vote in SCST matters

Annual Meeting

The AOSA/SCST Annual Meeting is only a few short weeks away. There are many important topics that will be discussed at this years meeting, we all must come prepared to work. Please read the tentative agenda for the Long-Range Planning Meeting that is included in this Newsletter. Feel free to contact me if you have any questions or would like to add an item to the agenda. Your feedback is essential as the SCST plans it’s future. If you are unable to attend the meeting or uncomfortable speaking publicly, send me your comments and I will present them during the Meeting.

There will be several changes to traditional meeting events:
• A professional photographer will not take the SCST group photo; instead a digital image will be taken and made available for free.
• Roll call will not be taken at the SCST Business Meeting. To save time members will be asked to sign-in at the beginning of the meeting.
• Absentee Rule proposal ballots are available from Sharon Davidson for those that are unable to attend the meeting.

See you in a few weeks!
SCST Library Moving to New Home

The SCST Library is moving to The National Center for Genetic Resources Preservation. The Center (formerly known as the National Seed Storage Laboratory) is located in Ft. Collins, Colorado on the Colorado State University campus. I have been asked to serve as the new librarian and I will be working closely with Louise Taylor to insure a smooth transition with the move. If all goes as planned the library should be in place before the meeting in June. I look forward to serving the Society in my new role.

Sincerely,
Mike Dideriksen
NCGRP
1111 South Mason Street
Fort Collins CO, 80521-4500
(970) 495-3239
mdideriksen@npa.ars.usda.gov
It's not too late to register and come to the 2002 AOSA/SCST Annual Meeting. The meeting is June 15-18, at the Ramkota Convention Center in Sioux Falls, South Dakota. An Adventitious Presence Symposium and Workshop on June 13th, and an ISTA Seed Vigor Workshop on June 14th precede the meeting. Both are held at the Ramkota and registration is open to all.

The airport is only about 2-3 miles from the Hotel (with airport shuttle). Rental cars are available at the airport. Sioux Falls is at the juncture of I-90 and I-29, so it’s easy to drive here.

For more information and registration forms go to the AOSA website (www.aosaseed.com/annual_meeting.html) or from the link on the SCST website. If you do not have internet availability please contact Brent Turnipseed at the below address for a mailed or faxed registration packet.

SDSU Seed Testing Lab
Box 2207A
Brookings SD 57007
Phone: 605-688-4590
Fax: 605-688-4013
Email: brent_turnipseed@sdstate.edu
# AOSA/SCST Convention
## June 12-18, 2002

**AGENDA**  
Version 04-01-02

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wednesday</strong></td>
<td>June 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>6:30-9pm</td>
<td>AP Workshop Station/Exhibit Setup</td>
</tr>
<tr>
<td></td>
<td>Thursday</td>
<td>June 13&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>7:30am – 5pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7pm – 8pm</td>
<td>SCST meet with exam candidates</td>
</tr>
<tr>
<td><strong>Friday</strong></td>
<td>June 14&lt;sup&gt;th&lt;/sup&gt;</td>
<td>7am</td>
<td>RST &amp; RGT Candidates depart for Brookings, SD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8am-5pm</td>
<td>ISTA Vigor Workshop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8am – 5pm</td>
<td>SCST RST Exam (Brookings, SD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8am – 3pm</td>
<td>SCST RGT Written Exam (Brookings, SD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8am-5pm</td>
<td>Exhibitor setup</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8am – 9pm</td>
<td>AOSA Board Meeting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8am – 5pm</td>
<td>SCST Board Meeting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 – 7:30pm</td>
<td>Exam Results</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7:30– 9pm</td>
<td>SCST Chair Meeting</td>
</tr>
<tr>
<td><strong>Saturday</strong></td>
<td>June 15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>7:00am – 8:30am</td>
<td>Joint Opening Session Breakfast buffet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8:00am – 10:00am</td>
<td>Joint Opening Session</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Presiding: Pat Brownfield SCST President</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kathleen Willy AOSA President</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Call to order</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Invocation:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Welcome: SDSU Dean of Agriculture, Dr. Fred Cholik</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Greetings:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Association of American Seed Control Officials</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>American Seed Trade Association</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drew Kinder</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>International Seed Testing Association</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr. Michael Muschick</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>International Society of Seed Technologists</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr. Miller McDonald</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Association of Official Seed Certifying Associations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Greg Lowery</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CSAAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Morgan Webb</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10am – noon</td>
<td>RGT Committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10am – noon</td>
<td>AOSA By-laws Committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10am – noon</td>
<td>AOSA/SCST Flower Seed Committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10am - noon</td>
<td>Statistics Committee</td>
</tr>
</tbody>
</table>
Noon - 1pm  Lunch Buffet
1pm – 4pm  Poster Setup
1pm – 2pm  Committee of Affiliates
1pm – 2pm  SCST Ethics Executive
1pm – 3pm  Rules Executive
1pm – 3pm  ISST Board of Directors
1pm – 3pm  AOSA Vigor Committee
1pm – 3pm  AOSA Certification of Analyst Committee
1pm - 4pm  Statistics Committee Workshop
3pm – 4pm  AOSA Seed Testing Standardization
             Research Funding Committee
4pm  Busses depart for Brookings
5pm-6:30pm  BBQ in Brookings
6:30pm-9  Tours of SDSU, MWSS, BGS
9pm  Busses returning to Sioux Falls

Sunday - June 16th  6:30am  Early Bird Bean Buddy Walk
                   7am  Bean Buddy Walk
                   8am – 10am  Labeling Issues Symposium
                   9am-4pm  ISST Strategic Planning Session
                  10am - noon  Open joint rule proposal review
                Noon - 1pm  Lunch Buffet
               1pm – 3pm  AOSA Cult. Purity Committee
               1pm – 2pm  AOSA Referee Committee
               1pm – 4pm  SCST Long Range Planning
              1pm-8pm  ISST
              2pm – 4pm  AOSA Purity Committee
              5pm – 10pm  AOSA/SCST Banquet
                           5:00 AOSA Group Photo
                           5:15 SCST Group Photo
                           5:30-6:30 Social Hour
                           6:30-9 Dinner

Monday - June 17th  7am - 8am  Breakfast Buffet for SCST/AOSA
                    8am – 9am  Publication
                    8am – 9am  AOSA Tree & Shrub Committee
                    8am – 9am  AOSA Germ and Dormancy Committee
                    9am – 10am  AOSA Budget Meeting
                    9am – 10am  SCST Examination Committee
                   10am – noon  Veg. & Flower Seed Vigor
                   10am – 11am  AOSA Research Committee
                   10am – noon  AOSA Tz Committee
                  10am – 11am  SCST Training Manual Author Meeting
                 11am – 11:30  Distance Learning Program
                  Noon – 1pm  Lunch Buffet
                   1pm – 2pm  AOSA Rangegrass Committee
                   1pm – 2pm  AOSA Herbicide Committee
1pm – 2pm  AOSA Meeting Place Committee
1pm – 4pm  Research Papers
4pm – 5pm  Referee Reports
            Region I- Northwest
            Region II- Mid-West
            Region III-Northeast
            Region IV- Southwest
            Region V- South
            Region VI-Canada

            Buzz Session

5pm – 7pm  Poster Session and “Taste of SD” Reception

8pm – 10pm  Exhibitors tear down displays

Tuesday  June 18th
7am – 8am  Continental Breakfast
8am – noon  SCST Business Meeting
10am – noon  AOSA Business Meeting
1pm – 3pm  AOSA Business Meeting
PARTICIPANT REGISTRATION
AOSA/SCST Annual Meeting
June 12-18, 2002

Sioux Falls, SD
1. Participant Information (One form per Attendee)

Name and Title__________________________________________________________
Company_____________________________________________________________
Address_______________________________________________________________City________________________State_________Zip Code_________________ Email____________________________Fax_____________________
Work phone_____________________Home phone____________________________
Emergency contact name and phone_______________________________________
Spouse/Guest Names_____________________________________________________
Children________________age_________ Children________________age_________
Children________________age_________ Children________________age_________

2. Registration Fees
Registrant $250 _______
   includes meeting, 3 breakfasts, 3 lunches, BBQ, Banquet, Poster
   Session Reception, Breaks.
Adventitious Presence (AP) Symposium & Workshop June 13 $100 _______
   (includes noon meal)
ISTA Seed Vigor Workshop June 14 (includes noon meal) $100 _______
   Statistics Workshop (Sat., June 15) No charge, check if attending _______
   T-shirts S__ M__ L__ XL__ XXL__ $25 ea _______
   Guest Registration (includes all meals) $100 _______
   Total Due $_________

3. Payment
Payment is due with the registration form. Registration deadline is May 1, 2002, a $30 fee will be added
to late registrations. No refunds for cancellations after June 1, 2002.

Register by mail: SDSU Seed Lab, Attn: Dr. Brent Turnipseed, Plant. Sci. Dept.,
PO Box 2207A, Brookings, SD 57007 Phone 605-688-4589 Fax 605.688.4013

Method of Payment: Make check payable to 2002 AOSA/SCST Meeting

3. Hotel Reservations
☐ Please make reservations directly at Ramkota Best Western Hotel 2400 North Louise
   Avenue, Sioux Falls, SD. Phone 605.336.0650. Fax 605.336.1687
   Please mention you are with the AOSA/SCST meeting. Special room rates are not
   available when calling Best Western’s 800 number.

EXHIBITOR REGISTRATION
AOSA/SCST Annual Meeting
June 12-18, 2002

Sioux Falls, SD

1. Exhibitor Information (One form per exhibitor)

Name and Title of Exhibitor______________________________
Company_____________________________________________
Address_____________________________________________________________________________________
City____________________State_____Zip Code____________
Email___________________________________
Phone_________________________ Fax_____________________
Emergency contact name and phone__________________________________________
Names of Add’l Exhibiting Staff___________________________________________

2. Registration Fees

Adventitious Presence Workshop Station June 13 $250___________
Includes 10x10 ft. booth, 6 ft. table, electricity & Symposium registration (includes meal). Setup is
Wednesday, June 12, 6:30-10pm.

Exhibitor AOSA/SCST Annual Meeting June 15-18 $500__________
Includes 10x10 ft. booth, 6 ft. table, electricity & meeting registration (8 meals)
Exhibitor set up is Friday 8-5, and takedown is Monday, June 17, 8:00-10:00 p.m.

Contact hotel for freight handling or other special needs. Contact Tim Gutormson at
timg@mwseed.com or 605.692.7611 for AOSA/SCST information.

Additional Exhibiting Staff Registrations                   $250 ________
ISTA Vigor Workshop June 14                                    $100 ________
T-shirts   S__  M__  L__  XL__  XXL__                     $25 ea _______
Total Due $______

3. Payment

Payment is due with the registration form. Registration deadline is May 1, 2002, a $30 fee will be added
to late registrations. No refunds for cancellations after June 1, 2002.

Register by mail: Mid-West Seed Services, Inc. Attn: Michelle Robbins 236 32nd Ave. Brookings, SD 57006 Phone 605.692.7611 Fax 605.692.0977 Email your company’s logo to:
micheller@mwseed.com

Method of Payment: Make check payable to Exhibitor 2002 AOSA/SCST Meeting

3. Hotel Reservations

Please make reservations directly at the Ramkota Best Western Hotel 2400 North Louise Avenue, Sioux
Falls, SD. Phone 605.336.0650. Fax 605.336.1687. Please mention you are with the AOSA/SCST
Meeting. Special room rates are not available when calling Best Western’s 800 number.
Adventitious Presence (AP) Symposium and Workshop
June 13, 2002 – Ramkota Best Western Inn-Sioux Falls, South Dakota

AP Symposium Topics and Speakers:

- **World and North American Views on AP Testing in Seed**
  Global Perspective on AP – A.B. (Sandy) Ednie, Canadian Food Inspection Agency, Ottawa Laboratory - Carling, Ontario, Canada
  ISTA GMO Task Force Objectives – Dr. Michael Muschick – International Seed Testing Association, Zurich Switzerland
  ASTA Perspective on AP – Angela Dansby – American Seed Trade Association

- **Sampling, Statistical Estimates of AP and Test Validation**
  Sampling for GMO Detection in the Case of Heterogeneous Seed Lots - Dr. Michael Kruse – University of Hoheheim, Stuttgart, Germany
  Statistical Considerations in Seed Purity Testing for Transgenic Traits – Dr. Kirk Remund – Monsanto, St. Louis, Missouri
  Test Validation – Dr. Mike Thompson – Monsanto, St. Louis, Missouri

- **Testing Methods**
  DNA Qualitative and Quantitative - Dr. Ray Shillito – Aventis CropScience, Research Triangle Park, North Carolina
  Protein Qualitative and Quantitative – Dr. Jim Stave, Strategic Diagnostics Inc.

AP Workshop Station Topics:
The **AP Workshop** will be offered in a rotating station format on the afternoon of June 13, 2002. Participants will be able to select from 10 plus stations to gain knowledge in a small group (6-8 person) format in 20-30 minute sessions. Individuals will be able to participate in 8 different stations during the day.

Stations Committed as of March 2002 include:
Envirologix (ELISA)
Strategic Diagnostics, Inc. (ELISA)
Mid-West Seed Services, Inc. (ELISA and Herbicide Bioassay)
Mid-West Seed Services, Inc. (PCR)
South Dakota State University (Polyacrylamide Gel Electrophoresis)
Seed Vigor Workshop

June 14, 2002 - Ramkota Best Western Inn - Sioux Falls, South Dakota

This workshop will focus on the two ISTA validated vigor tests (accelerated aging for soybean and electrical conductivity for garden pea) that appear in the ISTA Rules, and also in the controlled deterioration test. The workshop will be made up of both accelerated aging and conductivity with hands-on experience of conductivity and controlled deterioration. The three speakers have been involved for many years with research into the causes of differences in seed vigor and the development and standardization of vigor tests. They are Dr. Stan Matthews, who developed both the conductivity and controlled deterioration tests. Dr. Dennis Tekrony and Dr. Alison Powell, the immediate past and current chairpersons of the ISTA Vigor Committee.
Symposium on Labeling Issues  
8 – 10am, Sunday, June 16, 2002  
Sioux Falls, South Dakota

Seed labeling, as well as labeling for food and consumer products, has become a current topic in the news. The Federal Seed Act and state seed laws specify requirements, but genetically modified seeds, new technology, and harmonization of AOSA with ISTA rules provide additional opportunities and challenges. If seed testing rules change, there are consequences for seed analysts, seed companies, consumers, seed control officials, and others. This symposium will look at a few of the issues and emerging points of view regarding seed labeling.

Tentative Agenda

8:00 - 8:10  Introductions and overview – Diane Mesa, J.C. Robinson Seeds
8:10 - 8:30  TZ for labeling (seed analyst perspective) - Annette Miller, National Seed Storage Lab
8:30 – 8:50  The 3-part purity (seed control, AOSA perspective) - Lee Daughtry, Mississippi Dept. of Agriculture
8:50 – 9:10  The seed tests behind the label – Sharon Davidson, AgriSeed Testing
9:10-9:30  Adventitious Presence (ASTA industry perspective) - Leslie Cahill or Mark Condon, American Seed Trade Assn.
9:30-9:50  Seed company perspective on labeling changes – TBA
9:50-10:00  Q & A Panel Discussion
Comparative Morphology of the Coleorhizas of Sideoats and Blue Grama

A. Boe and B. Turnipseed
South Dakota State University, Seed Testing Laboratory Box 2140C, Brookings, SD 57007

The coleorhiza is a nonvascularized sheath enclosing the embryonic radicle in Poaceae. It is normally the first organ to emerge from a germinating caryopsis. The existence of coleorhizal hairs was recognized more than 80 years ago, but little is known about variability among taxa for coleorhizal morphology. Earlier we reported strong similarities among species within tribes and marked differences among tribes for coleorhizal morphology. For example, species we examined within the Andropogoneae had glabrous coleorhizas (e.g., big bluestem, little bluestem, and Indiangrass) or very short coleorhizal hairs (e.g., sorghum), whereas many species within the Poeae, Bromae, Avenae, and Triticeae had long silky hairs that were more or less evenly distributed on the coleorhiza. An interesting exception to the general pattern was the intrageneric difference in coleorhizal morphology between sideoats (Bouteloua curtipendula) and blue grama (B. gracilis). Therefore, our objective was to describe the differences in the morphologies of sideoats and blue grama by examining them and the early seedling behavior of several cultivars of each species in several constant and alternating germination temperature regimes. Caryopses were placed on germination blotters moistened with distilled water. About 48 hours after planting, seedlings were examined and data were collected on: 1) location, length, and density of coleorhiza hairs, 2) length of coleorhiza, radicle, and coleoptile, and 3) degree of adherence of seedling to germination substrate. The coleorhizas of blue grama had a high density of long silky hairs on the distal one-third, whereas the coleorhizas of sideoats grama had only a few short bristle-like hairs on the extreme distal tip of the coleorhiza. The hairs on the coleorhizas of greater than 70 % of blue grama seedlings grew to engage the substrate and thus adhered the seedling to the substrate. On the other hand, the few short hairs that occurred on the coleorhizas of sideoats grama seedlings did not adhere those seedlings to the substrate. These morphologies and seedling behaviors were consistent across cultivars and germination temperatures, suggesting a genetic basis for the difference between these two species. Further greenhouse and field studies are planned to determine if the differences between the coleorhizal morphologies of these two species is related to the abilities of their seedlings to become established from broadcast seeding on the soil surface.
Oral

Seed Images On Line

Timothy M. Loeffler and Loren E. Wiesner
Colorado State University, Department of Soil and Crop Sciences
Ft. Collins, CO. 80521
National Center for Genetic Resources Preservation
1111 S. Mason St.
Ft. Collins, CO. 80521-4500

A seed images database has been developed for use by seed analysts, seed industry personnel and seed educators on the Internet. This seed database features current nomenclature, high image resolution and a detailed description of over 700 crop and weed seed species. Individuals using this site will be able to use integrated search mechanisms to assist with seed identification and obtain information related to noxious weed seeds. The states are shown for noxious weed seeds and individual state noxious weed seed lists can be accessed to determine prohibited or restricted categories along with the allowable number of seeds per pound. Direct “links” to other websites will be provided for USDA-ARS, Germplasm Resources Information Network (GRIN), Federal Seed Act, AOSA, SCST, ISST, and related informational websites.

Evaluation of Dormancy Breaking Methods for Three Warm Season Native Grasses

A.L. Patin and T.J. Gutormson
Mid-West Seed Services, Inc.
236 32nd Avenue
Brooking, SD 57006 USA

The objective of this study was to determine if AOSA Rule changes could be proposed which reduce sources of variation within the testing methods of Big bluestem, Andropogon gerardii, Indiangrass, Sorghastrum nutans and Little bluestem, Schizachyrium scoparium. The studies were conducted in the summer of 2001 by twelve different seed testing laboratories and compared prechilling durations of 0, 7 and 14 days and two blotter moistening agents (distilled water and KNO₃) across seed lots from 1999 and 2000 harvest years. Results indicated little difference in total viability between the three prechill durations. Results also indicated little difference between distilled water treatment and KNO₃. Rule change proposal amendments were submitted to remove the “Fresh and Dormant” instructions from all three species and to remove the use of KNO₃ as a moisten agent. Results will be presented from additional related studies. The first study compared 0 and 14 day prechill with counts at 7 and 14 days and a Tetrazolium evaluation performed at the end of 14 days. A second study is under way to compare Tetrazolium evaluation prior to germination with Tetrazolium evaluation of ungerminated seed after the 14 day germination period.
Oral

Enhancing Seed Germination in Purple Coneflower, *Echinacea purpurea* (L.) Moench

John Willis* and U. R. Bishnoi
Alabama A&M University, Department of Plant and Soil Science
P.O. Box 1208 Normal, AL 35762

Purple coneflower, *Echinacea purpurea* (L.) Moench, is gaining economic importance for its use both as a medicinal and an ornamental plant. Although isolates from *E. purpurea* are said to be less bioactive than other *Echinacea* species, *E. purpurea* is the most amenable to widespread cultivation. Seeds of *Echinacea purpurea* often exhibit low, highly variable and asynchronous germination. The objectives of this study were to evaluate the comparative germination enhancing treatments of 1) mechanical scarification, 2) 24 hour priming with PEG 8000, 3) ethylene (ethephon) and 4) putrescine on four seed lots of *Echinacea purpurea*. Initial germination of the four seed lots ranged from 80 to 97 percent. TZ staining of excised seed embryos indicated that only one of the four seed lots had significant dormancy. Seed priming for 24 hours at PEG 8000-induced water potentials of -0.5 or -1.0 mPa significantly increased the final germination percentage in the dormant and two other seed lots. Mechanical scarification increased the final (12th day count) germination of the non-dormant seed lots, but the differences were statistically non-significant. Priming for 24 hours with 0.5mM putrescine increased final germination of the dormant seed lot from 79 to 92%; however, variability in germination was not significant. 24 hour priming with ethylene at 100 or 300 ppm significantly increased germination percentage at the 4 and 8 day counts but not the final (12th day) for all seed lots. Priming with 300 ppm ethylene increased the final percent of seed germination of the dormant seed lot. Subsamples of all four seeds lots were stored at 23°C for 75 days. A subsequent test of these seeds at 100 ppm ethylene increased percent of final germination in the three non-dormant seed lots; however, seed germination of the dormant seed lot was not affected. Based on these results, 24 hour seed priming in 100 ppm ethylene synchronizes *Echinacea purpurea* seed germination while 24 hour seed priming with PEG 8000 may increase final seed germination of some lots.

Oral

Computer Imaging for Determination of Soybean Seedling Growth and Uniformity

A. Hoffmaster¹, K. Fujimura¹, M. B. McDonald²* and M. A. Bennett²
Ohio State University, Department of Computer and Information Science¹
Department of Horticulture and Crop Science²
Columbus, OH 43210-1086

Speed and uniformity of soybean seedling growth are important determinants of seed quality. A hardware platform employing inverted flat-bed scanners was used to acquire digitized images of soybean seedlings germinated in rolled paper towels for three days at 25°C. Software was developed that classified the seedlings into six categories based on seedling morphology. Cotyledons were extracted from these images and seedling length and uniformity quantified and presented as an overall vigor index ranging from 0 to 1000. This approach provides a rapid and objective determination of two important parameters governing soybean seed quality.
Hybrid cabbage seed is expensive and usually is planted in the greenhouse for early seedling establishment. Research was conducted to compare the standard germination test, rate of germination, cold soil germination and tetrazolium chloride tests to useable plug production in the greenhouse. Thirteen seed lots from several commercial seed companies with an initial germination range of 82 to 99% were evaluated. Comparison of paper towel (PT) and blotter (BL) substrates for three-day (3D) germination count showed a significant difference; however, there was no significant difference after four days (4D) of germination. The cold soil test, consisting of a mixture of greenhouse soil mix, sand and field soil, showed a better separation among seed lots of similar standard germination. Tetrazolium chloride viability showed a close relationship to standard germination. When the viable seeds were separated into high, medium and low quality, the combination of the high and medium categories appear to be a valuable index of seed vigor.

This study was conducted to determine if a change in base tissue paper weight which results in reduced ply count would affect laboratory germination test results. An experiment was conducted utilizing 14, 20, and 24 ply Creped Cellulose Paper (CCP). Standard germination tests were performed on corn, soybean and sunflower. Cold germination tests were performed on corn, sorghum and soybean. Data from standard germination tests showed no significant differences across ply counts for corn, soybeans and sunflowers. Sorghum was the only species tested that illustrated significant differences in cold test data across plies. For cold germination tests significant differences were found for cold sorghum tests only. Differences occurred between 14 and 20 ply, 80 and 77 percent, respectively. However, these data indicated no significant differences for standard and cold germination tests when 14 and 24 ply were compared. Physical characteristics of the CCP products were also evaluated. Dry weight and water absorption per CCP pad varied between 14 and 24 plies. In summary, technologists are advised to check physical characteristics of each new CCP shipment received, to determine if moisture level adjustments may be required to perform germination tests.
Oral

Evaluation of Iodine Vapor Treatments to Improve Seed Storage Potential Through the Use of Rapid Aging and the Controlled Deterioration Vigor Test

Norberto De Atrip, Stan Matthews* and Alison A. Powell
University of Aberdeen, Department of Agriculture and Forestry
Aberdeen, Scotland AB24 5UA

Work on several crops (wheat, rice, mustard, mungbean, eggplant and radish) has shown that halogens such as iodine and bromine can reduce the rate of deterioration of seed stored for several months. The aim of the research reported was to investigate more rapid methods (days rather than months) for the evaluation of treatments to slow down deterioration, with a view to developing a potential screening technique to evaluate potential seed treatments. Oilseed rape seeds (cv Apex), harvested in 2000, were used in experiments. Both high vigor, unaged seeds and low vigor seeds (seed aged for 12h at 20% moisture content and 45°C, followed by drying back) were given 0, 8, 18, or 24 h exposure to iodine vapor in a transparent plastic desiccator at 25°C. The seeds were subsequently subjected to rapid aging at 20 % mc and 45°C for 0, 12, 18, 24, 30 and 36 h. After aging, seeds were dried back and germinated at 20 ±2°C in the dark for 14 days. All iodine treatments consistently improved the laboratory germination after rapid aging. Initially unaged, high vigor seeds showed the greatest response and 18h was the most effective exposure time, maintaining 100 % germination after 36 h rapid aging, when the germination of untreated seeds had fallen to 62%. The rate of germination after rapid aging, as indicated by mean germination time, was consistently increased by the 18 h iodine treatment, most markedly so for the unaged seed after 36 h rapid aging. Assessment of the extent of deterioration in germinable seeds by the CD vigor test (24 h at 20 % mc and 45°C) revealed that all iodine treatments improved germination after CD, especially for the unaged seeds that had been rapidly aged for 10, 18 and 24 h. The clearest evidence of a reduction in the rate of deterioration was seen following the 18 h iodine treatment after 24 h rapid aging, when the treated seed gave a CD germination of 83 % compared to 13 % in the untreated control. The role of halogens in retarding deterioration, and the potential for using conductivity measurements of seed leachate instead of germination to further reduce the duration of the screening method, will be discussed.

Prediction of Germination in Brassica spp Using the Bulk Conductivity Test

Zohair Mirdad, Alison A. Powell* and Stan Matthews
University of Aberdeen, Department of Agriculture and Forestry
Aberdeen, Scotland AB24 5UA

Previous measurements of solute leakage from single seeds have suggested that electrical conductivity measurements might be used to predict germination more rapidly than the germination test. However, problems were revealed with this approach, associated with differences in seed size and an overlap of leakage from germinable and non-germinable seeds. This research aimed to determine whether electrical conductivity measurements of solute leakage from bulk samples of seeds of cauliflower and cabbage could be used to predict
germination. Two approaches were used. Firstly, different proportions of dead (held at 130 °C for 3 h) and living seeds were combined to create test samples ranging in germination from 10 % to 100 % living. Comparisons were made of solute leakage from the seeds (4 replicates of 100 seeds in 40 ml deionised water) after 24h at 20 °C. This resulted in a clear correlation (R²=0.99) between conductivity and actual germination. The second approach was to produce samples having different germinations as a result of aging under different conditions. Seeds were therefore aged at two moisture contents (15, 20 %), for 0-120 h at 45 °C. Germination decreased and conductivity increased with increased aging time in both species. Where there was a wide range in the germination of aged samples (1-100 %), there was again a correlation between germination and leachate conductivity (R² > 0.92). When germination was high (90-100 %) conductivity was closely correlated with the germination of cauliflower (R² > 0.70) although less so for cabbage (R² > 0.46). Conductivity and germination values from both aging treatments combined to give a single correlation of 0.92 (normal germination) and 0.87 (total germination) for cauliflower and 0.80 (normal germination) and 0.75 (total germination) for cabbage. Thus the leakage / germination relationship was apparently independent of the rate of aging as influenced by seed moisture content. This data supports further examination of the potential to predict germination from bulk conductivity measurements.

Oral

Evaluation of Mechanically Damaged Soybean Lots

Tim Matthaei*, A.L. Patin and T.J. Gutormson
Mid-West Seed Services, Inc.
236 32nd Avenue
Brooking, SD 57006

The objective of this study was to determine if mechanically damaged seedlings would emerge in the field and how well various laboratory tests correlate to field emergence. Thirty-six seed lots were obtained from Independent Professional Seedsmen Association (IPSA) members; these soybeans had a varying degree of mechanical damage (52-92% germinations). Laboratory tests completed were: Standard (Kimpak) germination, Sand test with 7, 9 (7 day + 2 day extension) and 11 (7 day + 4 day extension) day counts, Tetrazolium (TZ), Cold and Accelerated Aging (AA). Two field tests were performed to determine field emergence, they were planted May 23 in Brookings, SD, and May 26 in Sioux Falls, SD (SF). Emergence counts were taken at 14 and 21 days. Emergence counts were higher in Brookings than in SF, even though SF accumulated more heat units. The SF site experienced more rainfall than the Brookings location, creating a more stressful environment. Laboratory tests and field emergence counts correlated well, however, laboratory tests were unable to estimate field emergence. Because of the stressful field conditions vigor test (cold and AA) percentages were closer to field emergence counts than the germination/viability tests. Also due to stressful field conditions mechanically damaged soybeans (abnormals in laboratory tests) did not appear to emerge. The question still remains on whether any of these seedlings would emerge under more favorable growing conditions.
Oral

The Fundamentals of Establishing a Genetic Screening Laboratory

Linda Durig and Anita Kassuba-Middleton
PerkinElmer Life Sciences
3985 Eastern Road
Norton, OH 44203

High expectations have been placed on molecular biology diagnostic techniques using protein and DNA electrophoresis. As the seed industry gains significant scientific knowledge in genetics, it has become necessary to establish fundamental guidelines for routine screening. We direct this paper to those individuals interested in establishing a genetic screening program with good laboratory practices (GLP) from sampling through to the interpretation of results. This model has been used to establish genetic screening programs in the corn, soybean, sunflower, sorghum, canola and vegetable seed industries.

Using a combination of both protein and DNA electrophoresis techniques a seed or tissue sample can be tested for the following:

- Genotypes can be verified to the variety level
- Genetic Diversity can be quantified within populations
- Specific genes can be verified that effect quantitative traits

Starting with a true representative seed sample of the batch or lot is the most important factor when establishing a sound genetic screening program. All samples are then made in microplates; 48 or 96 seeds at a time for greater efficiencies. Proteins are separated using the electrophoresis technique isoelectric focusing (IEF). DNA fragments are amplified using the polymerase chain reaction (PCR) and then separated by base pairs. Both sample types can then be run on either an agarose or polyacrylamide gel matrix. The resulting banding patterns or fingerprints are then interpreted. A digital image of the electrophoresis fingerprint is captured by an Imaging System. This computer program then stores the banding patterns in a library function, allowing the development of individual libraries to be constructed per variety. Each unknown pattern may be compared to the stored patterns to enable a match or verification.
Poster

Phosphorus and Calcium Application Affects Seed Development in Soybeans

U. R. Bishnoi and M.A. Khan
Alabama A&M University, Department of Plant & Soil Science
Normal, Alabama 35762

Phosphorus and calcium are two known nutrients, which cause earliness in flowering and seed formations in crop plants, particularly in legumes. However, the effects of phosphorus and calcium on seed formation in soybeans is not well established. Therefore, a pot experiment was conducted to observe the effect of three rates of calcium (0, 50, 100 kg ha\(^{-1}\)), phosphorus (0, 45, 90 kg ha\(^{-1}\)) and their interactions on flowering initiation and seed formation in soybeans pods. Each pot, having 6 kg of field soil was randomly arranged in the greenhouse, and different rates fertilizer were calculated on the hectare soil weight (1 ha = 907,184 kg) basis and then was applied to their respective pots. The analysis of variance of data showed that calcium and phosphorus had no significant effect on earliness in flowering, but effects of calcium on initiation of pod formation was significant. The calcium at 100 kg ha\(^{-1}\) caused significantly earlier pod and seed formation. The interactions of calcium and phosphorus at highest rates also significantly effected the pod and seed formation.

Poster

DNA Markers and Crop Breeding

H. Waxdahl, B. Johnson and W. Zhang
Mid-West Seed Services, Inc.
236 32\(^{rd}\) Avenue
Brookings, SD 57006 USA

DNA markers RAPD, RFLP, AFLP, SSR and SNP have been used successfully to detect differences in genetic information carried by individuals. DNA markers have been developed to assess crop genetic background, identify cultivars, provide plant variety protection (PVP) services, and assist crop breeding programs. Crop breeding programs are provided with efficient machinery and rapid, high-precision data when DNA markers are utilized. With knowledge of genetic assessments provided by DNA markers, duplicates or genetically very similar accessions can be excluded from the breeding collection. Therefore, breeding programs can use resources and maintain germ plasm more efficiently and effectively; it also increases the likelihood of identifying truly unique and valuable accessions. Aided by a genetic map, developed from DNA markers, breeders are able to link DNA markers in selection for genomic regions affecting quantitative traits and cross selected parents in obtaining elite inbreds with new and superior trait combinations, which avoids selecting environmentally-favored traits. With the establishment of high likelihood DNA markers, genotypes or traits of interest can be confirmed even before they can be seen; furthermore DNA markers can be assayed in non-target environments, permitting more rapid progress in breeding programs.
**Poster**

**Heat Unit as a Criterion for Cold Test Evaluation**

M.A. Simpson  
Mid-West Seed Service, Inc.  
236 32nd Ave.  
Brookings, SD 57006 USA

The objective of this study was to determine if heat unit accumulation and seedling growth rate were similar in two different cold test germination regimes. The growth period was set at 96h and 72h while the temperature was placed at 25°C and 30°C. Heat unit accumulation was determined by utilizing the Modified Growing Degree Day heat unit model (National Oceanic and Atmosphere Administration, 1969). The lower limit temperature was set at 10°C, where significant growth begins and the upper limit for heat unit accumulation was set at 30°C, the point at which growth declines. Two corn seed lots, expressing high (93%) and low (83%) mean cold germinations were employed throughout the study. One replication of 100 seeds of each sample was planted within each of five food service-style germination carts. Media temperature was measured with a HOBO™ temperature logger that was placed beneath the media in the center of the germination tray. Heat unit accumulation was derived from minimum and maximum temperature during a 24-hour time period. Results indicated that carts within the same chamber accrued similar heat units, averaging 102.51 heat units (four days) and 88.21 heat units (three days) within 25°C and 30°C regimes, respectively. Seedling growth rate was derived by measuring seedling height (cm), the two seed lots on average varied 1.34 cm and 2.62 cm between carts within the 25°C and 30°C chambers. While shoot height varied, seedling growth rate per heat unit was similar, suggesting that heat units maybe used as a measurement criterion versus hours within growth chambers.

---

**Poster**

**Seed Identification Service via the Web**

C.L. Lemme and K. M. Alberts  
Mid-West Seed Services, Inc.  
236 32nd Ave.  
Brookings, SD 57006 USA

Quick and accurate identification of unknown seeds is a necessity for all seed technologists. If the seed is not found in the technologist’s herbarium, then a common practice is to mail several of the seeds to another laboratory for identification. This process can take weeks to months and may not lead to a final positive identification of the genus and species. Computer imaging of the unknown seeds and electronic transfer of files to seed identification experts may be the solution to this seed identification problem. One method of distributing these photos is a centralized web site. A brief description of the seed, the sample characteristics and any other pertinent information along with JPG (JPEG) format pictures can be uploaded to the web site and viewed. The descriptive information and detailed photos allow numerous people to view and discuss.
your seed in question. Once the information is posted, an email is sent to a group of technologists informing them you have posted a question. As opinions are received on the unknown seed, potential identifications are posted. Once a majority of technologists agree on the seed identity, a final identity will be posted with the image. As a participation incentive, yearly awards for the top 10 technologists with the most correct identifications could be offered. A possible scenario for this system would be a centralized imaging and uploading location linking to respective seed testing websites.

Poster

The Effects of Seed Maturation on Freezing Point Temperature and Corn Seed Quality

James Woltz and Dennis M. TeKrony
University of Kentucky, Seed Biology and Department of Agronomy
Lexington, KY 40546-0091

The potential for injury due to an early fall frost in immature corn (Zea mays L.) seed is a concern of seed producers. This study examined changes in freezing point temperature (FPT) during seed development and the effect of freeze injury on germination and vigor. Ears were harvested at five-day intervals from 500 to 200 g/kg (physiological maturity [PM] = 360g/kg) seed moisture content (SMC) and frozen at -6°C for 6 hours. Seed germination and vigor (accelerated aging and cold test) were reduced when immature seeds (before PM) were subjected to freezing temperatures. After PM, however, freezing had little effect on seed quality. Thus, a producer encountering a predicted freeze will have higher seed quality by harvesting prematurely than by exposing the seed to the frost. In a second study, single ears were harvested at two-day intervals beginning at 550g/kg SMC and FPT of individual seeds frozen on the ear was measured by inserting thermocouples into the embryo and endosperm. FPT decreased as SMC decreased for each structure. Embryo moisture content during maturation, however, was consistently higher than endosperm moisture content. As a result, at <400g/kg SMC (milk line = 2.5 to 3), the endosperm had a lower FPT than the embryo and, in some seeds, freezing was observed only in the embryo. No FPT differences were observed between embryo and endosperm at SMC >400g/kg. These results indicate that differences in moisture content between the embryo and endosperm seed tissues should be considered when evaluating losses in seed quality related to freeze injury.
Increasing availability of alternative biotechnology trait inputs will continue to be beneficial, expand farmer choice and enhance competition. Cry Proteins Cry1F and Cry3Bb1 are newly released corn biotechnology traits that will help continue this biotech trend. Mycogen Seeds® and Pioneer Hybrids® have collaborated in researching a new *Bacillus thuringiensis* protein, Cry1F. The commercial name for this new protein is Herculex I™. Unlike other Bt toxins which attack the European corn borer, the Cry1F protein attacks black cutworm, fall armyworm, both the European and southwestern corn borer. Cry1F lines and hybrids will also carry tolerance to Liberty™ herbicide. Cry1F protein attaches itself to a different location within the pests gut than presently available Bt toxins. Like other Bt management plans, growers who plant hybrids with Herculex I™ will be required to plant refuge areas. Though Cry1F has been approved in the United States, it will not be commercially available until it passes approval by other countries.

Monsanto’s® Cry3Bb1 commercially known as MaxGard™, is another new biotechnology trait. Cry3Bb1 attacks the corn rootworm, which is a significant pest throughout corn production regions of the US, especially in the southern Corn Belt region. Though crop rotation is somewhat effective, corn rootworm is very damaging if left unmanaged. Insecticides are available but it is difficult to reach eggs that are laid in the soil. Estimates show that 8.5 million pounds of insecticides would not be used if Cry3Bb were available. Currently, Cry3Bb1 has not been approved in the United States.

Testing requirements for both Cry1F and Cry3Bb1 proteins are currently underway. Generalities of Cry proteins, sequential sampling and an overview of Enzyme Linked Immunosorbant Assays (ELISA) will be touched on in this poster.
Poster

Effect of Prechill and Operculum Removal on Germination of North American Hops, *Humulus lupulus* var. *lupuloides*

Dianne Skogerboe and Loren Wiesner
USDA-ARS-National Center for Genetic Resources Preservation, Fort Collins, CO 80521-4500

Hops, used as a bittering, preservative and flavoring agent, has been economically important to the beer-brewing industry since the 15th Century. Modern hop cultivars used in the brewing process were predominately developed from one species (*Humulus lupulus* var. *lupulus*) of Eurasian origin. Downy mildew (*Pseudopemospora humuli*), an aggressive fungal disease, plagues hop production fields growing the susceptible European hop selections. Recent efforts have been directed to conserving and evaluating North American hop germplasm, *Humulus lupulus* var. *lupuloides*, for resistance to downy mildew. Breeding programs need seed to develop novel genotypes. Due to a complicated dormancy hops is difficult to propagate by seed. The objective of this research was to determine the most effective method for breaking dormancy in wild-collected seed of *Humulus lupulus* var. *lupuloides*. Five accessions from disparate locations were tested for the effect of various prechill levels (0, 2, 4 weeks) and operculum removal on germination rate and capacity. Treatments were control (no treatment); control with operculum removed; 2 weeks prechill; 2 weeks prechill with operculum removed; 4 weeks prechill; and 4 weeks prechill with operculum removed. Seeds were prechilled at 5°C before operculum removal. Seeds were germinated for 28 days at 15 - 25°C with 8 h of light. Operculum removal and prechill hastened the germination rate and capacity for most seed accessions. Germination ranged from 15 to 60 %. Germination of seed treated with two weeks prechill and operculum removal peaked at 70 %, but did not exceed 15 % when the operculum was intact. The maximum germination (75 %) was achieve after 4 weeks of prechill and operculum removal. Germination rates were increased when the operculum was removed but did not appear to be a function of chilling duration. Production of the North American native hop offers breeding programs an opportunity to screen seedling progenies for genotypes of potential usefulness including disease resistance.
As part of our efforts to utilize native plants in alternative agricultural systems, methods for overcoming seed dormancy are being tested. Seeds of *Achillea millefolium* L., *Antennaria neglecta* Greene, *Chrysopsis villosa* (Pursh) Nutt., *Echinacea angustifolia* DC, *Helianthus maximilianii* Schard, *Liatris punctata* Hook., *Ratibida columnifera* (Nutt.) Woot. & Standl., and *Townsendia exscapa* (Richards.) Porter were collected from several populations within the state of South Dakota. Initial germination tests showed varying degrees of seed dormancy between populations and plant species. *Liatris*, *Achillea*, *Echinacea* and *Ratibida* showed germination rates of ~10 to 20%, while the other four species showed almost no germination without extensive periods of stratification. Seed source and seed maturity have been shown to significantly affect germination rates. Therefore, only well developed seeds (relatively high dry weight) taken from flower heads that readily released the seeds, were treated using the ethephon protocol developed for *Echinacea* (Feghahati and Reese, 1994, J. Amer. Soc. Hort. Sci. 119:853-858). Briefly, the seeds were exposed to two weeks of continuous light (40 w cool white fluorescent tubes), in the cold (5°C), and in the presence of the phytohormone ethylene, applied as ethephon (1mM). This treatment has been shown to eliminate the need for months of stratification. Germination was significantly increased for all seed sources (with final germination ranging from ~30 to 85%) except for those of *Liatris* and *Ratibida*, which showed no improvement. Tetrazolium tests were conducted to allow calculation of germination rates of viable seeds. The results indicated that the variability in the increased rates of germination, in response to the ethephon treatment, reflected the variability in seed viability and that germination of live seeds ranged between 70-85%. Furthermore, the lack of response by *Liatris* and *Ratibida* seeds to the treatment reflected the fact that most of the viable seeds germinated without any need of stratification or ethephon treatment. Factors affecting seedling emergence from soil were also examined during these experiments. Preliminary observations suggest that many of these factors may need study to ensure the success of agronomic protocols for successful plant production.
to determine if applying a seed coating to warm season native grass seed would increase first year emergence over raw (uncoated) seed. By applying seed coating, the weight of the seed unit is increased, planting ballistics may be improved, surface area increased, and the hydrophilic nature of the coating material may improve water uptake, resulting in a better first year stand. Four warm season grasses: Sunburst switchgrass, *Panicum virgatum*, Pierre side-oats grama, *Bouteloua curtipendula*, Bison big bluestem, *Andropogon gerardii*, and Tomahawk Indiangrass, *Sorghastrum nutans* were coated with three percentage build-ups 0, 100 and 200, or 300. Four replicates of twelve treatments were randomized in a complete block design with each plot measuring 20ft x 5ft. Each 100 sq. ft. plot was divided into one-foot squares. A computer generated random number sheet was used to determine which square would be counted on each date. Switchgrass and Indiangrass had significantly higher emergence within the 300% coating build-up treatment compared to 100% and uncoated seed. Side-oats grama and big bluestem had no significant differences for the first count. The second count for the uncoated big bluestem did show a significantly higher emergence than the 100% and 300% coated seed. Seed flowability dramatically increased compared to uncoated seed allowing the planting of chaffy seed types in the rear (flowable grasses) seed box of the Truax drill. It is not clear if the seed coating increased water uptake by seed units since immediately after planting, a rainfall event occurred. The study results suggest that additional studies on native grass seed coating are warranted and may have a significant impact on emergence when conditions are less than ideal.

Poster

**Improving Reproducibility of Soybean Standard Germination: Interaction of Seed Moisture Content and Substrate**

Martha Segebart¹, Dale Wilson², Susana Goggi¹ and Kamal Adam³

Iowa State University, Iowa State Seed Testing Laboratory¹
Ames, IA. 50011
Pioneer Hi-Bred Inc.²
6800 Pioneer Parkway
Johnston, IA. 50131
Iowa State University Seed Science Center³
Ames, Iowa 50011

The soybean crop produced in the year 2000 in the Midwest of the United States suffered from severe quality problems due, in part, to very low seed moisture. This seed sometimes yielded anomalously low and erratic warm germination test results, presumably due to imbibitional injury during the test. This was particularly true for certain cultivars. Three lots each of Pioneer cultivars 9071, 91B91 and 93B53 (a total of nine seed lots) were divided in four and moisture content vapor-phase equilibrated to approximately 7%, 8%, 10% and 13% (fw basis). Standard germination tests were conducted using four AOSA approved testing protocols: rolled paper towels moistened with 2.11 g of water per gram of towels (DRY); 2.58 g of water per gram of towels (WET); crepe cellulose paper (CCP); and Iowa State Seed Testing Lab’s sand test (SAND). For the SAND test, seeds were planted on one sheet of moistened CCP and covered with moistened sand. Both, the DRY and WET paper towel tests conformed to the AOSA
standard, that the moisture of the towels “should not be so wet that by pressing, a film of water forms around the finger”. The germination percentage of each seed lot increased with increasing moisture content (MC) of the seed for all varieties and tests. The CCP test produced significantly lower percent germination (84.78 %) for all varieties compared to the average germination percentage of the other three testing protocols (88.66%), regardless the original MC of the seed. The towel test results were significantly affected by towel moisture only when MC of the seeds was below 10%. However, DRY towels did not always produce the highest germination percentages when seed MC was below 8%. Variety strongly interacted with substratum and substratum moisture content.

Poster

**Effect of *Fusarium graminearum* Infection and DON During Wheat Seed Development on Seed Quality**

Jason Argyris, Dennis TeKrony, David Van Sanford and Cheryl Edge
University of Kentucky, Seed Biology and Department of Agronomy
Lexington, KY 40546-0091

Fusarium head blight (FHB) has been shown to affect the germination, grain quality and deoxynivalenol (DON) concentrations of wheat (*Triticum aestivum* L.) seeds. This study investigated *Fusarium graminearum* infection during seed development and maturation and its influence on seed quality and DON. Four soft red winter wheat varieties with variable resistance to *F. graminearum* seed infection and DON were evaluated in the field at Lexington, KY in 2000-2001. Fields were inoculated prior to anthesis and mist irrigation was provided. Seed harvests were made at frequent intervals to relate FHB severity (visual evaluation of heads) to seed infection and the production of DON. Severe disease pressure occurred in the field and *F. graminearum* seed infection increased from <20% at 10 days after anthesis (DAA) to >98% at the last three harvest dates in all varieties. Seed germination was variable (40-80%) prior to physiological maturity but gradually declined to low levels (<30%) for the final harvests after PM. Standard germination (SG) for treated seed was higher than untreated seed, but did not reach acceptable levels (80%) for any variety. Standard germination was negatively correlated with *F. graminearum* seed infection. Extremely high, but variable levels of DON occurred in all varieties and showed little relationship to *F. graminearum* seed infection. Severe disease pressure caused very high levels of seed infection, which reduced seed quality in all varieties throughout development. Type II resistance to spread of FHB infection had little impact on reducing disease severity, seed infection or improving seed germination, but showed some association with DON accumulation.
Adopting a three-part purity analysis system as used by International Seed Testing Association (ISTA) would standardize global reporting, interpretation and application of seed testing results. The three-part purity leaves the consumer and the producer responsible for determining what species are undesirable depending on the final destination and use of the seed lot. Under the AOSA Rules in North America, analysts reference Handbook 25 to determine whether a species is classed as crop or weed species. Handbook 25 does not contain all species found as contaminants, this places the analyst in a position of determining crop or weed classification without knowledge of the end use of the seed lot. Additionally, the classification reasoning used in developing Handbook 25 did not necessarily consider the variety of use of a species. Many organizations will have to work together to make this change possible in the United States; all individuals involved in the seed industry need a clear understanding of the questions, concerns and issues involved for this process to move forward. Examples of species with multiple uses and seed lots labeled using both the three and four part purity reports will be given. A flow chart illustrating how all agencies in the US will need to work together to effect this change will be presented.
SCST Long Range Planning
Tentative Meeting Agenda
June 16, 1-4 PM

Please note: Roll call will be taken during the Long-Range Planning Meeting. Ballots for Rule Propsals will handed out at this time and collect at the start of the Business meeting.

The following topics will be discussed at the Long-Range Planning Meeting in Sioux Falls, please come to the meeting prepared to give input and ideas. This is your organization and your opportunity to help shape SCST’s future.

SCST Proficiency Testing Plan for Seed Technologists

Background:
Proficiency testing has been discussed within SCST for several years with only a few members participating in the ISTA proficiency sample program. The SCST Executive Board senses that if the membership and society continue to lag behind other organizations (ISTA and CSAAC) in implementing some form of proficiency testing it may have a deleterious affect on the status of the RST title. The Constitution of the Society states “The purpose of this Society shall be to maintain and encourage the highest proficiency and professional standards among its members”, with this in mind, the Ex. Board feels we need to educate and allow our members to realize the value of proficiency testing as a normal process of maintaining accreditation as a RST. Proficiency testing is a quality improvement tool for technologists to use to in assuring their work is of the highest quality. The Board believes that a three year phased in voluntary proficiency testing program will help educate SCST members on the process, reduce concerns/fears and help define the cost of testing.

Plan Implementation:
Proficiency testing would be phased-in over a three-year period. A participation fee would be charged to all participating individuals or laboratories. If the laboratory has an approved Quality Management System (QMS) in place the laboratory would be tested. If the laboratory does not have a QMS in place, each RST would be tested. ISTA accreditation or another approved proficiency testing program would be considered equivalent to this plan.

The first year individuals or laboratories would receive a single test species (i.e. wheat) for purity and germination testing. The laboratory would complete the sample within the defined testing time and return results for statistical evaluation. Once testing had been completed all results would be statistically evaluated and each individual or laboratory would receive a report of their performance in comparison to the other participants. At the annual meeting the overall results would be reviewed and the process would be discussed to further answer participant questions.

The second year would involve two samples such as a small-seeded legume (Alfalfa) and a forage grass (Tall fescue) with purity and germination tests. The individual or laboratory would have an option to select one or do both samples. Again the overall results would be reviewed at the annual meeting.

The third year would involve three samples with an option of testing two of the three samples. Results would be reviewed at the annual meeting. At the end of the third year, a discussion would be held during the annual meeting. Proficiency testing would become mandatory in the fourth year to retain status as an RST.
Costs of Project:
Proficiency testing will be a user fee based testing system. Cost recovery for administration, sample preparation and shipping will be used to develop the fee system. We anticipate the cost per sample set to range between $50 to $100 per year. So a sample set of 3 samples may cost $150 to $300/year.

Certified Seed Technologist Membership in SCST

Do we want to adopt the certified membership category for Seed Technologists?

Pros
- Recognize individuals as proficient in their jobs when they are not able to be involved in both Germination and Purity testing.
- Recognize a specialist in a particular field and bring their expertise into the society.
- Allow more associates members to gain Certification, increasing their professionalism and involvement within the society.
- Increase income to the society through more members.
- Increase the number of accredited technologists to fill seed testing jobs.
- Allow AOSA CSAs to join SCST when they only have certification in one area.
- Create more mobility of accredited technologists to fill jobs by the increase in number of technologists.
- Would create a better balance of the Seed Technologist and Genetic Technologist membership categories since the Genetic Technologists presently can be Certified or Registered.
- More analysts may become RSTs if they can split up germ and purity over two years.
- Provide an RST candidate with at least a small achievement when passing one part of the examination and failing in another.

Cons
- May result in some present RST positions being filled by CSTs.
- May reduce the demand for RSTs, when CSTs fill the need.
- Employers may try and pass off CST as RST. A CST in germination only, signing a report, which includes purity results, might imply to a buyer that the purity test was done by a technologist accredited in purity testing.
- Examination schedule (order) at the Annual meeting may need adjustment.
- How would proficiency testing be handled? Would CST in germination still need to report purity results and visa versa?
- Certain country or state seed laws may need amendments (Section 11(1) (b) (iv) of Canadian Seed Law).

Other Considerations
- What does the lack of RSTs for open positions mean to the value of the title of RST and the longevity of SCST?
- Is the RST title a thing of the past with the increased specialization of testing and consolidation of smaller companies?
- Maybe we only need RSTs in laboratories conducting both Purity and Germination tests?
- Is not providing a professional title to technologists who specialize in one area of seed testing a good thing for the SCST or seed technology as a whole?
Three Part Purity Reporting

What is 3PP?

A three part purity analysis system divides purity components into pure seed, inert matter and other species.

The following points have been raised regarding three part purity reporting. If you have any to add please contact Anita Hall:

- Provides Global uniformity for reporting, interpreting and applying seed testing results.
- Harmonizes AOSA and ISTA rules. Imported and exported seed would not need to be retested because of labeling issues due to three-part vs. four-part formats.
- Protects the consumer from undesirable seeds being placed as crops (perceived to be ‘good’).
- Protects the producer from unwarranted discounts due to seeds being classified as weeds (perceived to be ‘bad’).
- Unifies the producer and the consumer by reporting all contaminants as ‘other species’ allowing each to decide what is harmful for their particular growing area.

Considerations

- How will legislative changes be enacted?
- Will there be a phase-in for compliance and if so, how long before bags and tags need to be changed?
- Who will initiate the legislative changes if AOSA approves this rule change?
- Many grower contracts have a maximum weed percentage clauses.
- Consumers will have to educate themselves on the undesirability of a contaminant in a seed lot.
- How would this affect the certification process?

Time will be left open during the meeting for further discussion items, please contact Anita Hall if you would like to add a topic to the printed agenda. Any information or thoughts you would like to add to any of the written comments would also be greatly appreciated. Please forward to Anita Hall to be compiled for the Long-range Planning meeting.
Continuing Education for Canadian Seed Analysts and the CSAAC

The Commercial Seed Analysts Association of Canada (CSAAC) is a group of professionals dedicated to providing quality seed testing services to the Canadian Seed Industry. Seed analysis information and services are used to grade and label seed to be sold nationally and aboard. Canadian Seedsmen cannot market their product anywhere without the expertise CSAAC accredited analyst members provide them on the testing and data details of their crop.

We are the only body promoting the on-going improvements to the education and expertise of Seed Analysts in Canada. We offer our members access to workshops held annually across Canada and provide a communication link between the Canadian Seed Industry and Regulatory Bodies.

The CSAAC has set standards for education, experience and ongoing training for their member analysts. By meeting and maintaining the requirements for membership, our Senior and Associate Members earn the privilege to use the Association Seal on their Reports of Analysis. The CSAAC Seal and Insignia have been used for over 55 years and is recognized in the Seed Industry as a sign of quality testing and integrity.

As well as a requirement for active CSAAC Membership, Continuing Education is a requirement for accredited analysts under the Canadian Seed Institute’s Accredited Seed Testing Laboratory Quality System Standard (LABSTAN 6.0.0. 13.0 Monitoring and Surveillance)

The CSAAC Continuing Education workshops are excellent training and refresher workshops for seed testing analysts. With the assistance of the Canadian Food Inspection Agency Lab Services Division (CFIA) and Canadian Seed Institute (CSI), we have been able to offer agendas with timely topics that can address the training and continual improvement needs of seed analysts.

There are three CSAAC Continuing Education Workshops planned for 2002. The Eastern Regional Workshop will be held Friday May 24th at the Embassy West Hotel in Ottawa, Ontario. Workshop topics include: Phytosanitary requirements for seed destine for U.S., DNA arrays detection of genetically modified organisms, Brumus spp. and Poa spp. separations, Seed Ids,
soybean seedling evaluations, referee results, seed slide presentation, and seed regulation updates.

A Central Regional Workshop will be held June 3rd at Discovery Seed Lab and June 4th a.m. at Sask. Wheat Pool Lab Saskatoon, Saskatchewan. Workshop topics include: Germination evaluations, chemical damage in cereals/peas, vegetable purities, TZ on grasses and peas, Genetic technologists, Lab tours and updates.

The Western Regional Workshop will be held August 23rd at Olds College, Olds Alberta. Workshop Topics will include: Germination testing of mechanically damaged field peas, genetic purity testing methods overview, Canola Council Vigour testing method training, ISTA validated vigour methods, ISTA & AOSA reporting procedures for Canadian Analysts.

For more information on CSAAC workshops:
Visit our website at: www.seedanalysts.com
Contact the CSAAC Office at Phone/Fax: 705-953-9459
Mail: P.O. Box 87, Oakwood ON K0M 2M0
Email: connie.jacobs@sympatico.ca

Or Contact your nearest CSAAC Regional Director
Eastern Region - Dianne Gilhuly at 519-627-3737
Central Region – Betty Girard at 204-571-7500 ext. 480
Western Region – Terry McIntee at 780-436-8822 ext 302

News from the Front Range Seed Analysts

The Front Range Seed Analysts have worked on several projects this spring. Members provided hands-on booths for the Mid-West Seed Services’ Native Seed Workshop in Fort Collins, Colorado in February. A school outreach project called "You Need The Seed" was started. FRSA will be preparing purity experiments and reference sheets for a Colorado State University program called Mobile Investigations that takes science experiments to Junior High and High Schools. Marilyn Milhous and Laurie Thoma worked on the online Detectable Endosperm referee. Results will be available in May. Annette Miller has been trying to make the FRSA website more user-friendly. Workshop links are up for ISU, CSU, Mid-West Seed Services, and other workshops. The Anna Lute Award committee is currently reviewing nominees for 2002. Find out who the recipient is in June! On April 10, FRSA will have its annual AOSA Rule Proposal review session and will send it's summary of comments to the Rules committee. Visit us on the web. We have hundreds of seed photos, Arnold Larsen’s Study Guide to the Seeds of Colorado and lots of other references for Seed Analysts: www.frsa.org
USDA National Tree Seed Laboratory Turns 50 in 2002

The USDA Forest Service National Tree Seed Laboratory will celebrate 50 years of service to the nation’s reforestation community in 2002. Posters depicting the laboratory’s contribution to the nation’s reforestation effort will be displayed at regional forest nursery association meetings in Gainesville, Florida and Olympia, Washington this summer. The laboratory will also host the International Union of Forestry Organizations (IUFRO) Seed Physiology and Technology symposium in 2003 in Georgia.

The laboratory was founded in 1952 at the USDA Forest Service W. W. Ashe Nursery in Brooklyn, Mississippi and was called the Eastern Tree Seed Laboratory. In its first year of operation, it only performed seed testing for the nursery. By 1953, seed testing for tree and shrub species was extended to 11 southeastern states: Virginia, North Carolina, South Carolina, Kentucky, Georgia, Tennessee, Florida, Alabama, Mississippi, and Louisiana.

The operation was relocated to the Georgia Forestry Commission’s headquarters in Macon, Georgia in 1954. The Georgia State Legislators approached the Federal Government with a proposal to build a regional seed testing facility. Upon receipt of the money, a laboratory building was constructed in 1958 solely dedicated to seed testing of forest species and was later expanded in 1982. The laboratory was renamed the National Tree Seed Laboratory to reflect its change in focus from a regional facility to a national and international mission.

The laboratory serves three main functions: service testing, maintaining an international seed bank, and providing technical assistance. Seed tests for domestic use are performed according to the rules of the Association of Official Seed Analysts (AOSA). Seed shipped overseas are tested with the rules of the International Seed Testing Association (ISTA). The laboratory was accredited by the ISTA under the new scheme in 2001. Laboratory personnel serve on tree seed committees of both organizations.

In 1972, the USDA appointed the National Tree Seed Laboratory to serve as the National Seed Coordinating Center for the Exchange of Forest Tree Germplasm for the Food and Agricultural Organization (FAO) of the United Nations. The seed bank provides small lots of native tree seed to forest researchers outside the United States.

Developing new forest seed technologies and training other forest seed testing analysts is a major focus of the laboratory’s mission. Short term studies are conducted to solve customers’ seed problems. Foreign and domestic scientists and practitioners frequently visit the laboratory for training. Site visits are used to train people with their own equipment and seed.

Maryland Turf, Seed Specialist to end 34-year State Career
Agronomist helped create state agriculture agency

ANNAPOLIS, MD (March 29, 2002) -- Malcolm Sarna, a founding member of the Maryland Department of Agriculture and a leading agronomist in the state and nation is retiring on April 1, 2002, after 34 years of service. Sarna joined the former State Board of Agriculture in 1967 as a turf and seed specialist, served as chief of personnel for 10 years during the transition to a cabinet-level department, and then returned to the turf and seed section as assistant chief for five years. He was promoted to chief in 1986, a position he held until retiring.

“Malcolm is not only a top agronomist, but he is the institutional memory of this department,” said Secretary of Agriculture Hagner R. Mister. “Many of the employees in the department today were hired by Malcolm Sarna during his tenure as personnel director.”

The turf and seed section of MDA conducts regulatory and service programs, including seed inspection, testing, certification and quality control services, designed to insure the continued availability of high quality seed to Maryland’s seed consumers.

“Seed is the single most important input to any cropping system,” Sec. Mister noted. “To be successful, the grower, whether a farmer tilling hundreds of acres or a homeowner with a hundred square foot garden, must begin with quality seed. Malcolm Sarna and his staff made sure Marylanders could get the highest quality seed.”

During Sarna’s service as chief of the section, Maryland developed a national reputation for high quality seed. He is past president of the Association of American Seed Control Officials, and served for six years on the executive board of the Association of Official Seed Analysts.

The turf and seed section annually certifies more than 25,000 acres of sod and seed grown for planting, supervises the mixing of two million pounds of commercial seed, and tests thousands of seed lots for quality and proper germination rates. Whether a farmer, a back yard gardener, or just someone who enjoys a nice lawn, nearly every Maryland citizen is a beneficiary of the turf and seed inspection services under Sarna’s direction since 1986.

###
Delphine "Dellie" Brown was born March 3, 1961, at Hendiricks, Minnesota, to Robert and Nelva (White) Kruse. She died Friday, April 5, 2002, at Sioux Valley Hospital in Sioux Falls, South Dakota.

Dellie graduated from Deubrook High School in 1979. She worked at Runnings in Brookings for about eight years and at Sexauer Elevators until 1995 when she began working for Midwest Seed Services. On July 18, 1981, she married James F. Brown in White, South Dakota.

Dellie was a member of First Baptist Church in White, where she taught Sunday School. She was a member of the Valley Rough Riders snowmobile club. She especially enjoyed following her kids' school activities.

Survivors include her husband, Jim Brown, of Astoria, SD; two children: Derek "Bud" and Jessica Brown, both at home; her mother, Nelva Kruse, of White, SD; two sisters: Janeen (Bill) Wingert of Preston, Minnesota, and Vonnie (David) Lucas of White, SD; a brother, Rollie (Rhonda) Kruse of Toronto, SD; nieces and nephews; a special uncle and aunt, Roger and Claudy Kruse, of White, SD; and many other aunts and uncles. She was preceded in death by her father, Robert Kruse, in 1995.

Dellie Brown began her seed testing career at MWSS in the fall of 1995 as a analyst in corn germination and purity testing. She enjoyed working with the smaller seeds conducting germination and tetrazoliium tests. She also became the leader corn cold tester evaluator for many years. Recently the Multi-Species laboratory at MWSS expanded, allowing Dellie an entire room for her work on Tetrazolium and small seed germinations. Dellie was a very dedicated employee and spent many long hours, weekends and holidays helping make MWSS a success, she was always there when we needed her.

She passed her Registered Seed Technologist Exam in June of 1999 in Omaha Nebraska. Dellie worked very hard to achieve this goal and was very proud of her accomplishment, as was the staff of MWSS. Dellie did not have as much college experience as some MWSS employees but made up for it in her determination to succeed. She always looked out for the best interest of the company. Dellie Brown passed away April 5, 2002.

We will miss her greatly.
Charles C. Abbott

Charles C. Abbott, 82, passed on January 8, 2002. Charles was a graduate of Haverford College in Pennsylvania and a veteran of WW2 where he served in the Solomon Islands through much of the war. Charles worked for a small seed company in Harrisburg, Pennsylvania in his early seed testing career. He also worked for the state seed lab in Pennsylvania and claimed to have taught his friend Wendell Ditmer everything he knew about seed. Mr. Abbott moved to Ohio in the early 70s to assume the position of chief of the seed section. He remained there until his retirement in April of 1990.

Charlie is the only person to have been president of both the Association of Official Seed Analysts and the Society of Commercial Seed Technologists. He was also Secretary/Treasurer of AOSA for many years in the late 1970s. He served in many other committee positions during his life-long career in seed testing. Charlie was also active with the Association of American Seed Control Officials. His dedication to the AOSA was demonstrated not only by his time but also through financial sacrifice in that he came to many meetings at his own expense using annual leave.

Steve McGuire
Michigan Dept. Of Agriculture
State Seed Analyst
1615 S. Harrison
E. Lansing, MI 48823
(517) 337-5084
AOSA Referee Projects Update:

The following chairs are reporting progress on regional projects. Submitted by Ellen M. Chirco, AOSA Referee Chair

Region I – Chair- Northwest Sabry Elias,

Evaluation of Multiple Seed Units of
Perennial Ryegrass and Tall Fescue in Purity Testing

According to AOSA rules seed analysts are required to separate multiple seed units (MSU) in perennial ryegrass (PRG) and tall fescue (TF), break them off and categorize them into pure seed and inert matter. This process is cumbersome.

A referee study was designed with the objective of developing constant factor for these two crops and to explore the appropriateness of adapting ISTA method for dealing with the MSU in purity testing.

Official and private labs from 12 states participated in the study. Eight labs completed the test for each of the PRG and TF. I would like to express my sincere appreciation for everyone in these labs who contributed to this study. Twenty randomly selected seed lots of PRG and TF representing a wide range of MSU percentage (1.18-9.64% in PRG and 0.11-8.57% in TF) were used. Samples represented 18 cultivars of PRG and 17 of TF.

Data representing the percentage of single seed units (single florets), MSU, pure seed in MSU, and inert in MSU across all samples and laboratories were collected and analyzed to calculate a constant factor. It was 0.72 in PRG and 0.69 in TF. The group mean comparison analysis (t-test results) indicated no significant difference between the percentages of mean pure seeds as measured by AOSA or ISTA method. The study showed that adapting ISTA method would result in saving significant time. In AOSA method, a mean time (across samples and labs) of 52 minutes for PRG and 43 minutes for TF was spent to physically separate the MSU and recover the inert matter from them compared to 0 minutes if ISTA method which currently consider MSU as a seed unit. They no longer separate MSU unless requested by the customer.

More discussion with Oregon seed analysts and Oregon grass seed industry will take place to assess the feasibility of applying ISTA approach for evaluating MSU in purity testing.

Region III – Chair -Northeast: Lois Capshaw

*Caryophyllaceae* Identification Referee
(Still time to participate if anyone is interested.)
Region IV – Chair -Southwest: Tim Loeffler

The Southwest Region is coordinating three referee studies for 2001-2002. Data collection and analysis is in progress for each of these projects. The purpose for each referee is described as below:

1. Peanut Seed Germination. The objective of this referee is to evaluate the germination of peanut seed with missing seed coats. Most of the germination results are received and data analysis will soon be completed.

2. Detectable Endosperm. This was a survey to obtain feedback from seed analysts in relation interpretation of detectable and non-detectable endosperm for several grass seed images. The survey was conducted from the FRSA and AOSA websites and any interested seed analysts were encouraged to respond. Drawings and photographs were provided for the participant to categorize the seed images into pure seed or as inert. A summary of the survey results is in progress.

3. Cabbage Seed Vigor. The objective of this referee was to evaluate consistency among seed laboratories using the four-day germination count as an indicator of seed vigor. The seed laboratory was allowed to choose between two different germination substrates. Research has shown that no significant differences exist between paper towels or blue blotters for the four-day germination count. Final germination data will also be reported. Results have been received from 11 participants. Data analysis is in progress.
Species without AOSA Testing Procedures

The article "Species without AOSA Testing Procedures" that was published in the February, 1986, issue of the Association of Official Analysts Newsletter, Volume 60, No. 2 was posted on the AOSA website. Last year, 2001, the list was updated and species that are now in the AOSA Rules for Testing Seeds were removed. Since then more species have been compiled to be added to the "Species without AOSA Testing Procedures" list and these species will be posted on the AOSA website (www.aosaseed.com/reference) with purity and germination recommended procedures.

A thank you to those who provided purity and germination recommendations. This is an ongoing process so if any member of AOSA/SCST has germination or purity recommendations for any species (flowers, herbs, natives, ornamentals, grasses, trees and shrubs) that are not in the AOSA Rules for Testing Seeds and wants them posted on the AOSA website, please contact Donna Grubisic, RST.

To include the recommendations for either purity or germination testing procedures on the AOSA website this information is needed:

For purity recommendations:
Kind of seed and approximate # seeds per gram
Minimum weight in grams for purity/noxious exam (weight of 2,500 and 25,000 units)

For germination procedures:
Kind of seed Substrata Temperature C*
Days - first count Days - final count
Additional directions (see Section 4.2 and 4.9)
Reference (name of person, laboratory or publication)

Check out the website with the added information and hope to hear from you with your recommendations. Thank you.

Submitted by,
Donna Grubisic, RST Phone: 805-684-3427
Ransom Seed Laboratory FAX: 805-684-4157
P.O. Box 300 Email: RansomSL@silcom.com
Carpinteria, CA 93014

References
ISST BOARD OF DIRECTORS MEETING
CONFERENCE CALL
January 9, 2002

The Meeting was called to order by Vice President Betty Girard, sitting in for President Miller McDonald, at 11:00 am ET. Attending were Secretary/Treasurer Barbara Cleave, Directors Mike Dideriksen, Dianne Gilhuly, DaNell Jamieson, Deborah Meyer, Brent Reschly, Lynn Ryder, Jean Tolliver; Guest CSAAC President Morgan Webb, SCST President Pat Brownfield. Absent were Sarah Foster-Stubbs, and President Miller McDonald.

- APPROVAL OF MINUTES
  Minutes from November 7, 2001 conference call were reviewed.

  Mark Anfinrud moved to approve the minutes as corrected, DaNell Jamieson seconded. Motion carried.

- TREASURER’S REPORT
  Barbara Cleave moved to approve the treasurer’s report. Jean Tolliver seconded. Motion carried

COMMITTEE REPORTS

- MEMBERSHIP COMMITTEE REPORT – Betty Girard
  Betty forwarded a detailed report to board members prior to the meeting. This report will be printed in the January 2002 ISST Reports.

  Brazil is very close to chapter membership. They have advised us that they have one more member to sign up after the beginning of year. Argentina had advised us that they had another five to sign up and we are waiting to hear back from them. Betty will be re-contacting those who have already received chapter packages, and re-contacting those who have received colleague member applications and have not responded.

- EXAMINATION COMMITTEE - Mike Dideriksen
  Mike has received a request from Charlieben Ozonwa Kamula Ejiogu from Nigeria regarding the examination. He was instructed to contact Betty for official chapter formation and was mailed paged from the ISST website concerning the examination.

- EDUCATION COMMITTEE – Dianne Gilhuly
  Dianne still has an open position for an SCST member on the committee. She has been working on getting a list for examination material from both CSAAC and SCST for our website

- EDITORIAL COMMITTEE - Miller McDonald
  Miller submitted a detailed report to board members prior to the meeting. Miller has proposed that the January 2002 ISST Reports edition be sent via email to those with email addresses, and via mail to all others. Subsequently, all future mailings of ISST Reports should be over the web, unless otherwise requested. For a complete copy of the report, please contact the ISST Secretary.

- RESEARCH COMMITTEE - Mark Anfinrud
  Dr. Jagadish has received his $1000 for his research grant; he will be submitting a progress report of his activities the fourth week of January to the ISST Research Committee. This summary will be in the next ISST Reports issue (July 2002).
• PUBLIC RELATIONS COMMITTEE – Brent Reschly
Brent is looking to obtain another committee member and currently is working on this. He also has been focusing his activities on the upcoming FIS meeting in Chicago, and has been developing ideas for presentation materials. He will have at least a rough draft to present to the board at the next meeting.

Debbie would like to see photos of the Brazil booth forwarded to all of the board members. That way, we can review the pictures and offer suggestions concerning the content of our next booth.

• ETHICS COMMITTEE – DaNell Jamieson
DaNell has no ethics issues to report at this time. She is in the process of confirming committee members. She will be requesting help/ideas from our two chapters (Pat Jennings for SCST and Cathie Ornawka for CSAAC).

The SCST Ethics Committee is currently updating their ethics procedure guidelines. They would like to keep it in an updated format and forward to members on a regular basis electronically.

• LEGISLATIVE – Jean Tolliver
Nothing to report. Please keep in mind that Jean will be accepting a position at Monsanto after the 21st.

Dianne Gilhuly moved to accept the standing reports as presented. Debbie seconded. Motion carried.

STRATEGIC PLANNING
We are scheduled to have our strategic planning session with Garry Gibbons on Sunday, June 16th, 2002 from 1 to 8 p.m. This conflicts with the AOSA/SCST Banquet; we need to clarify this time, as some members had recorded the time as 8 a.m. to 5 p.m.

ISST WEBSITE
There is a new Seed ID quiz on the website; one board member is having problems with it crashing – this will be looked into. The virtual ring test looks good at this point. Betty suggested that we also have a written exam with multiple choice questions that reflect the type of questions seen on the exam.

Miller was questioning a possible committee formation to deal with website information; this was discussed before and it was decided that it was the responsibility of the ISST Editorial Committee. We may need more members on this committee. Betty will talk to Miller concerning this and see what he is thinking.

REVIEW OF FIS MEETING/CHICAGO
The meeting went well and was positive. Bernard still foresees a relationship between ISST and FIS. Bernard was disappointed in the results from the ring test that they set up. FIS wanted the seed companies to put their analysts together and come up with a ring test. Problem: patent protections on proprietary varieties. The lawyers got involved with the process, and the ring test essentially fell apart.

Validation samples for PCR testing for transgenic contamination are absolutely needed. So many different protocols are now used for PCR testing; FIS concern is that the results are true. Quentin felt that we may consider being the organization to provide validation samples for testing to demonstrate value to FIS. We also may assess the relative accuracy of different protocols, as thresholds now are lower than the accuracy of the protocols used in some cases. This may “weed out” some protocols; but not necessarily identify just one usable protocol. A few protocols may be equivalent. It is currently difficult to get base samples; this may be a moneymaking project for the organization, but we must also realize that the initial cost incurred will be great.
Pat Brownfield stated that for SCST, it was difficult to set up samples for the RGT exam, and more costly than they had imagined. Maintenance of the samples is tough; and it may not be possible to do on a volunteer basis (they are thinking of hiring out).

Our next step is to determine if this concept fits the vision for ISST. If it does, then we come up with a plan of how we see things coming together, so we know how much to charge for the provision of these validation samples and the evaluation of protocols. Then we can approach FIS with this information.

If we are going to include genetic technologists in this organization, we need to do something to include them, and this would.

Betty assigned a special ad hoc committee to look into this; it can later be assigned to one of our existing committees. Quentin and DaNell will work to put this information together. For positive impact on FIS, we should have a prepared proposal approved by the board ready for the FIS meeting at the end of May 2002. The first draft of the proposal will be due to the board on February 14, 2002.

**FIS AND ISTA RELATIONSHIP WITH ISST**

We have formed an ad hoc committee to address FIS’s need for validation samples; we would also like to have representation at their meeting in May 2002.

As for ISTA, Norbert Leist has not responded to Miller’s letter. We would like to have time on their program during their Bolivia meeting in July 2002, and would request that Miller formulate a follow up letter to Norbert for time on their agenda in Bolivia to present greetings from ISST.

We would like to disseminate the information that ISST exists from the ISTA board to the members, if we can. Currently, we are unsure if the members are aware of ISST; this information may remain within the ISTA board.

Because of changes that have happened within the OECD program in Europe, there are separation issues with European organizations and North American organizations from ISTA’s standpoint. We are a global organization and not just a North American organization, and we would like to establish this with ISTA. We do not intend to replace ISTA. We plan to provide training of individuals within the ISTA lab. There are countries that have excellent individual training, and there are countries where we can help with the training. We can use the ring test as a training tool, and at the same time demonstrate the equivalency or lack thereof of protocols. We work from a seed technology standpoint, so this may be tangible for us to do. We may be able to create a list of approved protocols, but not create any given protocol as a rule. There may be 3 to 4 protocols that provide the same results and the choice remains with the user. We are not setting or making the rules; rules need to remain within ISTA’s control.

**MEETING ATTENDANCE**

**CSAAC 2002 Annual Meeting, May 24th-25th, 2002** – Betty Girard and Dianne Gilhuly will present greetings from ISST

**FIS/ASSINSEL Annual Congress, Chicago, USA, May 27th – 30th, 2002** – We may not need to send six ISST members to this meeting, and it may not be within our budget. Two or three ISST members officially attending the meeting may be more in perspective. Pat Brownfield mentioned that FIS may have funds to underwrite the costs of our trip there. We may want to look into this. In any event, it is important that we are represented. Brent was under the impression that when he was asked to attend, it was to be at the cost of his employer. He will see if his employer can cover at least part of the cost of his trip.

DaNell moved to send 2 people to attend FIS in May. Jean Tolliver seconded. **Motion carried.**
Miller to investigate costs for these two people, so that travel expenses can be estimated and covered in our next meeting.

A booth at the meeting would also be beneficial. There was a detailed explanation of the booth restrictions and size forwarded by the member in charge of the FIS booths; Pat reviewed this information. The base cost for a booth is $2,500.

Dianne moved that we have a booth at the 2002 Annual FIS congress, not to exceed $3000. Lynn Ryder seconded. Motion carried.

DaNell will be close to the meeting location and plans to attend; she will be able to help man the booth. Jean Tolliver will check with her new employer to see if she has approval to help man the booth. We will check to see whether those individuals manning the booth only need to pay registration fees.

**AOSA/SCST Annual Meeting, June 13th-18th, 2002** - Hopefully, all board members will be attending this meeting. ISTA will be presenting a workshop there; FIS will also be present. It may be beneficial for us to also have a presence during the time that the workshop takes place.

Barbara Cleave moved to sponsor a break table, not to exceed $400 during the ISTA workshop at the 2002 AOSA/SCST annual meeting. Dianne Gilhuly seconded. Motion carried.

Pat Brownfield suggested that we leave ISST literature on the break table.

**ISTA General Assembly Extraordinary Meeting, Santa Cruz, Bolivia, July 3rd-6th, 2002** - The Pan American Seed Analysts are meeting before this. Pat Brownfield and Sharon Davidson will be there representing SCST.

Mike Diderikson moved to send an ISST member to the ISTA meeting in Bolivia, with a cost not to exceed $2,500. Lynn Ryder seconded. Motion carried.

**APSA Asian Seed 2002, Ho Chi Minh City, Vietnam, November 18th – 21st** – Miller is planning to attend this meeting; ISST would like to send another person. Dianne pointed out that, if we are not going to attend these meetings, how are we to get membership from them?

Dianne moved to send an ISST member to the 2002 APSA Conference, with a cost not to exceed $3000. DaNell seconded. Motion carried.

**NON-PROFIT AND TRADEMARKING STATUS**

The application for federal non-profit status was submitted at the end of November/beginning of December. There is no feedback from the application yet. The cost was $150 filing fee and additional charges from the lawyer. It will be a three to six month process before we hear. We have asked for a preliminary ruling because of tax implications.

Trademarking in the US won’t cover us in other countries, but will prove that the trademark is in use.

It may be up to $3000 per country to trademark. It was recommended that we trademark in each country as it becomes a chapter.

Benefits of trademarking are to prevent people from falsifying documents, prevent people from using symbol if they are non-ISST members and, as mentioned above, trademarking in one country proves that the logo is in existence if it is abused by another country.

Europe may have an EU trademark to cover several countries.

DaNell Jamieson moved that we trademark our logo in the US. Brent Reschly seconded. Motion carried.
REVENUE GENERATING AD HOC COMMITTEE

Sarah was unable to attend this meeting, and will be asked to present her report at the next meeting.

PREPARATION FOR THE AOSA/SCST MEETING

Miller McDonald will be providing an ISST welcome at the opening ceremony. Also, we will now be sponsoring a break table during the ISTA workshop. Our board meeting is scheduled for Saturday, June 15th, 2002 from 1 to 3 p.m.

NOMINATIONS

Rotating off of the ISST board are Sarah Foster-Stubbs, Mark Anfinrud, Betty Girard, and Mike Dideriksen. We need three replacements from SCST. Mike will not be afforded travel with his new position, so he will definitely need to be replaced. Mark Anfinrud would be willing to repeat his term with the board. Pat will contact Sarah to see if she would like to repeat her term.

For any replacement that is selected, we would request that it be someone who can attend our meetings regularly, as we need a quorum.

Betty will obtain reappointment from CSAAC, as she will need to remain as ISST President after Miller’s term.

SCST REPORT – Pat Brownfield

SCST is currently having their winter board meeting. They are looking at how they can bring proficiency testing into their organization. CSAAC came to SCST requesting that they grant RST equivalency for their Senior analysts, because SCST granted this to CSA’s.

The SCST Training manual is doing quite well; there are only six manuals left. Currently, there is a workshop using 25 manuals a year. SCST has authorized a second printing. The editorial committee will be updating this manual regularly. SCST is also developing white paper on a three part purity system to be presented to AOSCA, FIS, and ASTA.

The transition to the first executive director is going well.

CSAAC REPORT – Morgan Webb

Morgan has nothing to report at this time; CSAAC will be having a conference call later this month.

NEXT MEETING

The next ISST Board Meeting will be Wednesday, March 6th, 2002 at 11:00 ET.

Jean Tolliver moved to close the meeting. Dianne Gilhuly seconded. Meeting adjourned.
WORKSHOPS AND SEED SCHOOLS

Seed Technologist Workshops
May 20 - 24 Brookings, SD – MWSS Laboratory

TARGET AUDIENCE: Seed technologists, RST and RGT candidates and QA personnel.

INSTRUCTORS: Dr. Loren Wiesner, National Center for Genetic Resources Preservation, Dr. Nancy Vivrette, RST, Ransom Seed Lab, Ken Allison, Canadian Food Inspection Agency, Dr. Brent Turnipseed, RST, South Dakota State University Seed Lab, and MWSS staff including: Kalyn Brix-Davis, RST, CGT, Tim Mattheai, RST, CGT, Tim Gutormson, RST, Sharon Hanson-Gutormson, CGT and others.

Individuals may choose to attend any or all sessions of the workshop. The workshop will be a combination of lectures and hands-on laboratory sessions. Continuing education credit is available towards RST training.

The Purity session May 20th and 21st will focus on purity methods and seed identification of a wide range of species. Purity testing equipment will be demonstrated and AOSA Rules will be reviewed.

The Tetrazolium session May 22nd, taught by Dr. Vivrette, will cover the basics of TZ principles. Some of the focused species will include Lupinus spp., Wild lupine; Chamaecrista fasciculate, Partridge pea; Monarda fistulosa, Wild bergamot; Tradescantia spp., Ohio spiderwort; Dalea purpurea, Purple prairie clover; Spartina spp., Cordgrass; and Carex spp., Muhlenberg sedge, Owl fruit sedge and Knotsheath sedge.

The Germination session May 23rd and 24th will include lectures on development, vigor, structure, metabolism, dormancy and AOSA Rules. Participants will be able to evaluate germination tests on more than 20 species and review the latest in seed vigor testing methods. Herbicide bioassay tests on several species will be offered.

Corn Pre-harvest Workshop
Aug. 14 Brookings, SD – MWSS Laboratory

This full-day workshop is designed to provide participants with a better understanding of the relationship between production practices and seed quality.

TARGET AUDIENCE: Production, Research and Quality Assurance Personnel.

SEED QUALITY  Tim Gutormson

- Seed & Seedling Morphology
- Seed Germination and Moisture
- Cold, Saturated Cold and AA tests
- Bt Corn and Herbicide Trait Tests
- Tetrazolium and Fast Green Tests

PRODUCTION PRACTICES  Dr. Joe Burris

- Seed Development and Maturity Rating Methods
- Harvest Decisions and Harvest Equipment
- Green Sort and Husking
- Drying – Theory and Practice
- Post-drying, Shelling and Handling
Soybean Pre-harvest Workshop
Aug. 15 Brookings, SD – MWSS Laboratory

This day-long workshop is designed to provide participants with a better understanding of the relationship between production practices and seed quality. The workshop will be a combination of lecture and hands-on training.

TARGET AUDIENCES: Production, Research and Quality Assurance Personnel.

SESSION TOPICS
- Seed & Seedling Development and Morphology
- Factors Influencing Seed Quality
- Seed Moisture
- Harvesting
- Soybean Seed Quality Tests
- Bleach Test
- Standard Germination
- Sand Test
- Tetrazolium
- Accelerated Aging
- Cold Tests
- Herbicide Trait Tests

Corn Harvest Clinic
Aug. 21 Madison, WI.

This workshop is designed to give participants further insight into seed quality, plant development, harvest maturity, physiology of drying, and philosophies of conditioning.

INSTRUCTORS: Tim Gutormson, Kalyn Brix-Davis, Dr. Joe Burris, and Jon Popp.

SESSION TOPICS
- Physical Quality Characteristics
- Physiological Quality
- Genetic Purity
- Plant Development
- Harvest Maturity
- Physiology of Drying
- Handling
- Shelling
- Philosophies of Conditioning

LOCATION & LODGING:
Holiday Inn East, 3841 E. Washington Ave., Madison, WI. 53704 Phone: 608-244-2481 A block of rooms has been reserved. Please mention our workshop. An evening BBQ will be held. IPSA Field Day is Aug. 22. in Madison.
REGISTRATION FORM
Fax to 605-692-0977

Name: __________________________________________________________

Company: _______________________________________________________

Address: _______________________________________________________

City, State, Zip: ________________________________________________

Company: _______________________________________________________

Email: __________________________________________________________

Phone: ___________________________  Fax: __________________________

I want to register for the following workshop(s):

**Seed Technologist Training**

- May 20-21 Purity/Seed ID $150
- May 22  Tetrazolium $100
- May 23-24 Germination $150
- All three $300

**Corn Pre-harvest**

- Aug.14  Brookings, SD $150

**Corn Harvest Clinic**

- Aug. 21  Madison, WI. $175

**Soybean Pre-harvest**

- Aug.15  Brookings, SD $150

**MID-WEST SEED SERVICES, INC.**
**Attn: Workshops**
236 32nd Ave. Brookings, SD 57006
Phone: 605-692-7611
Fax 605-692-0977

workshops@mwseed.com
Register Online: www.mwseed.com
NOTICES AND ANNOUNCEMENTS

The Three Presidents Quilt

This is the "3 Presidents Quilt". It was made and donated by past SCST presidents Sharon Davidson and Guin Jenanyan, and current President Pat Brownfield. This quilt is being raffled, and all the money raised will go into the SCST Research Endowment Fund. Tickets are $5 each or 3 for $10. They can be purchased now or at the June meeting from Sharon Davidson. The quilt measures 75" x 90". It is machine pieced and quilted. The quilt is all cotton, including the batting.
I hope everyone will support our project.

Best regards - Guin Jenanyan
Seed Technologists Training Manual

Order Form

The Society of Commercial Seed Technologists is pleased to announce the availability of the new Seed Technologists Training Manual. This manual represents the most comprehensive treatment of seed testing technology anywhere. Over 450 pages, 150 color photographs, and 735 drawings of seeds are presented in 15 chapters authored by the most prominent seed technologists in the field. In addition to a complete glossary, these chapters include:

* The Importance of Seed Testing
* Basic Botany for Seed Testing
* Seed Identification
* Seed Sampling and Sub sampling
* Seed Moisture Testing
* Seed Enhancement Technologies
* Physical Purity Testing
* Seed Germination Testing
* Seed Dormancy
* Seed Viability Tests
* Seed Vigor Testing
* Seed Pathology (Health) Testing
* Seed Testing Tolerances
* Genetic Purity Testing
* Using Scanners to Improve Seed/Seedling Evaluations

Of particular importance is the treatment of Genetic Purity Testing since genetically modified crops are becoming increasingly prominent in the marketplace. In addition to traditional cultivar purity testing, this chapter addresses herbicide bioassay testing, enzyme linked immunosorbent assay (ELISA), electrophoresis (starch, PAGE, and IEF) and polymerase chain reaction (PCR) technologies.

Individuals that will find this Training Manual useful include beginning and practicing seed technologists as well as the broader membership of the seed industry to include seedsmen, researchers and government agencies. Students interested in proper approaches to seed testing will also find this text worthwhile.

Reviews

The new Seed Technologists Training Manual is a significant contribution to seed technologist literature and will prove a valuable resource as both a teaching tool and reference for seed technologists and the seed trade. It provides a thorough grounding in contemporary seed technology, plus introduces new technologies, using a liberally illustrated format that is reinforced with exercises, study questions, references and glossary.

Dr. Wayne Guerke, Director, Seed Division, Georgia Department of Agriculture

The Seed Technologists Training Manual is an up-to-date, in-depth, tool that I consider a valuable resource for all seed analysts. It will be on the top of our recommended list for our
short courses. My hat is off to the writers, the editors and sponsors of this wonderful, comprehensive manual.
Dan Curry, Lab Manager, Seed Testing Lab, Iowa State University

This manual will enhance the training of seed professionals by providing a very complete, accurate, and useful text. There is something in this manual for all seed technologist from the beginning analyst to the most experienced analyst who wants to keep abreast of their profession. This manual will be very useful for our distance education seed analysts training program use during our purity and germination workshops.
Dr. Arnold L. Larsen, Retired Seed Analyst, Fort Collins, Colorado

The Seed Technologists Training Manual provides an excellent coverage of the fundamentals of seed testing and will be a valuable resource document for our Canadian seed analyst accreditation program. The manual provides the right depth of knowledge of botany and seed physiology required by seed analyst to understand and apply the testing protocols related to traditional seed quality attributes covered in seed analysis.
A.B. Ednie, Associate Director, Central Seed Laboratory, Canadian Food Inspection Agency, Ottawa, Canada.

Order Form
Please fill out the mailing information below and include payment made out to SCST with order.

Name:_________________________ Phone:_________________________

Address:_________________________________________________________________Fax:_________________________

City, State:_________________________________________________________________

Zip code:____________ Country:____________________________________________

Email:__________________________________________________(notification of updates)

Number of Manuals ordered ___________ X $150.00 = ___________
Number of Manuals ordered ___________ X $100.00 = ___________
(student rate, please enclose current student ID or written documentation of student status)
Shipping (Domestic): ___________ X $10/copy = ___________

International Orders:
Please contact Anita Hall for shipping costs ___________

Total Enclosed $___________
Please send order and payment to:
Anita Hall Phone/fax #607-256-331
SCST Executive Director Email: SCST@twcny.rr.com
101 East State St., PMB #214 Allow 4-6 weeks for delivery of Manuals
Ithaca, NY 14850

VOLUME 76 NO. 1 59 May 2002