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 2425
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
anihall@aol.com
2001-2002 AOSA EXECUTIVE BOARD

Past President
Richard Lawson
Idaho State Seed Lab
2240 Kellogg Lane
Boise, ID  83712
208-322-8630
Fax 208-332-3482
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>
<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>8-9</td>
</tr>
<tr>
<td>SCST Executive Director’s Report</td>
<td>10-11</td>
</tr>
<tr>
<td>AOSA ByLaws Committee</td>
<td>12-14</td>
</tr>
<tr>
<td>SCST Seed Library Update</td>
<td>15</td>
</tr>
<tr>
<td><strong>Analyst News and Regional Reports</strong></td>
<td></td>
</tr>
<tr>
<td>CSAAC Update</td>
<td>16-17</td>
</tr>
<tr>
<td>KCIA Burchett Conference Room Dedication</td>
<td>18-19</td>
</tr>
<tr>
<td>WA State Seed Lab Supervisor Retires</td>
<td>20</td>
</tr>
<tr>
<td>Lou Harpe</td>
<td>20</td>
</tr>
<tr>
<td>Mid-West Seed Services Lab Expansion</td>
<td>21</td>
</tr>
<tr>
<td>MWSS New Employees</td>
<td>22</td>
</tr>
<tr>
<td><strong>General and Technical Information</strong></td>
<td></td>
</tr>
<tr>
<td>ISST Board of Directors Meeting</td>
<td>23-29</td>
</tr>
<tr>
<td>Mail Irradiation and Seed</td>
<td>30</td>
</tr>
<tr>
<td>Creped Cellulose Paper Ply Study</td>
<td>31-33</td>
</tr>
<tr>
<td>Bookshelf</td>
<td>34</td>
</tr>
<tr>
<td><strong>2002 Annual Meeting Information</strong></td>
<td></td>
</tr>
<tr>
<td>Annual Meeting Webpages</td>
<td>35-40</td>
</tr>
<tr>
<td>Examinations</td>
<td>41</td>
</tr>
<tr>
<td>Call for Research Papers and Posters</td>
<td>42</td>
</tr>
<tr>
<td><strong>Workshops and Seed Schools</strong></td>
<td></td>
</tr>
<tr>
<td>Colorado State University Summer Workshops</td>
<td>43-44</td>
</tr>
<tr>
<td>Native Grass Seed Workshop</td>
<td>45</td>
</tr>
<tr>
<td>Seed Technologist Training Workshops</td>
<td>46</td>
</tr>
<tr>
<td>Iowa State University Conference and Workshops</td>
<td>47-49</td>
</tr>
<tr>
<td>Seattle Meeting Reminder</td>
<td>50</td>
</tr>
<tr>
<td>ISTA Seminar on Statistics</td>
<td>51</td>
</tr>
<tr>
<td><strong>Notices and Announcements</strong></td>
<td></td>
</tr>
<tr>
<td>Seed Samples Needed- Handbook 30 Update</td>
<td>52-60</td>
</tr>
<tr>
<td>Research Proposal Solicitation</td>
<td>61-63</td>
</tr>
<tr>
<td>SCST Training Manual Order Form</td>
<td>64-65</td>
</tr>
<tr>
<td><strong>Attachments</strong></td>
<td></td>
</tr>
<tr>
<td>Rule Proposals</td>
<td></td>
</tr>
</tbody>
</table>
Notes from the Editors

Anita Hall is the new SCST editor replacing Diane Mesa, thank you for your hard work and many contributions. 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 May 2002 Issue: March 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
Winter and the holiday season are upon us. It seems like I was just suffering through the heat of summer and now I am savoring the great weather of winter, at least for us in the southwest. Phoenix Arizona is known for being the “Valley of the Sun” and this time of year truly proves it.

The last few months have found me busy with AOSA activities but not doing the great amount of traveling I had been doing earlier. I did have the opportunity to travel to Texas in September and then Utah in November to administer certified seed analyst exams. Four people took the test in TX and five people took the test in Utah. Depending on the grading by the CSA Committee chair there maybe new additions to the AOSA CSA ranks.

A couple of items of interest to all are that the “Trilogy” is going to be available on CD. The AOSA board is in the final negotiations to put the finishing touches on the CD. When all is finished every AOSA member, associate, and affiliate member in good standing will get a CD as part of their dues. SCST members will be able to order the CD. A new CD will be generated each year with all the changes. The amount of monies saved in publishing and shipping is hoped to be substantial and to save the organization money. Hard copies of the trilogy will be available upon request.

The second point is the raising of the AOSA membership dues. All members will be receiving a letter with the dues invoice in the near future describing the reason for the increase. Dues increases are never an easy thing to do but in this case it was necessary in order for our organization to keep pace with the rest of the industry we serve. We ask that you please consider this raise carefully and abide by the change.

There are going to be a few AOSA board positions coming open. I would like to challenge all AOSA members to consider running for election to the board. Yes, it is a bit of extra work, but it is well worth the time and effort put in to it. If you are interested please contact one of the current board members and chat with them about their experiences. I think you will find everyone feels the position on the board is well worth the time and effort.

I would like to take this opportunity to wish everyone a very happy holiday season. I look forward to speaking to you all again in the near future.
SCST President’s Message
Pat Brownfield

It is my hope that even as you read this February message part of the items covered here will be old news; however important enough to read over once more. In January your first addition of Board Notes should have been received by e-mail or fax. This new form of communication is an ongoing attempt to improve on the flow of information to all members. It is a short, quick to read, format that will hopefully keep you informed and in touch with your organization.

Keeping in touch has never been easier than it is now with the addition of our Executive Director, Anita Hall. By now I am sure each of you has received at least one notice from Anita if not more. The addition of an Executive Director was a historical step in the life of SCST. I want to thank every member of our association for making this happen. I encourage each of you to take advantage of this position to enhance your professional goals and objectives in seed testing. If you have not had a reason to contact Anita personally please take a minute and touch base with her. Anita is a great resource for committee work, news dissemination, and employment opportunities.

In my last message we talked about the issue of time in our professional lives. In keeping with that thought the South Dakota planning committee has done a great job of compressing our annual convention. For those of you that want to get to the meeting, attend to society business, and get home, you can be in and out in a record four days. For those who would like to enhance your working knowledge slightly more in depth there will be pre-meeting workshops to attend. I encourage each of you to closely look at the meeting update in this issue for details prior to making your plane reservations. The format has changed greatly from previous years and you don’t want to be disappointed by missing that one thing you really wanted to attend.

Likely the first meeting change that you will notice is the on-line registration materials. In an effort to streamline the flow of information the meeting registration forms are available through both the SCST and AOSA web sites. This feature will allow you to hot-link directly to your downloadable registration materials. The forms can then be sent in with your registration fees. Please notice that you will not receive the traditional meeting registration packet in the mail. This change will keep mailing costs down and keep agenda materials updated much easier. It is the intent of both the AOSA and SCST boards to make this an annual format and possibly future years will allow for direct on-line registration.

Recent changes to the Constitution and By-Laws were adopted by the membership. In keeping with those changes the first Board of Examiners has been established. As Vice-President, Tim Gutormson, will provide leadership and direction to this group of individuals. This committee structure is outlined in this newsletter and valuable information concerning this year’s exam can be found in that article as well. If you are taking the exam or training someone to write for this year’s exam take a look at the addition of a couple of practical application items. TZ staining will be added to the germination practical and use of the Gament divider will be added to the purity practical.
Another C&B change recently approved is the restructure of the current SCST Executive Board. This change is exciting in its ability to expand membership participation on the board. Members no longer must commit to eight full years of service. Please take a minute to think about those changes and contact Stan Grote, nomination committee chair, with your nominations. Stan of
course will make sure that the individual nominated is willing to serve and elections will be held prior to this years meeting.

In looking at our calendars we see that time is once again marching on. If you are currently serving on an SCST committee or as committee chair please take a look at where you are at in that assignment. Final work needs to be completed and your open meeting agenda prepared. Please take advantage of teleconferencing, e-mail, etc to complete your committee work. This year, more than ever, it will be essential to have your committee work completed and your report submitted for the May newsletter. Also, in keeping with past year’s protocol you must have a meeting agenda submitted to Mike O’Neil in order to schedule committee time. With a four-day meeting this requirement will be strictly enforced. In closing I would like to extend a personal invitation to each and every one of you to join me in South Dakota for the annual AOSA/SCST Convention in June.
SCST Executive Director’s Report
January, 2002

Current Membership
RSTs 147
Research Members 11
Associate Members 64
CGTs 15

NEW CGTs- Congratulations to our newest members, Certified Genetic Technologists in the field of Herbicide Bioassay Testing!!

- Kevin Alberts
  Mid-West Seed Services
  236 – 32nd Ave.
  Brookings, South Dakota 57006
  Phone: 605-692-7611
  Fax: 605-692-7617
  Email: kevina@mwseed.com

- Kari Fiedler
  Mid-West Seed Services
  236 – 32nd Ave.
  Brookings, South Dakota 57006
  Phone: 605-692-7611
  Fax: 605-692-7617

- Sharon Hanson-Gutormson
  Mid-West Seed Services
  236 – 32nd Ave.
  Brookings, South Dakota 57006
  Phone: 605-692-7611
  Fax: 605-692-7617
  Email: sharonh@mwseed.com

- Ginger Light
  Texas Tech University
  P.O. Box 43131
  Lubbock, TX 79409-3131
  Phone: 806-667-3856
  Fax: 806-742-2963
  Email: gingerlight@rocketmail.com

- Tim Matthaei
  Mid-West Seed Services
  236 – 32nd Ave.
  Brookings, South Dakota 57006
  Phone: 605-692-7611
  Fax: 605-692-7617
  Email: timm@mwseed.com

- Douglas Miller
  Illinois Crop Improvement Assoc.
  3105 Research Road, Box 9013
  Danforth, IL 61826-9013
  Phone: 217-359-4053
  Fax: 217-359-4075
  Email: ilcrop@ilcrop.com

- Christina Sternhagen
  Mid-West Seed Services
  236 – 32nd Ave.
  Brookings, South Dakota 57006
  Phone: 605-692-7611
  Fax: 605-692-7617
Changes

- Terry Dunfield has moved to:
  Agri Seed Testing
  1930 Davcor Court SE
  Salem, Oregon 97302.
  Phone: 503-585-1440
  Fax: 503-588-0733
  Email: TCDagriseed@aol.com

- Michael Didricksen has moved to:
  USDA/ARS NSSL
  1111 South Mason St.
  Fort Collins, CO 8052
  Phone: 970-495-3239
  Email: mdideriksen@npa.ars.usda.gov

RMI to RST

- Bill Ebener is now at:
  Syngenta Seeds, Inc.
  P.O. Box 167
  Twin Falls, ID 83303
  Phone: 208-733-1777 ext. 22
  Fax: 208-733-1305
  Email: bill.ebner@syngenta.com

It's great to have you back!

RST to RMI

- Stacy Bierbordorf – USDA /ARS Fort Collins, Co.
- Sue Alvarez – Ransom Seed Lab, Carpinteria, CA.
- Anita Hall – AMM Seed Testing, Santa Barbara, CA.

As I settle into my new role as Executive Director I have had the pleasure of being contacted by many of our members. However, I would like to hear from more you. I am especially interested in receiving news flashes and other items of interest for Board Notes, the new SCST electronic newsletter. If you are an SCST member and have not received a copy of Board Notes please send me your email address or fax number and I will add you to the mailing list.

Anita Hall
SCST Executive Director
101 East State Street, #214
Ithaca, NY 14850
Phone: 607-256-3313
Fax: 607-256-3313
Email: anihall@aol.com
Proposed changes to the AOSA Bylaws for 2002

AOSA BYLAWS COMMITTEE

Jim Effenberger chair
California Department of Food and Agriculture

This year the Bylaws Committee received several requests from AOSA members to clarify the meaning of ARTICLE XI – RULES FOR TESTING SEEDS 3. Three major areas identified by the committee as needing clarification include: (1) Confusing words and phases such as “adopted” and “new kinds of varieties of seeds”; (2) Lack of clarity on the procedure for “Tentative Rules” to become Rules for Testing Seeds of the Association; (3) The apparent conflict between ARTICLE XI – RULES FOR TESTING SEEDS 3 and ARTICLE V – OFFICERS AND EXECUTIVE BOARD 3., c., (2), (e) on who has authority over approval of “Tentative Rules.” The committee could not agree on how to clarify these problem areas. Therefore, three suggestions with differing ideas on resolving the problems are presented here for the membership to consider and vote on at the Annual Meeting.

Current wording:

ARTICLE XI - RULES FOR TESTING SEEDS

3. Tentative Rules may be adopted upon concurrence of the Rules Committee and the approval of a majority of the Executive Board. The purpose of Tentative Rules shall be to give the membership of the Association an opportunity to apply methods of testing new kinds of varieties of seeds before final adoption of such rules. Tentative Rules may be published as an addendum to the Rules for Testing Seeds, but shall have no official status. When such Tentative Rules are adopted by the Association in accordance with Section 1 and 2 above, they shall become a part of the Rules for Testing Seeds of the Association. (1998)

ARTICLE V – OFFICERS AND EXECUTIVE BOARD

3. c.(2) The Executive Board shall have full responsibility at all times for the following specific duties.
   (a) Make financial arrangements for the publication and distribution of the journal, newsletter, Handbook on Seed Testing, and other publications of the Association. (2000)
   (b) In consultation with appropriate officers of the Society of Commercial Seed Technologists, set the time and place of annual meeting.
   (c) Approve special meetings of the Association of the Executive Board when the need for such has been determined to exist.
   (d) Decide elections in case of tie votes.
   (e) Approve tentative rules for testing seeds.
   (f) Approve minutes of annual meeting prior to publication.
   (g) Provide for the bonding of the Secretary-Treasurer.
   (h) Approve disbursements from Association funds.
   (i) Report all actions to the Association membership at each annual meeting.
Proposal #1

Purpose: This proposal clarifies the review and adoption process for tentative seed testing rules by eliminating current ambiguity in the Bylaws regarding the roles of the Rules Committee and Executive Board.

Proposed Wording:
ARTICLE XI - RULES FOR TESTING SEEDS

3. Tentative Rules are adopted upon review by the Rules Committee and the approval by a majority of the Executive Board. The Rules Committee will recommend to the Executive Board the adoption or rejection of a tentative rule and will provide a written evaluation. The final decision for adopting or rejecting a tentative rule rests with the Executive Board. The purpose of a tentative rule shall be to give the membership of the Association an opportunity to apply and evaluate a new method of testing seed before the method is submitted as a proposed rule to the Rules Committee. A tentative rule shall be published as an addendum to the Rules for Testing Seeds, but shall have no official status. When the Association in accordance with Section 1 and 2 above adopts a tentative rule, it shall become a part of the Rules for Testing Seeds of the Association.


Proposal #2

Purpose: This proposal clarifies the review and adoption process for tentative seed testing rules by defining the roles of the Rules Committee and Executive Board. This eliminates one of the specific duties of the Executive Board, and clarifies the requirement of concurrence of the Rules committee and the Executive Board prior to publication of any tentative rules.

Proposed Wording:
ARTICLE V – OFFICERS AND EXECUTIVE BOARD

3.c. (2) The Executive Board shall have full responsibility at all times for the following specific duties.

(a) Make financial arrangements for the publication and distribution of the journal, newsletter, Handbook on Seed Testing, and other publications of the Association. (2000)
(b) In consultation with appropriate officers of the Society of Commercial Seed Technologists, set the time and place of annual meeting.
(c) Approve special meetings of the Association of the Executive Board when the need for such has been determined to exist.
(d) Decide elections in case of tie votes.
(e) Deleted 2002
(f) Approve minutes of annual meeting prior to publication.
(g) Provide for the bonding of the Secretary-Treasurer.
(h) Approve disbursements from Association funds.
(i) Report all actions to the Association membership at each annual meeting.
ARTICLE XI - RULES FOR TESTING SEEDS

1. Tentative Rules will be published upon review and approval by the Rules Committee and the approval by a majority vote of the Executive Board. The Rules Committee will recommend to the Executive Board the publication or rejection of a tentative rule and will provide a written evaluation. Both the Rules committee and the Executive board must concur on the publication of any tentative rules. Without agreement between the Rules Committee and the Executive Board the proposed tentative rule will not be published. The purpose of a tentative rule shall be to give the membership of the Association an opportunity to apply and evaluate a new method of testing seed before the method is submitted as a proposed rule to the Rules Committee. A tentative rule shall be published as an addendum to the Rules for Testing Seeds, but shall have no official status. When the Association in accordance with Section 1 and 2 above adopts a tentative rule, it shall become a part of the Rules for Testing Seeds of the Association. (1998, 2002)

Proposal #3

Purpose: This proposal remove any possible confusion caused by using the word “adopted” in this section as it might be felt that the tentative rule is an official rule. It defines the roles of the Rules Committee and Executive Board and clarifies the procedure for “Tentative Rules” to become Rules for Testing Seeds of the Association.

Proposed wording:

ARTICLE XI - RULES FOR TESTING SEEDS

3. Tentative Rules are accepted for publication as an addendum to the Rules for Testing Seeds upon review by the Rules Committee and the approval by a majority of the Executive Board, but shall have no official status. The Rules Committee will recommend to the Executive Board the acceptance or rejection of a tentative rule. This committee will provide a written rational for their recommendation. The final decision for accepting or rejecting a tentative rule rests with the Executive Board. The purpose of a tentative rule shall be to give the membership of the Association an opportunity to apply and evaluate a new method of testing seed before the method is submitted as a proposed rule. For a tentative rule to become a part of the Rules for Testing Seeds of the Association, it must be submitted as a rule proposal to the Rules Committee, along with supporting evidence, and be adopted by the Association in accordance with Section 1 and 2 above. (1998, 2002)
FEBRUARY 2002 SCST SEED LIBRARY UPDATE

The following study materials are available to RST and CSA candidates (and anyone else who may wish to study them). All separation and identification sets contain only those species required for the RST or CSA examination.

SEED LIBRARY LOAN SETS

Identification (20 in each)

#1 Small Poaceae
#2 Medium Poaceae
#3 Large Poaceae
#4 Small Fabaceae
#5 Medium Fabaceae
#6 Large Fabaceae
#7 Apiaceae/Asteraceae
#8 Brassicaceae/Liliaceae
#9 Chenopod/Curcurbit
#10 Small Seed Mix
#11 Black Seed Mix
#12 Red Seed Mix (Small)
#13 Medium Seed Mix
#14 Red Seed Mix (Med/Lg)
#15 Tan Seed Mix
#16 Obovate/Teardrop
#17 Black Seed Mix II
#18 Medium Seed Mix
#19 Medium Seed Mix
#20 Wheatgrass/Bromes
#22 Poa/Panicum (25 in set)
#25 Small Brassicaceae

Separation (8 in each - 25 seeds per separation)

#101 Small Poaceae
#102 Large Poaceae
#103 Small Fabaceae
#104 Large Fabaceae
#105 Apiaceae/Asteraceae
#106 Brassicaceae/Liliaceae
#201 Species Separation/Small Poaceae
#202 Species Separation/Medium Poaceae
#203 Species Separation/Small Fabaceae
#204 Species Separation/Mixed Families
#205 Species Separation/Mixed Families
#206 Species Separation/Mixed Families

If you wish to obtain samples for study purposes or check out the identification sets, I can be reached at (360)419-3032, fax (360)419-3035, or e-mail: barbara_cleave@alfseed.com. You will be required to pay return postage on these items; ID sets are in full-page coin holders, and separation sets are in small mailing canisters.

Barbara L. Cleave, SCST Seed Library Chairman
CSAAC Update
December 2001

The CSAAC have received nothing but praise for their 57th Annual Meeting held jointly with the Canadian Seed Growers Association this past July. The Fun Fair was an excellent opportunity for our members to showcase some of the area of their expertise and of course to have a few laughs along the way. We are beginning our planning for a similar format for a Joint CSAAC/CSGA meeting in 2003 in Winnipeg Manitoba.

Results of discussions at our Annual Meeting last July, have led to some very exciting projects for CSAAC. A newly defined committee The Research and Review Committee has been formed by joining our previous Research and Referee Committee with the M&P Review Committee. The goal of this new committee will be to identify testing methods or procedures that are in need of amendment. The information collected from the CSAAC inter-laboratory testing referee, set in place a mechanism to supply CFIA with sufficient statistical data to effect change the Canadian Methods and Procedures. The Committee will have direct technical input from the CSGA as Jack Fotheringham agreed to serve on the Committee. Doug Ashton, Chief of Purity and Germination in the CFIA Ottawa Lab will serve in an ex-officio capacity. Doug will be able to offer direct planning advice that will assist CFIA to make changes to the M&P. It is our hope that the seed industry as a whole will see benefits from the functions of this committee.

The first project of the committee will be to review and discuss the results of the 2001 germination referee conducted on Phalaris arundinacea (Reed Canarygrass). The purpose of this referee was two fold. As with all our inter-laboratory referees, the first purpose is to review the results to maintain our goal of uniformity in testing throughout CSAAC member labs. The second purpose is to compare the germination method of the M&P, which requires an alternating temperature of 15-25 degrees Celsius, to the result from performing the germination method of AOSA rules that states 20-30 degrees Celsius. The results collected this summer are now being analyzed to determine if an alternate method should be added to the Canadian M&P. We will have the results of this review in a future CSAAC Breaking Dormancy News Flash.

Given the advances in genetic identification, CSAAC have begun the process to create a membership category, Genetic Purity Analyst. Working with the program designed by the Society of Commercial Seed Technologists, CSAAC will adopt their standards for training and educating our members who offer genetic purity services. It is our goals to be able to present this program proposal for voting at our 2002 Annual Meeting.

We have just returned from a Strategic Planning Workshop for our Board and Committee Chairs. The Board is very pleased and excited about the plans to begin this year. The group has set up three task force teams. Education, Expansion/Promotion and Professional Development.

The Education Task Force Team’s objective will be to define the education needs of our membership and then plan events and programs to meet those needs. This will begin with a survey, which was published in the November issue the CSAAC’s “Breaking Dormancy” News Flash. Using the survey results, the Team will define their focus for the next 12 months.
The Expansion/Promotion Task Force Team has set two objectives. One – the Expansion of the Association will commence with defining genetic membership and to put that new membership category to the members for voting in 2002. And two – the Promotion of the Association by promoting the Use and the Acceptance of the CSAAC Membership Seal. Better utilization of our website, news article in industry publications and developing materials that can be use by all our members, are items to be explored.

The Professional Task Force Team objectives are to investigate other professional organizations and their structures, looking at the legal and financial implications. They will seek out information regarding the number of professional accredited analysts currently involved in our system and the number of people practicing seed testing outside of our membership. This will provide the basis for pursuing professional recognition of CSAAC for its members.

The Strategic Planning group will meet in May 2002 to review their progress and issue a final report and review in November 2002. One of the important objectives of the reviews will be to build on the excellent communication and working relationship we have with the SCST and AOSA. We feel the outcome of these strategies will only enhance our relationships with all our seed testing colleagues.

The 2002 Annual Meeting of the CSAAC will be held May 25th at the Embassy Hotel, Ottawa Ontario. The meeting will be preceded by a CSAAC Regional Workshop hosted by CFIA Lab Services and will end with a meeting of the CSAAC Strategic Planning Team.

For further information we invite you to visit our website www.seedanalysts.com, where we have updated our membership listing to include the accreditation scope of each of our members and the accreditation scope of their Laboratories.

If you have any question about the Association, please feel free to contact the CSAAC office or any of the CSAAC Board of Directors.
The American White Wheat Producers Association (AWWPA) established the Lowell A. Burchett Award for Value-Added Agriculture, in honor of Lowell Burchett's career-long objective to improve the seed industry. AWWPA held their first meeting Friday, Sept. 21, in conjunction with the dedication of the Lowell A. Burchett Conference Room. The ceremony took place at the Kansas Crop Improvement Association headquarters in Manhattan. Pictured at the dedication ceremony are, sitting, left to right: Lowell Burchett and Connie Griffith. Standing: Cleta Roberts, Larry Kepley, Kent Symms and Marsha Walters.

**Lowell A. Burchett Honored at Kansas Crop Improvement Dedication Ceremony**

Commitment and Service Bring Recognition to Past KCIA Executive Director

A quarter century of leadership, progressive thinking and commitment were reasons to celebrate at Kansas Crop Improvement Association (KCIA). Lowell A. Burchett, former executive director of KCIA, was the guest of honor at a dedication ceremony on Friday, September 21, 2001 at the KCIA office in Manhattan.

The KCIA Conference Room was dedicated and renamed the "Lowell A. Burchett Conference Room" in honor of one of its past leaders. Burchett served as the KCIA executive director from 1973 to 1998. He was involved in numerous changes within the Association, ranging from field inspection standards, plant variety protection legislation, new certified varieties, as well as the physical relocation of the KCIA office. Most seedsmen would agree to call him the ambassador of the Kansas seed industry for the last quarter of a century.

In addition to the dedication, the American White Wheat Producers Association (AWWPA) inaugurated the Lowell A. Burchett Award for Value-Added Agriculture. Kent Symms, president of AWWPA, said the award was created in honor of Burchett's goals of adding value to seed production.
"Lowell's career was focused on making a better life for farmers," Symms said. "Therefore, the award is intended to increase the producer's involvement in and ownership of value-added processing, conditioning and marketing of their agricultural production."

Burchett said his professional life has revolved around the KCIA and that his 25 years was enjoyable because of the unique members of the Association.

"My time with KCIA has been outstanding," Burchett said. "My wife and I really appreciate the tremendous friendships and blessings we have had with KCIA. I have to thank the staff too, because they understood their main job was to make the boss look good. They managed to do that."

Daryl Strouts, executive director, said the dedication honors Burchett for his vision and leadership to the Association.

"We are lucky to have had such an energetic, hardworking leader like Lowell in the KCIA history books," Strouts said. "This presentation accurately describes Lowell's unique character. The conference room was dedicated in his name for his unyielding dedication to the Association and the seed and agriculture industry."
**Washington State Seed Lab Supervisor Retires**

On June 30, 2001, Ruth Selzler of the Washington State Seed Lab retired after 31 years of service. She first began on July 1, 1970, when she started as a lab helper. In 1973 she was reallocated as the lab assistant and became a Seed Analyst II in 1974. She was appointed Lab Supervisor in 1984. Ruth became the first analyst in the WA Department of Agriculture to take the certification exam and become a C.S.A. in 1986. She has worked through 3 Program Managers, 3 locations, and watched the never-ending challenges of Analysis change over the years.

Ruth's knowledge, skills, and dedication has kept an open door for communication between Washington's Seed industry and the seed lab. Ruth has always enjoyed her job and has developed a philosophy in that "A seed analyst is an artist in ID skills."

Ruth and her husband, John, will continue to reside in Yakima in their newly built home. They hope to do a lot of traveling and will be kept busy with children, grandchildren, and 1 great-grandchild. Ruth and all her family celebrated her retirement with a trip to Hawaii in the month of September.

Congratulations, best wishes and bon voyage!! You will be missed.

---

**In Memory of Louis Willard Harper**

June 4, 1936 – November 21, 2001

Louis Willard Harper passed away in San Luis Obispo, California, after a long illness. A memorial service will be held in Bozeman, Montana, in the summer of 2002. Lou was born on June 4, 1936, to Willard and Marie Harper in Livingston, MT. He attended Montana State College and graduated with a degree in agronomy in 1958 and a master’s degree in 1965. He was subsequently employed as an agronomist at Montana State College, in the seed laboratories at Iowa State University and the University of Kentucky; and by the Near East Foundation, under contract to U.S.A.I.D. in Morocco, Africa, where he was a seed certification and production agronomist assisting the Moroccan government. In 1977 he accepted a professorship in Crop Science at California Polytechnic State University, San Luis Obispo. Among the courses he taught was “Seed Production and Conditioning.” Lou was a member of the Association of Official Seed Analysts for a number of years and set a record for the California Seed Association when he became a member at a convention in Santa Barbara, putting CSA over the 200-member mark for the first time. In lieu of flowers, contributions may be made to the Louis W. Harper Memorial Crop Science Scholarship fund, Community Bank of Santa Maria, P.O. Box 5307, Santa Maria CA 93456, attention: Jim Glines
Mid-West Seed Services, Brookings, S.D.
Dec. 2001 - Expansion Recently Completed

MWSS has recently completed the 12,500 sq. ft. expansion of our facilities. This expansion is a continuation of our commitment to provide the highest quality facilities and testing services to the seed industry. Soybean sand testing, corn cold testing, DNA Laboratory and inventory/sample storage are the areas requiring space. To meet the increased demand for soybean sand tests and corn cold tests we added germination rooms, a sand chilling room and a streamlined sand covering and evaluation area.

Our 3,200 sq. ft. DNA Laboratory expansion added a state-of-the-art series of positive pressure, hepa-filtered DNA processing and amplification rooms designed to maintain sample identity. The radiant floor heat and hepa filtering systems within these rooms provides a state-of-the-art clean air facility. Radiant floor heating was chosen to prevent air from other areas of the laboratory from circulating into the DNA laboratories as would occur with a conventional forced air furnace system. Physically separating testing steps into different rooms and cleaning the air essentially eliminates the risk of air-borne cross contamination of samples. The five rooms include Sample Preparation Grinding, DNA Isolation, DNA amplification and Electrophoresis.

The grinding room is a hepa-filtered positive pressure room so air around the grinding machines is vented directly outside and is replaced by hepa-filtered air. We believe this brand new facility, along with our experienced staff and the latest in scientific testing equipment, provides our clients with the highest level of sample identity assurance available.

The DNA laboratory is under the direction of Dr. Weiping Zhang, and is staffed with four DNA Technologists. Services offered include GMO detection in grain and food products, Adventitious Presence (AP) in seed lots and Genotyping services for breeding projects.

A significant portion of our expansion is dedicated to sample and inventory storage. The 6,500 sq. ft. building will be used to store client testing samples, testing media and other testing supplies.

Another area of change is our computer data software and website data retrieval service. We spent the summer reinvesting into our sample information tracking software. Our former program is software originating from Montana State University in the early 1980’s and written in Dbase II. We are converting this software from a DOS based system over to Visual Foxpro, a windows-based database. We have always made our software changes in-house to allow greater flexibility and quicker response time for changes in testing services. Our website data retrieval work has focused on enhancing the sorting of data for clients.

For more information on MWSS and our testing services, please visit our website, www.mwseed.com today!
NEWS RELEASE – FOR IMMEDIATE RELEASE

Date: December 1, 2001

Mid-West Seed Services, Inc. of Brookings, South Dakota is pleased to announce the addition of four new staff members to our seed-testing laboratory.

Calvin Gellatly joined MWSS in August as a Seed Technologist in the Corn Laboratory. Calvin received a BS in Animal Science from South Dakota State University in Brookings, SD and a BS in Biology from Northern State University in Aberdeen, SD. Calvin’s responsibilities at MWSS include conducting germination and cold tests on corn.

Laura Harr joined MWSS in July as a Seed Technologist in the Soybean Laboratory. Laura received an Associates Degree in Agri-Business in May of 2001 from Lake Area Technical Institute in Watertown, SD. Her responsibilities include conducting herbicide, germination, vigor, purity and TZ tests on soybeans.

Brenda Johnson joined MWSS in November as a Technologist in the DNA Laboratory. She received her BS in Biology from Methodist College in Fayetteville, NC, her MS in Supervision in Secondary Education, from Texas A&M at Kingsville, TX and her Doctorate in Elementary Education from the University of South Dakota in Vermillion, SD. Brenda has several years of experience in DNA extraction and electrophoresis. Brenda’s duties at MWSS include extracting DNA and protein from seed and plant tissues, and assisting with the ELISA testing program.

Melissa Simpson joined MWSS in August as a Seed Technologist in the Corn Laboratory. Melissa received her AAS Degree in Crops and Soils Science at the University of Minnesota/Crookston in 1991 and her BS in Plant and Animal Systems from the University of Minnesota/St. Paul in 1999. She has experience in standard germination, vigor, analysis of physical traits, ELISA, and isozyme electrophoresis. Her duties at MWSS include conducting germination and cold tests on corn.

Mid-West Seed Services, Inc. is an independent seed testing laboratory that also offers quality consulting and contract research services. Germination, vigor, Bt corn, GMO (ELISA, PCR, and bioassays), purity and herbicide trait testing are some of the tests conducted. We test a wide range of species including: corn, soybeans, alfalfa, canola, cotton, rice, sorghum, sunflowers, cereals, grasses, native species, flowers, and vegetables.
 General and Technical Information

ISST BOARD OF DIRECTORS MEETING
CONFERENCE CALL
September 5, 2001

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

- APPROVAL OF MINUTES
Minutes from the July 18th, 2001 conference call were reviewed.

Sarah Foster-Stubbs moved to approve the minutes, Jean Tolliver seconded. Motion carried

The minutes of the board meeting need to be distributed to our members. It was debated whether these notes appear in our chapters’ newsletters or on our website. Since some information is sensitive in the minutes, it was felt that the minutes should just be available for members only. It was also recognized that the notes can be lengthy.

Betty moved that the board submits minutes to CSAAC and SCST, and they distribute them as they see fit. Lynn Seconded. Motion Carried

Following approval of the minutes, Barbara was asked to forward these to the respective chapters.

- TREASURER’S REPORT
Barbara Cleave forwarded the treasurer’s report to all board members for review prior to the meeting. Outstanding accounts payable include the publishing and mailing bill for July 2001 ISST Reports, and the 2001 ISST Grant payment for Dr. Jagadish.

Five Colleague members have been billed for this year’s dues. Payment should be received from them by the middle of October.

Debbie Meyer moved to approve the treasurer’s report. Sarah Foster-Stubbs seconded. Motion carried

COMMITTEE REPORTS

Mark Anfinrud (Research) and Brent Reschly (Public Relations) need to submit a full list of committee members by the next meeting on November 7, 2001.

- MEMBERSHIP COMMITTEE REPORT – Betty Girard
We have two new colleagues (from Netherlands and Nigeria), and there is one application awaiting payment and approval. Chapter applications are in the process of being sent out.
• **EXAMINATION COMMITTEE - Mike Dideriksen**
Mike has forwarded information concerning who is on his committee. We need an example of an examination so that potential members/chapters can see what is required to become an IST. Mike, with the help of his committee, will create an Examination Guideline to include an examination “model” and forward it to the board by September 13th. Sarah Foster-Stubbbs has agreed to give the committee input for the guidelines, as she has taken all three examinations (CSAAC, ISTA, SCST).

• **EDUCATION COMMITTEE - Dianne Gilhuly**
Dianne’s report was submitted to the board prior to the meeting and read as follows: Marie Greeniaus has agreed to represent CSAAC on this committee and Dianne has received a message from Pat Brownfield on Friday that she would be speaking to several SCST members in regards to other issues on Wednesday, and would get back to Dianne after those meetings with a suitable candidate. Once Dianne has an SCST member as recommended by Pat, she will update her committee member list. The committee’s first task will be to put together a list of available educational material that can be posted to the website.

• **EDITORIAL COMMITTEE - Miller McDonald**
The major activity of this committee in the last month was to distribute the July 2001 ISST Reports. Two thousand copies of ISST Reports at a publication cost of $1,300 were mailed directly to all chapter members in the U.S. and Canada, as well as ISST colleague members. In addition, 1 copy was forwarded to a new colleague member (Harry Nijensteine), 50 copies to New Zealand, 500 copies to Brazil, 100 copies to the International Seed Testing Association in Switzerland, 50 copies to FIS/ASSINSEL in Switzerland, 50 copies to AFTSA in Kenya, 50 copies to SANSOR in South Africa, and 100 copies to APSA Secretariat in Thailand. The remaining ISST Reports were equally divided and sent to Membership Director Betty Girard, and Secretary/Treasurer Barbara Cleave. Mailing costs for ISST Reports have not yet been received from the publisher. We are attempting to remain on schedule for publishing two editions per year in January and July.

• **RESEARCH COMMITTEE - Mark Anfinrud**
The ISST Research Committee needs to plan for the next year’s research grant, and send the information to Diane Mesa as soon as possible. The committee also needs to identify the recipient of this year’s grant for our members in SCST and CSAAC.

Guidelines for submission for the next grant should be posted on the website. We need to set the same date each year and stick with it; May 1st works well. We need to specify to the grant recipients that half of the money is up front and half later, and that the amount is in US dollars.

• **PUBLIC RELATIONS COMMITTEE – Brent Reschly**
Brent is awaiting printed material/posters that he designed for the ISST booth. These will be used in Brazil during the ABRATES meeting. Sarah has sent slides and pictures of seed testing related activities; these can be used for future booth displays.

We are still in need of a popular press article describing the function and activities of ISST. We have no article existing that does this. Miller suggested approximately a three page article to be placed in a magazine when they request information about ISST. It was understood that any interviews about ISST or comments should always come from our President. “Seed Today” has
expressed interest in publishing an article that details the function and activities of ISST, so we would like the article to be completed soon.

Sarah Foster-Stubbs has volunteered to write this popular press article.

- **ETHICS COMMITTEE – DaNell Jamieson**
DaNell will be returning for regular board meetings in mid-November.

- **LEGISLATIVE COMMITTEE - Jean Tolliver**
Jean held a meeting on August 23rd with her committee members. They are still in the process of researching program software for EXCERPT including start-up fees, cost related to initial purchase, and usage benefits. Frank Wilburn has been asked to become a member of the ISST Legislative committee, and the committee is also looking to get insight from Nancy Dionne concerning committee activities.

**STRATEGIC PLAN**

- **CHAPTER PACKAGE – Dianne Gilhuly**
Dianne’s report was submitted to the board prior to the meeting:
The objective was to create and distribute a chapter application package to at least 10 potential chapters by October 1, 2001. That objective is on target. Thanks to Betty and DaNell’s time and effort the package is complete. The package is professionally presented in a ½ inch binder with a cost of $34.00 to mail. Six have been distributed, and 10 more are ready to be mailed.

- **ESTABLISHMENT OF ISST CHAPTERS – Dianne Gilhuly**
Dianne’s report was submitted to the board prior to the meeting:
There is a lot of interest and activity as is evident by the e-mails that Miller has been sharing with the board. The Power Point presentation was distributed to the board for their feedback last week. We are behind the strategic planning schedule for receipt of Brazil’s chapter application, but are ahead of schedule in regards to communicating with other potential chapters. The plans are to identify Brazil’s potential members and get their application during the ABRATES Seed Congress later this month. Betty and Miller are wished much success as they attend this congress. A special thanks was given to Miller for all of the time that he has spent communicating with potential chapters.

In addition, Betty included information concerning potential chapters in New Zealand, Brazil, Nigeria, India, and Germany. All have received an ISST Chapter Package.

- **INTERNATIONAL CONTACT QUESTIONNAIRE - Barbara Cleave**
There were 5 responses to the SCST and CSAAC membership canvas. We were hoping for a better return than this. It was felt that we need to aggressively promote ISST within the SCST. Efforts will be made to publicize ISST within SCST.

Miller sent an e-mail with information concerning ISST to ISTA Congress attendees. He received very positive response to it. It was decided that our mission canvas used for the SCST and CSAAC be sent out by Miller to the e-mail addresses provided on the ISTA list.

- **ESTABLISH A FUNCTIONAL WEBSITE -Mark Anfinrud**
We currently have a website and are currently working on it’s improvement.
• ISST REPORTS SEED TECHNOLOGY INNOVATION ARTICLES - (Miller McDonald reporting for DaNell Jamieson)

Miller has recommended seed researchers and technologists to write articles for publication in “ISST Reports”.

HOTMAIL ACCOUNT

A Pop e-mail account was recommended instead of a hotmail account for the Membership Director. This would be an @isstech.org address available on the website. A password would initially have to be set up for the Membership Director, so that the mail could be checked. When a new Membership Director is elected, then the password could be changed. Miller will contact Roane concerning this.

Barbara moved to change the ISST Membership Director account from a business e-mail to a pop e-mail account on our website. Sarah seconded. Motion carried

ISST WEBSITE

Miller has been in discussion with ISTA concerning uniform seedling descriptions to be posted on our website. This is important, as we would like to keep a good working relationship with ISTA.

Roane Logan forwarded information concerning costs for a discussion board on our website. This would cost $300 to set up and $5/month to administer and would be used for posting normal/abnormal seedlings, or possibly a specific topic available for comment. This discussion board would not be effective if just any comment was on it; we would need to have someone to check and ensure that the question/posting was appropriate and actively getting response. This person would need to be someone familiar with seed technology, so that they would know how to monitor it. In any case, posted information would need to be reviewed. The board concurred that it was premature to have this, but it will be a possible website addition for the future.

The Colleague Membership application is now on the website. “How to become an IST” is not on the website and needs to be; this can be tied into the examination guidelines. There also needs to be photographs to make the presentation of the website more lively.

Debbie moved to add:
• The Research Committee call for proposals,
• Generic Membership Director email address,
• Information on “how to become an IST”,
• ISST Membership list to include member categories such as research, genetic or seed testing,
• A welcome address by the ISST President to visitors,
• ISST Committees and Chairs,
• ISST Constitution and By Laws,
• Educational link to include a seed herbarium and other materials,
• A listing of global activities, and
• An overview of ISST to our website.

Jean seconded. Motion carried
Jean moved to provide up to $500 for the previous website modification motion. Mark seconded. Motion carried.

The board would like information on what format to forward items to Roane Logan. We would like to make it as easy for him as we can, in an effort to save him time and reduce our costs. Miller will contact him concerning this.

CONSTITUTION AND BY LAWS

We need to use the old version of the Constitution and By Laws in terms of determining whether we have a quorum for this vote. This C&B states that a simple majority of returned ballots is needed to pass any change, and a 2/3 majority on returned ballots is needed to change the C&B.

The Constitution and By Law vote tally as of September 6, 2001 from returned ballots is as follows:

- 90 votes for, 2 votes against, 1 abstaining

For CSAAC, there were 38 ballots sent, and 19 returned. For SCST, there were 158 ballots sent, and 74 returned.

Lynn moved that based on the former constitution and vote return from the August 30th, 2001 ballot, we operate under the new ISST Constitution and By Laws. Jean seconded. Motion carried.

Barbara will send a current C&B to Roane Logan for website posting.

The new C&B that was just voted in states that 51% of all voting members of record is needed to effect any change (including the C&B). Because of the poor vote return, we would like to make some modification to this in the future. At this time, it is too soon after the recent ballot to be once again requesting a C&B change from our members. We will discuss how we would like to proceed with this in the next meeting.

This was such a large document for consideration in a ballot. In the future, we will have the opportunity of sending and voting on segments, and not voting on the whole document.

BRAZIL MEETING

Betty’s trip is set up, the booth is paid, and the presentation is together. Betty will be photocopying the Portuguese version of the pamphlet and bringing this with her. So far, she is within her budget.

Francisco Krzyzanowski has asked to put the membership brochure into the ABRATES newsletter; he has been given permission to do this. They have been very supportive of ISST.

Miller and Betty have agreed to send a trip report via email upon their return from Brazil.

ISST COLLEAGUE MEMBERS

The question arose as to whether we can have colleague members in ISST if there is an existing ISST chapter in the country. Morgan Webb stated that there are members who are not
being addressed by ISST, such as their Associate members. We need to support our chapters, but also be able to welcome new members. Betty will clarify what the restrictions are for Affiliate membership (CSAAC) and Associate membership (SCST) and bring it to the next meeting.

CHAPTER APPLICATION QUESTIONS

Any questions arising concerning potential chapter applications should be forwarded to the appropriate committee.

NON-PROFIT STATUS

Quentin regrets that he was unable to attend our meeting, but will clarify our non-profit status and where we are with this for the board via email.

ANNUAL MEETINGS

The C&B ballot brought forth at least two comments concerning how and when ISST will have annual meetings. Miller’s ideas for this were as follows:

1) Partner with ISTA and have it at the same time, or
2) Decide on a time frame and have meetings within chapters and the chapters take turns at hosting the meetings.

The general consensus was that partnering with ISTA is a good idea. We will have better cooperation with ISTA, and not another separate trip to pay for.

Mark moved that we discuss with Norbert Leist the possibility of partnering with ISTA for our annual meeting. Sarah seconded. Motion carried.

The next ISTA meeting is 3 years hence in Hungary; but ISTA is hoping to move to an annual meeting.

RECOGNITION AWARDS

We would like to recognize Quentin and Guin for their service to ISST; this could possibly be done during the welcome at the next SCST meeting with a presentation of a plaque.

Debbie moved that we pay for plaques to recognize both Quentin and Guin for their service, to be presented at the next Annual SCST meeting. Mike seconded. Motion carried.

CSAAC REPORT

Morgan Webb reported that the Commercial Seed Analysts Association of Canada annual meeting and convention was held in Fredericton, New Brunswick, July 10-13, 2001. Their website lists the CSAAC board of directors. Rodney Young became the newest honoree for lifetime membership. Highlights of CSAAC activity for ISST information are as follows:

- The M&P Review Committee and Research and Referee Committee have been combined into the new – Research and Review Committee
- CSAAC has a new proposal for their Continuing Education System. It is designed to encourage more involvement and would be based on a points system.
• CSAAC is researching the possibility of a Genetic Purity Analyst category and how this fits with CSAAC and CFIA.
• The quest to find if CSAAC P&G accredited Associate members, who work in international trade, can be recognized for status within ISST other than Colleague Membership.

CSAAC Upcoming activities include:
• September 20, 2001 – Eastern Workshop in Guelph, ON
• September 24 & 25, 2001 – Central Workshop in Brandon, MB
• October 26 & 27, 2001 – CSAAC Strategic Workshop, Winnipeg, MB
• January 2002 – Board Meeting Conference Call
• May 2002 – Next Annual Meeting, Ottawa, ON

NEW BUSINESS

Sarah has been contemplating the finances of our society. She feels that there are money making opportunities with regard to educational material. Miller has formed an *ad hoc* Committee composed of Sarah as Chair, Debbie, and Mike to consider items that might be profit making for ISST with Sarah to report at the next meeting and the committee to be disbanded with their job completed thereafter.

**Next Meeting November 7th at 11:00 a.m. ET.**

Meeting Adjourned.
Mail Irradiation and Seed

Dr. Richard Payne
United States Department of Agriculture
Seed Regulatory and Testing Branch
Beltsville, MD

The U.S. Postal Service has announced plans to irradiate mail in order to destroy anthrax spores. The Seed Regulatory and Testing Branch (SRTB) has been receiving questions about what effect this type of irradiation would have on seeds sent through the mail to customers of mail-order seed companies, as well as seed samples sent to seed laboratories for testing. The SRTB, working with the Centers for Disease Control in Atlanta, GA, packed samples of tomato, ryegrass, onion, alfalfa, barley, squash, pea, and garden bean seeds in paper envelopes and had them irradiated at the Titan Scan facility in San Diego, CA. The same dosage was used as that proposed by the U.S. Postal Service. Comparative germination tests were completed on the irradiated samples and on portions of the same samples that were not irradiated. The irradiated samples all had 0% germination with 0% abnormal seedlings and 100% dead seeds. The germination of the non-irradiated samples ranged from a high of 99% for the squash sample to a low of 71% for the onion sample. No hard seeds were detected in the alfalfa, pea, or garden bean samples. Concern about irradiation of the mail has been expressed by people and companies that send medical and other types of samples, medication, eyeglasses, film and other items through the mail.

Editors note: If your laboratory produces any test results at or near zero percent germination, determine how the sample arrived at the laboratory. If mailed, it may be necessary to request a new sample, to be delivered by a different method. Some seed testing personnel have expressed their concerns over the effects of irradiated mail to their local postal authorities.
Creped Cellulose Paper Ply Study
A.L. Patin And T.J. Gutormson
Mid-West Seed Services, Inc.

Introduction
Creped cellulose paper (CCP) was originally used in World War I as a substitute product for cotton bandages and was first introduced to seed testing in the late 1970s. In 1980, the Association of Official Seed Analysts (AOSA) adopted CCP into the rules as a substrate (anonymous, 1980; Danielson, R., 1980a; Danielson, R., 1980b). Since that time CCP has been continuously evolving as a germination substrate. In 1993, CCP manufactured from recycled product was compared to virgin fiber product (Gutormson and Burris, 1993), and found equivalent as a substrate for corn and soybean germination tests. In 1996, National Packaging Systems Corporation (NPS) acquired the CCP business from Kimberly-Clark and moved the machine that assembles individual plies into multiple CCP from Neenah, WI, to Green Bay, WI. Single ply tissue is purchased from independent suppliers/paper mills and NPS employs their machine to bond multiple plies into CCP for seed testing laboratories. Figure 1 illustrates the companies involved and the manufacturing process of CCP before it reaches seed laboratories.

Currently, the paper industry is undergoing a transformation toward efficiency as mills are consolidating and closing. Along with these changes, paper mills supplying tissue are increasing the base product (tissue) weight from 10.4 to 18 lbs. To stay competitive, NPS is investigating options to reduce items inventoried while utilizing the high base weight tissue it obtains from suppliers.

To determine if this change in CCP would still provide a reliable substrate product, in July 2001a study was initiated to evaluate base product weight change and resulting ply number reduction.

Materials and Methods
An experiment was conducted on 14, 20, and 24 ply CCP to determine if any differences in germination or vigor test results occurred. Four species were evaluated: corn, sorghum, soybean, and sunflower. Cold germination tests were performed on corn, sorghum, and soybean while warm germination tests were performed on corn, soybean, and sunflower. A warm sand germination was also performed on soybeans. For each species tested four seed lots were selected. The 14, 20, and 24 ply CCP were supplied by NPS. AOSA Rules and Mid-West Seed Services, Inc. Standard Operating Procedures (SOPs) were followed for each method. Eight replicates of 100 seeds were evaluated for cold germination tests, and sixteen replicates of 100 seeds were evaluated for warm germination tests. At the conclusion of each testing period, the seedlings were evaluated in accordance with AOSA Rules for Testing Seeds. Normal germination and any abnormalities were reported. At the end of the testing period CCP moisture was visually evaluated as dry, moist, or wet. CCP absorbency was compared between
14 and 24 ply. The substrate water-holding study was conducted by watering four replicates of 14 and 24 ply CCP for both warm (600ml) and cold (400ml) sized CCP. The CCP was allowed to equilibrate for 10 minutes and then tilted at an approximate 45-degree angle for three minutes, the excess water was collected into a beaker and the number of milliliters collected was recorded. Statistical analysis of data was performed by MSUSTAT, version 5.02 (Lund, 1991).

Results and Discussion
Germination means varied less than three percent across CCP plies (Table 1). No significant differences were found between CCP plies for corn, soybean, and sunflowers warm germination tests. For cold germination tests significant differences were only found for the cold sorghum test, the difference occurred between 14 and 20 ply, 80 and 77 percent respectively. These results indicate that for warm and cold germination test results, on the species evaluated, no significant differences occur between 14 and 24 ply.

Table 1. Mean normal seedling germination percentages of four seed types and three testing methods on 14, 20, and 24 ply CCP.

<table>
<thead>
<tr>
<th>Seed Type</th>
<th>Test</th>
<th>14 Ply</th>
<th>20 Ply</th>
<th>24 Ply</th>
<th>LSD (0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>Cold</td>
<td>85 A</td>
<td>86 A</td>
<td>85 A</td>
<td>1.483</td>
</tr>
<tr>
<td>Corn</td>
<td>Warm</td>
<td>94 A</td>
<td>94 A</td>
<td>94 A</td>
<td>0.7720</td>
</tr>
<tr>
<td>Sorghum</td>
<td>Cold</td>
<td>80 B</td>
<td>77 A</td>
<td>79 AB</td>
<td>1.673</td>
</tr>
<tr>
<td>Soybean</td>
<td>Cold</td>
<td>70 A</td>
<td>67 A</td>
<td>70 A</td>
<td>2.384</td>
</tr>
<tr>
<td>Soybean</td>
<td>Sand Germ.</td>
<td>82 A</td>
<td>81 A</td>
<td>82 A</td>
<td>1.413</td>
</tr>
<tr>
<td>Soybean</td>
<td>Warm</td>
<td>86 A</td>
<td>86 A</td>
<td>86 A</td>
<td>1.098</td>
</tr>
<tr>
<td>Sunflower</td>
<td>Warm</td>
<td>96 A</td>
<td>96 A</td>
<td>95 A</td>
<td>0.5886</td>
</tr>
</tbody>
</table>

All observed moistures were considered “moist” except for soybean warm sand germination, which was considered wet for sample one. “Moist” was considered adequate moisture present without excess water, which may inhibit seedling growth. High moisture levels were found across all three CCP plies.

Substrate water holding capacity (Table 2) was similar between the 14 ply and the 24 ply for both warm and cold CCP sizes. It should be noted that equilibration time for the substrate absorbency test presented in Table 2 was 10 minutes while Mid-West Seed Services, Inc. normally allows an equilibration time of sixteen hours. This added time permits the water applied to the CCP to become fully absorbed.
Table 2. Mean dry weight, run-off, and absorbency of 14 and 24 ply CCP for both warm and cold sizes

<table>
<thead>
<tr>
<th>CCP size (inches)</th>
<th>PLY</th>
<th>Dry Weight g</th>
<th>Run-off ml</th>
<th>ml absorbed</th>
<th>g/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm (16.5 x 24)</td>
<td>14</td>
<td>106.1</td>
<td>41.1</td>
<td>558.9</td>
<td>0.190</td>
</tr>
<tr>
<td>Warm (16.5 x 24)</td>
<td>24</td>
<td>98.4</td>
<td>84.1</td>
<td>515.9</td>
<td>0.191</td>
</tr>
<tr>
<td>Cold (16.5 x 12)</td>
<td>14</td>
<td>53.0</td>
<td>70.9</td>
<td>329.1</td>
<td>0.161</td>
</tr>
<tr>
<td>Cold (16.5 x 12)</td>
<td>24</td>
<td>47.4</td>
<td>69.7</td>
<td>330.3</td>
<td>0.144</td>
</tr>
</tbody>
</table>

Literature Review
As the world becomes smaller and smaller, we are seeing more seed grown in other countries around the world. Identification of weeds from these areas can be a difficult problem. The following books are in Chinese, with Latin names for each of the species illustrated. All of these are from Wanhai Books, Chinese Bookseller and Publisher on Natural History Catalog 21 (2001).

Wanhai Books Fax: +86-10-63420499
Her. (PE) Bot. Ins. CAS E-mail: wanhaisa@163bj.com
20 Nanxincun, Xiangshan or: wanhaibooks@ns.ibcas.ac.cn
Beijing 100093, P. R. China Tel: +86-10-62591500


The black and white line drawings of 820 species in 69 families are clear and easily identifiable. Familiar species jump off the page, with an alarming number of similar new species. Each line drawing is of a single seed with a bracket and scale in millimeters. The text is in Chinese, including unfortunately the keys. The Latin name and botanical nomenclature are in English, and there is a complete English index at the end.


The illustrations in this book are color photographs. Each of the 407 species is illustrated with several examples of the seed. For example, the photograph of Setaria geniculata has top and bottom views of the seed in the glumes, without the glumes and the free caryopsis for a total of six seeds. Some of the illustrations include a longitudinal and cross section of the seed showing embryo placement. There are keys and descriptions in Chinese, with Latin names and size measurements in English. There is an English index as well.

ISBN 7-109-04274-x (B4405) $136.00 Hardback 1617 pp.

This book illustrates the seeds of 1,454 species of 592 genera in 106 families. The text is in Chinese with the Latin names and index in English. If someone wants to buy this, I would love to see it! Thanks again to the Tiffney-Gowan-Wen family for introducing me to this bookseller.
2002 Annual Meeting

AOSA/SCST Convention
June 12-18, 2002
Work and Play in South Dakota

AGENDA
AOSA Planning & Exhibitor Setup
June 12

Adventitious Presence (AP)
Symposium and Workshop
June 13

ISTA Vigor Workshop
June 14

AOSA/SCST Annual Meeting
June 15-18

Participant Registration Form
Exhibitor Registration Form

Local Attractions

Join us at the 2002 AOSA/SCST meeting in Sioux Falls, SD. We are excited to host the convention! We are planning a meeting that updates you on seed testing and provides an opportunity to exchange ideas and information with colleagues.

For more information or to send suggestions please contact one of the following 2002 committee members:

Brent Turnipseed, SDSU
Brent_Turnipseed@sdstate.edu
Tim Gutormson, MWSS
timg@mwseed.com
Ronny Parmely, BGS
biogene@brookings.net
Tim Matthaei, MWSS
timm@mwseed.com
Kalyn Brix-Davis, MWSS
kalynb@mwseed.com
Sharon Hanson-Gutormson, MWSS
sharonh@mwseed.com
Mary Thompson, SDSU
Mary_Thompson@sdstate.edu
# AOSA/SCST Convention

**June 12-18, 2002**  
**AOSA/SCST Annual Meeting**  
**DRAFT AGENDA Version 12-13-01**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
</table>
| **Wednesday  June 12th** | 8am - 5pm **AOSA Strategic Planning Committee**  
6:30pm-10pm AP Workshop Station/Exhibit Setup |
| **Thursday- June 13th** | 8am – 5pm **Adventitious Presence Symposium & Workshop**  
7pm – 8pm SCST meet with exam candidates |
| **Friday - June 14th** | 8am - 5pm **ISTA Vigor Workshop**  
8am – 5pm SCST RST Examination  
8am – 3pm SCST RGT Written Examination  
8am - 5pm Exhibitor setup  
8am – 5pm SCST Board Meeting  
8am – 9pm AOSA Board Meeting  
6:30pm – 7:30 pm Exam Results  
7:30pm – 9:30pm SCST Chair Meeting (dinner provided) |
| **Saturday - June 15th** | 7am – 8:30am Breakfast buffet during Opening Session  
8am – 10am Joint Opening Session  
10am – Noon Committee Meetings  
Noon - 1pm Lunch Buffet  
1pm – 3pm **ISST Board of Directors**  
1pm – 4pm Committee Meetings  
1pm – 5pm **Stats Committee Workshop**  
4pm - 9pm BBQ & Tours in Brookings  
10am - Noon Open joint rule proposal review  
Noon - 1pm Lunch Buffet  
1pm – 4pm Committee meetings  
1pm – 4pm SCST Long Range Planning  
1pm – 8pm ISST Strategic Planning  
5pm – 10pm AOSA/SCST Banquet |
| **Sunday - June 16th** | 6:30am Bean Buddy Walk  
8am – 10am **Invasive Species Symposium**  
10am - Noon Open joint rule proposal review  
Noon - 1pm Lunch Buffet  
1pm – 4pm Committee meetings  
1pm – 4pm SCST Long Range Planning  
5pm – 10pm AOSA/SCST Banquet |
| **Monday - June 17th** | 7am - 8am Breakfast Buffet for SCST/AOSA  
8am – Noon Committee Meetings  
Noon – 1pm Lunch Buffet  
1pm – 2pm Committee Meetings  
2pm – 5pm Research Papers & Referee Session  
4pm – 6pm Posters and “Taste of SD” Reception  
7pm – 9pm Exhibitors take down displays |
| **Tuesday June 18th** | 7am –8am Breakfast Buffet  
8am – Noon SCST Business Meeting  
10am –11am **AOSA Board Meeting**  
1pm – 5pm 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_________ZipCode______________
Email___________________________Fax______________________
Work phone_____________________Home phone__________________
Emergency contact_______________ Phone_______________________
Spouse/Guest
Names_____________________________________________________
Children_______________age_________            ___________________age____
Children_______________age_________            ___________________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 _______
Photograph SCST___ AOSA___ $14 ea  ______
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.

Obtain registration form online at:  www.aosaseed.com  www.seedtechnology.com

Register by mail: SDSU Seed Lab., Plt. Sci. Dept., PO Box 2207A, Brookings, SD 57007.

Register by fax: 1.605.688.4013 (attention Dr. Brent Turnipseed).

Method of Payment: 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. Participant Information (One form per Attendee)

Name and
Title_____________________________________________________
Company________________________________________________________
Address____________________________________________________________
City________________________________State______Zip Code_____________
Email_________________________________Fax___________________
Work phone_________________________ Home phone______________________
Emergency contact__________________________phone_____________________
Additional 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 6-8pm.

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 _________
Photograph        SCST___ AOSA___                           $14 ea  ________
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.

Obtain Registration form online at: www.aosaseed.com     www.seedtechnology.com

Register by mail: att: Dr. Brent Turnipseed SDSU Seed Laboratory, Plant Science Dept.
PO Box 2207A Brookings, SD 57007    Phone 605.688.4120 Fax 605.688.4013

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

4. 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.
Seed Vigor Workshop
June 13, 2002
Ramada 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.

Adventitious Presence (AP) Symposium and Workshop
June 13, 2002
Ramada Inn
Sioux Falls, South Dakota

The AP Symposium will contain three sessions addressing the AP concerns of Policy, Sampling and Methodology on the morning of June 13, 2002. Session One will cover World, European and North American policy and positions on AP in seed. Session Two will include presentations on sampling and statistical estimates of AP. The final session will address the methodologies available to evaluate AP in seed. Protein, DNA (qualitative and quantitative), standards, test characteristics and test validation will be discussed in Session Three.

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 will include PCR/ELISA equipment companies, PCR/ELISA testing kit manufacturers, GM and AP testing labs, electrophoresis equipment and supply companies, and other AP related topics.

Local Attractions & Activities
a. Select sites and attraction to view special events in Sioux Falls at www.siouxfalls.org/welcome.asp and www.siouxfalls.com

2. Destination Information (photo of Badlands #2)

a. Find visitor information, airline transportation, car rentals and hotel information at www.siouxfallscvb.com/visitorsintro.cfm.
b. To find out about possible sites to explore in our state while you are here visit www.state.sd.us
Examinations to Be Held at AOSA/SCST Annual Meeting

Examinations for Registered Seed Technologist (RST), Registered (RGT) and Certified Genetic Technologist (CGT) will be given on June 14, 2002. The Annual meeting will be held in Sioux Falls South Dakota and the examinations will be given at Mid-West Seed Services, Inc. Laboratory in Brookings South Dakota (45 minutes miles north of Sioux Falls). RST, RGT & CGT applications must be submitted to Anita Hall, SCST Executive Director by March 1, 2002. Applications can be obtained from the SCST website (www.seedtechnology.net).

The RST examination is composed of two written and three practical examinations, which require a full day of testing. The RGT examination includes four written examinations and one practical examination (herbicide bioassay) will also be available on June 14th.

An evening meeting for all candidates will occur on June 13th at 7pm in the Ramkota Hotel in Sioux Falls. Candidates will depart from Sioux Falls at 7am on June 14th and travel to Brookings by van and testing will commence at 8:30am.

For more information on examinations contact Anita Hall (anihall@aol.com) or Tim Gutormson (timg@mwseed.com).

RST Examination Content for 2002

Germination Written Exam       - 70% Germination, dormancy, viability questions
                                - 15% Tetrazolium questions
                                - 15% Vigor questions

Purity Written Examination      - 85% Purity questions
                                - 15% Quality Assurance questions

Germination Practical Examination - 90% Seedling classification
                                - 10% Tetrazolium staining

Purity Practical Examination    - 90% seed separation, classification, purity component calculations, multiple floret determinations & uniform blower usage.
                                - 10% Gamet divider usage (5% practical usage).

Seed Identification Test – 100% seed ID – 50 species @ 2 points each
CALL FOR RESEARCH PAPERS AND POSTERS
2002 AOSA/SCST MEETING

We would like to encourage individuals who have worked on developing germination, purity, cultivar identification, and vigor testing methods or other aspects of seed physiology to present a short paper or poster at the annual meeting of the two associations in Sioux Falls, South Dakota on June 13 - 19, 2002. It is important that association members hear and see some of the new scientific approaches to seed quality evaluation and other seed related topics.

Please prepare an abstract in the format suggested below and send it to Loren Wiesner no later than March 1, 2002. Abstracts received by that date will be published (as submitted) in the May 2002, Seed Technologist Newsletter. Please indicate if the presentation is oral or poster.

An abstract should:

- State the rationale for the study and the objectives or hypotheses in one to two sentences,
- briefly describe the materials and methods, results, and their applications or conclusions,
- identify the crops, as well as chemicals or other details that help explain the results,
- do not cite figures, tables or references in the abstract,
- limit the abstract to 400 words or less, and
- use Times New Roman font and at least a 12 point size of letters.

Please include the address and institution or company of the corresponding author, phone number and e-mail address. In the case of multiple authors for oral presentations, please indicate the corresponding author and the individual who will make the presentation.

The abstracts can be submitted by e-mail as text or as a Wordperfect or Word attachment to:

lwiesner@lamar.colostate.edu

or send hard copy to:

Loren Wiesner
National Center for Genetic Resources Preservation
1111 S. Mason St.
Fort Collins, CO 80521-4500
Workshops and Seed Schools

SUMMER SEED ANALYST WORKSHOPS

Two five-day Seed Analyst Workshops will again be held at the National Seed Storage Laboratory on the Colorado State University (CSU) campus in Fort Collins, Colorado, July 15-26, 2002. These well received, beginning level workshops, given by CSU professors and National Seed Lab staff, are each restricted to 10-20 students. These two workshops constitute the most comprehensive, in depth, hands on Laboratory Training Programs in Purity and Viability that are available for beginning analysts.

The July 15-19 workshop, “Seed Identification and Purity Analysis,” provides an extensive hands-on experience with seeds of legumes, cereals, grasses, revegetation species, vegetables and flowers. Noxious weeds common to these groups are emphasized. Participants in this workshop will have the opportunity to collect seeds of many different grasses and legumes.

The July 22-26 workshop, “Seed Viability,” offers lectures and practical experience in viability testing, including germination dormancy, vigor and tetrazolium. An educational tour of regional seed labs is included with this workshop.

The fee for each workshop, including materials, is $200 ($350 if both workshops are taken). Reasonable accommodations are available in nearby motels. The workshops are an excellent preparation for taking the qualifying exams to become a Registered Seed Technologist (RST) or a Certified Seed Analyst. The workshops provide a review of fundamentals of seed anatomy, identification, purity, physiology, and viability testing.

They are also ideal for:

- professional analysts desiring a review
- county agents
- seed company personnel:
  - conditioners
  - purchasing
  - production
  - management
- high school vocational education teachers (FFA)

The workshops are offered in conjunction with the Seed Analyst Training Program offered by CSU through their Division of Educational Outreach. This program introduced in early 1998, is comprised of the following courses, some of which may be prerequisites for the workshops, depending on the student’s training and experience:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC200Seed</td>
<td>Anatomy &amp; Identification</td>
<td>1 cr.</td>
</tr>
<tr>
<td>SC201Seed</td>
<td>Development &amp; Metabolism</td>
<td>1 cr.</td>
</tr>
<tr>
<td>SC300Seed</td>
<td>Purity Analysis</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SC301Seed</td>
<td>Germination &amp; Viability</td>
<td>2 cr.</td>
</tr>
</tbody>
</table>
These courses may be taken throughout the year, anywhere in the world. To date, over 30 students have enrolled representing 35 states and 7 countries. The courses are recommended by AOSA/SCST for beginning and experienced seed analysts. Credits apply towards points needed to take the RST accreditation examination.

For further information on the courses and workshops, contact:

Colorado State University
Division of Educational Outreach
Spruce Hall
Fort Collins, CO 80523-1040
Phone: 1-877-491-4336 OR 1-970-491-5288
E-Mail: info@learn.colostate.edu
Web Site: www.learn.colostate.edu

In conjunction with the courses and workshops, the following two publications, which include color seed photographs, are offered at a cost of $75 each plus postage and handling:

"PHOTOGRAPHS OF SELECTED CROP AND WEED SEEDS," and

"SEEDS OF NOXIOUS WEEDS FOR THE UNITED STATES."

For information and to order, contact:

Carissa Schow
Colorado State University
Soil & Crop Sciences Department
C-109 Plant Science Building
Fort Collins, CO 80523
Phone: 970-491-6295
Fax: 970-491-0564
E-Mail: cschow@lamar.colostate.edu
NATIVE GRASS SEED WORKSHOP
REGISTRATION
Ft. Collins, Colorado
Feb. 26-27, 2002

(one participant per form please, photocopy for additional registrants)

Name: _______________________________________________________
Title: __________________________________________________________
Company: ______________________________________________________
Address: _______________________________________________________
City, State, Zip: ________________________________________________
Phone: ( ) ___________________ Fax: ( ) __________________
Email: _________________________________________________________

Please mark one:

_____ Enclosed is $150 for my registration for Feb. 26-27, 2002

_____ I am faxing this in, I will also mail a copy and enclose my check for $150

_____ Please charge the $150 registration fee to our account.

Please register online or fax to 605-692-0977 and then mail a copy of completed
registration form with your payment to:

Mid-West Seed Services, Inc.
Attn: Native Grass Seed Workshop
236 32nd Ave.
Brookings, SD 57006
Phone: 605-692-7611  Fax: 605-692-0977

For more information or to register online, visit our website:

www.mwseed.com
Seed Technologist Training Workshops  
May 20-24, 2002  

Hosted by: Mid-West Seed Services, Inc.  
Brookings, South Dakota

**Brookings, SD** - This workshop is designed for seed analysts, seed technologists, quality assurance managers and others interested in traditional and new technologies in seed analysis. The format of the workshop includes lecture sessions followed by hands-on experience. We always have an excellent array of instructors that are widely respected in their fields. Registrants may attend any combination of the following workshop sessions:

**Seed Analysis and Seed Identification Session - May 20-21, 2002**  
The seed analysis session includes seed botany, reviews of grass seed and legume seed structure, discussion of AOSA Rules for Testing Seed, review of tolerances in testing and several sessions on seed identification.

**New Technologies Session - May 22, 2002**  
Topics covered in the New Technologies session will include: herbicide trait testing, ELISA for Bt traits, PAGE and starch gel electrophoresis, PCR principles and demonstration, and traditional varietal purity tests. Format will be lecture followed by hands-on experience.

**Germination, Vigor and Viability Session - May 23-24, 2002**  
This session will include lectures on seed development and maturation, fungal identification, water uptake, seed metabolism, AOSA Rules for Testing Seed, seed dormancy, seed vigor and crop performance, standardization of vigor tests, and computer imaging presentation for the identification of seeds and seedlings.

**Travel Arrangements**  
Brookings is located 45 minutes north of Sioux Falls, SD and is served by United, TWA and Northwest Airlines. Rental cars are available at the airport.

**Weather in May**  
South Dakota is famous for it’s wide variety of weather. Typical mid-May highs are in the 70’s with average lows in the mid-40s. It can vary from clear and sunny to overcast and rainy.

**Registration:** Individuals may choose to attend any or all sessions of the workshop. The workshop will be credited towards RST training/continuing education. Contact:

Mid-West Seed Services, Inc.  
605-692-7611 Phone  
236 32nd Ave.  
605-692-0977 Fax  
Brookings, SD  57006  
Email: info@mwseed.com

For further details or to register online, please visit our website: [www.mwseed.com](http://www.mwseed.com)
Monday, February 18, 2002, 8:30 am to 5:00 pm
Seed Trait Testing Workshop ($100)
Seed Science Center, ISU, Ames, Iowa

This workshop will give you an opportunity for “hands-on” experience plus training in the latest strategies in genetic seed testing.

Tuesday, February 19, 2002, 8:00 am to 4:30 pm
Seed Technology Conference ($110)
Scheman Building, ISU, Ames, Iowa

Theme: GMO’s and the Seed Industry
Welcome by Dean Catherine Woteki
Global Status of GMO’s
Barriers to Movement
Starlink
The New Farm Bill
Panel
National Seed Health Celebration
Risk Management of Adventitious Presence
Pollen study
Sampling and Testing-Two Companies’ perspective
Panel Discussion
Updates
Bean Pod Mottle Virus
Soybean Cyst Nemodes
Seed Quality
Bulk Handling
ICIA Annual Meeting (optional)

Wednesday, February 20, 2002, 8:30 am to Noon
Seed Plant Design & Improvement Workshop ($85)
Seed Science Center, ISU, Ames, Iowa

This workshop will discuss the principles of proper seed plant design and its effect on seed quality. Primary emphasis will be on seed corn and soybean seed plant design, although the principles are applicable to other seeds as well. A segment will be devoted to improving the existing seed plant through remodeling. New developments in seed drying, cleaning, and handling equipment and technology will also be discussed.

Call Deb to register or for more information: 515.294.5961
Purity Short Course
Iowa State University Seed Science Center
April 22 – 25, 2002

Come to the ISU Purity Short Course in Ames, Iowa from Monday, April 22 to Thursday, April 25, 2002. This short course is for anyone that is considering taking the purity exam in the
future*, or needs a refresher course on purity, or wants a basic background in seed purity. From beginners to experienced analysts, this short course offers something for everyone.

The experienced staff will provide hands-on training and lectures throughout the week. The price for one week of training is $225. The price for both weeks (purity and germination) is $375. For more information, please call Deb at (515) 294-5961.

**Lecture Topics**
- Rules for Testing Seed
  - Purity and Noxious
  - Seed Sampling
  - Multiple unit procedure
  - Uniform blowing
  - Tolerance for purity
- Seed Structures
- Iowa Crop Certification
- Seed Coating
- Seed Law and Enforcement

<table>
<thead>
<tr>
<th>Type of Seed</th>
<th>Student Involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans</td>
<td>Conduct purity analysis and noxious weed check</td>
</tr>
<tr>
<td>Oats, barley, wheat and rye</td>
<td>Make and key and separate</td>
</tr>
<tr>
<td>Alfalfa, red clover and sweetclover</td>
<td>Learn to identify</td>
</tr>
<tr>
<td>Mixture (alfalfa, red clover and sweetclover)</td>
<td>Separate into three species</td>
</tr>
<tr>
<td>Ryegrass, tall fescue, creeping red fescue, quackgrass, western and slender wheatgrass, white clover and alsike clover</td>
<td>Learn to identify, mix together and then separate</td>
</tr>
<tr>
<td>Orchardgrass</td>
<td>Sample blown, conduct purity analysis</td>
</tr>
<tr>
<td>Timothy, oats, rye, red clover, crownvetch, sorghum, sudangrass, ryegrass, tall fescue, bromegrass, birdsfoot trefoil, Korean lespedeza, Kentucky bluegrass, millet, redtop, bentgrass, lawn grass seed mix, prairie seed mix</td>
<td>Conduct purity analysis</td>
</tr>
<tr>
<td>Other kinds of seed upon request</td>
<td>Varies according to request</td>
</tr>
</tbody>
</table>

**Germination Short Course**

**Iowa State University Seed Science Center**

**April 29 – May 2, 2002**

The ISU Germination Short Course will be held in Ames, Iowa from Monday, April 29 to Thursday, May 2, 2002. This short course is for anyone that is considering taking the germination exam in the future, or needs a refresher course on germination, or wants a basic background in seed germination. From beginners to experienced analysts, this short course offers something for everyone.

* Certified Seed Analyst Purity Exam offered free of charge on Friday, April 26, 2002 following the short course
* Certified Seed Analyst Germination Exam offered free of charge on Friday, May 3, 2002 following the short course
The experienced staff will provide hands-on training and lectures throughout the week. The price for one week of training is $225. The price for both weeks of purity and germination is $375. For more information, please call (515) 294-6821.

**Lecture Topics**

- Rules for Testing Seeds
- Classification of Plants
- Seed Dormancy
- Fungi Identification
- TZ Test
- Seedling Vigor
- Genetically modified seeds
- Trait Testing overview
- Seed Pathology
- Seed Health

**Student Involvement**

- Evaluate soybean, garden beans, peas, corn
- Cutting for TZ of corn, wheat, oats, sorghum, fescue, alfalfa, soybeans
- Evaluate corn, wheat, oats, sorghum, garden beans, fescue, alfalfa
- Evaluate sunflower, zinnia, tomato, squash, onion, lettuce, asparagus, radish
- Evaluate cold test, saturated cold test, AA test
- Other seeds reviewed upon request
- Discussion session-season’s challenges

**AOSA Certified Seed Analyst Exams**

The Iowa State University Seed Science Center will be offering the following Certified Seed Analyst Exams:

- Purity – Friday, April 26, 2002
- Germination – Friday, May 3, 2002

Contact Bonnie Crippen at (515) 294-6826 to reserve a space to take either one or both exams. If desired, AOSA Short Courses are offered on the same topic preceding each exam.
2003 AOSA/SCST Annual Meeting Reminder
Seattle, Washington

We would like to remind everyone to mark their calendar for the June 5th-10th 2003 Annual AOSA/SCST Meeting. The location is Seattle, at the Double Tree Suites, South Center. The hotel is just a short distance from the SeaTac airport. The hotel will provide free parking to guests and an airport shuttle. Within walking distance there is a large shopping mall, various stores and restaurants. We plan on having a great meeting with lots of fun activities in and around Seattle. Watch for more detail in upcoming editions of the newsletter.

We hope to see everyone there!

Washington State Department of Agriculture and Washington Seed Analyst Association.
The 6th ISTA Seminar on Statistics
22-28 June 2002
Hosted by
Oregon State University
Corvallis, Oregon

The aim of ISTA Seminar is to promote exchanges between participants from different backgrounds, statisticians working on seeds, as well as persons from the laboratories who would like to stand back from their everyday job and refresh or improve their knowledge in statistics, even if their level is basic.

Draft program:

* Monday AOSA/ISTA day (tolerances, lot size)
  * Tuesday morning session on proficiency testing with ISTA Referee Committee, afternoon social program
  * Wednesday working session on use of analysis of variance in seed testing and visit of technical facilities
  * Thursday morning working session on various topics, afternoon social program
  * Friday morning open discussion and reports from participants, closing of the seminar at noon

A more detailed program will be issued in April 2002.

The number of participants will not exceed 35 people. First registered persons have priority. Participants who filled in the form in Angers are kindly requested to re-confirm their intention to come.

Please complete the Pre-registration Form on the following website:
http://www.seedtest.org/STA/STA6Sem_1.cfm

You can also mail your information to:

Sylvain Gregoire
GEVES, La Minière, 78285 Guyancourt Cedex, FR-France
or Fax: +33 1 30 57 01 47

Each person will receive confirmation of receipt of their pre-registration as to their e-mail, telephone or fax numbers they have indicated on the form.

Coordinators from the USA are:

Kirk Remund, Chair of the AOSA Statistical Committee
Dennis Lundeen, Oregon State University
Larry Copeland, Michigan State University
Sabry Elias, Oregon State University
NOTICES AND ANNOUNCEMENTS

Seed Samples Needed

Many people know that Doris Baxter and I have been preparing what is known as an update of Handbook 30 on seed testing. We have been working on this project for many years and it is now nearing completion. The completed camera-ready manuscript will be in two volumes, published in a single book. Volume I (about 300 pages) will be in 13 chapters and is a general coverage of seed testing. Volume II, comprised of about 700 pages in 17 chapters is on the application of purity testing techniques to specific taxonomical groups. This volume will have approximately 3,000 individual seed images (drawings, photographs, scans, etc.). We have tried to bring together in one place all the illustrations (drawings, photographs, etc.) that exist in seed testing and taxonomical literature, including Handbook 30 and other sources that are useful in seed analysis. I have scanned (at 300 dpi) all 3000 images and have saved them as Adobe Photoshop images. These are then placed as needed into the manuscript.

For the past year, I have been preparing a camera-ready copy of the entire manuscript on Wordperfect. While Wordperfect is not a dedicated desktop publishing program, it can be used for this purpose. After completing the manuscript in Wordperfect, I have recently purchased Adobe InDesign, a dedicated desktop publishing program and am in the process of downloading the entire manuscript into InDesign documents. The superiority of this program over Wordperfect has become obvious and I now in the process of completing all the book in InDesign.

The purpose of this note it to request seed samples of species which we have not been able to find. People may fill this request in one of two ways. First, we would like to have a small sample of 10-15 seeds (or more). Second, if you know of an acceptable illustration (drawing or photograph) of any of these species, please send this drawing or let me know where it is available. The first list below shows 139 species for which we have not been able to find a seed specimen or any illustration, although the information in parenthesis indicates that an image may be available. The second list includes 163 species which we have found images (mostly from Hitchcock 1950), but which could be improved for our purposes if we could locate a seed sample. The figure number preceeding the species name indicates the number (in the manuscript) of the figure of the chapter for which the illustration is needed.

We hope to receive seed samples of all species on both lists. Otherwise, we will use the best illustration available. If you or your laboratory can help supply the species missing, please send samples to Larry Copeland, Dept. of Crop and Soil Sciences, Michigan State University, E. Lansing, MI 48824. Your help will be greatly appreciated.

One final note-it is possible that the Latin name of some of the species in this list may have changed. All names will be updated in the book.

Illustrations Missing

Fig. 1.6. Lophotocarpus calycinus
Fig. 1.18. Commelina nudiflore (Leithead 1971).
Fig. 1.72. Iris kampferi
Fig. 1.97. Asparagus officinalis).
Fig. 4.44. Eragrostis pectinacea
Fig. 4.46. Eragrostis pilosa.
Fig. 4.48. Eragrostis spectabilis.
Fig. 4.64. Vulpia microstachys var. pauciflora (pacific).

Fig. 5.1. Leersia hexandra (Chase 1968).
Fig. 5.8. Claviceps phalaridis sclerotia
Fig. 5.29 Agropyron dasystachyum (Justice 52).
Fig. 5.45 Elymus elymoides
Fig. 5.54. Hordeum brachyantherum subsp. brachyantherum (Jensen 1957).
Fig. 5.55. Hordeum brachyantherum subsp. californicum (Jensen 1957).
Fig. 5.60. Hordeum murinum subsp. gussonianum (Jensen 1959).
Fig. 5.65. Hordeum vulgare subsp. vulgare (Bieberly 1957, Anon 1992).
Fig. 5.66. Hordeum vulgare subsp. vulgare (hexastichon (Bieberly, 1957, Anon 1971).
Fig. 5.76. Lolium temulentum var. temulentum (or is this the imate in (Justice 52, Plate V, No. 113?).

Fig. 6.1. Andropogon bicornis (Shinbara 1966).
Fig. 6.27. Cymbopogon nardus
Fig. 6.28. Cymbopogon refractus (Shinbara 1966).
Fig. 6.46. Mansuris tuberculosa (Hitchcock 1950).
Fig. 6.47. Miscanthus floridulus (Shinbara 1966).
Fig. 6.61. Sorghum virgatum

Fig. 7.3. Axonopus furcatus (Hughes 1948, Chase 1968).
Fig. 7.4. Axonopus secundatum (Chase 1968, Hughes 1948).
Fig. 7.19. Centhurs ciliaris.
Fig. 7.25. Digitaria abyssinica.
Fig. 7.27. Digitaria cognatum.
Fig. 7.50. Erichloa polystachya.
Fig. 7.65. Panicum distans.
Fig. 7.74. Panicum miliaceum subsp. ruderale (Hurst 1981, Faul 1981).
Fig. 7.76. Panicum repens
Fig. 7.92. Paspalum scrobiculatum.
Fig. 7.104. Pennisetum setosum
Fig. 7.117. Setaria pumila
Fig. 7.122. Zea diploperennis
Fig. 7.123. Zea mays subsp. Mexicana.
Fig. 7.127. Zea mays subsp. erythrolepis, Diploid perennial teosinte
Fig. 7.132. Zea mays subsp. tunicata, Pod corn

Fig. 8.3. Trianthema portulacastrum (Justice 1952).
Fig. 8.73. Falcaria vulgaris (Justice 1952).
Fig. 8.76. Heracleum mantegazzianum

Fig. 9.30. Achillea micrantha
Fig. 9.35. Ageratina adenophora (Shinbara 1966).
Fig. 9.36. Ageratina altissima (Reed 1970, Shinbara 1966).
Fig. 9.37. Ageratina riparia (Shinbara 1966).
Fig. 9.66. Artemisia vulgaris
Fig. 9.78. Cacalia lutea (Atwater 1971).
Fig. 9.92. Carthamus lanatus subsp. creticus.
Fig. 9.102. Centaurea cineraria (Atwater 1971).
Fig. 9.108. Centaurea imperialis (Atwater 1971).
Fig. 9.112. Centaurea moschata (Atwater 1971).
Fig. 9.123. Chrysanthemum carinatum (Atwater 1961).
Fig. 9.124. Chrysanthemum coccineum (Atwater 1971).
Fig. 9.125. Chrysanthemum coronarium (Atwater 1971).
Fig. 9.126. Chrysanthemum indicum (Atwater 1971).
Fig. 9.144. Coreopsis basalis (Atwater 1971).
Fig. 9.146. Coreopsis lanceolata (Atwater 1971).
Fig. 9.149. Cosmos sulphureus (Atwater 1971).
Fig. 9.154. Cynara cardunculus subsp. Cardunculus
Fig. 9.159. Echinops ritro (Atwater 1971).
Fig. 9.161. Elephantopus spp. (Shinbara 1951).
Fig. 9.219. Layia elegans (Atwater 1971).
Fig. 9.242. Rudbeckia laciniata (Blake 1928).
Fig. 9.250. Senecio burchellii (Source unknown).
Fig. 9.268. Tagetes minuta (Shinbara 1966).
Fig. 9.281. Tripleurospermum perforatum

Fig. 10.34. Lappula arvensis
Fig. 10.40. Symphytum officinale

Fig. 11.25. Brassica rapa ssp. rapa, Japanese turnip (Ingalls 1963).
Fig. 11.30. Brassica rapa var. silvestris, Bird rape (Musil 1963).
Fig. 11.49. Cranbe maritima
Fig. 11.91. Sisymbrium orientale

Fig. 12.15. Humulus americanus.
Fig. 12.35. Cerastium viscosum.
Fig. 12.63. Spergularia spp. (Tissa) (Abrams 19__).
Fig. 12.108. Kochia childsii.
Fig. 12.110. Krascheninnikovia lanata.
Fig. 12.111. Salsola australis
Fig. 12.114. Spinacia oleracea (Wertman 1969).
Fig. 12.110. Krascheninnikovia Innata

Fig. 13.1. Calystegia occidentalis (Bucholtz 87).
Fig. 13.56. Cucumis m. var. conomon.
Fig. 13.58. Cucumis m. var. flexuosus.
Fig. 13.69. Marah spp. (Echinocystis spp.).
Fig. 13.71. Momordica charantia (Atwater 1971, Morton 1967).
Fig. 13.101. Euphorbia geyeri (Murley 1945).
Fig. 13.107. Euphorbia lucida.

Fig. 14.49. Coronilla juncea (Shinbara 1966).
Fig. 14.51. Coronilla longirostrata (Shinbara 1966).
Fig. 14.67. Dipogon lignosus (Dolichos) (Atwater 1971).
Fig. 14.108. Lespedeza virginica (Landers 1976)
Fig. 14.109. Leucaena leucocephala.
Fig. 14.122. Lupinus mexicanus hartwegii (Atwater 1971).
Fig. 14.123. Lupinus nanus (Atwater 1971).
Fig. 14.124. Lupinus polyphyllus (Atwater 1971).
Fig. 14.145. Mimosa invisa (Shinbara 1966).
Fig. 14.163. Oxytropis sericea.
Fig. 14.165. Pachyrhizus tuberosus acutifolius.
Fig. 14.167. Phaseolus coccineus (Hedrick 1931).
Fig. 14.177. Prosopis pubescens (Graham 1941).
Fig. 14.189. Senna obtusifolia (Cassia).
Fig. 14.197. Sophora secundiflora (Graham 1941).
Fig. 14.200. Strophostyles helvula (Landers 1976, Graham 1941).
Fig. 14.202. Strophostyles umbellata (Landers 1976).
Fig. 14.203. Stylonisans bifirola (Landers 1976).
Fig. 14.204. Tephrosia virginiana (Landers 1976, Graham 1941).
Fig. 14.276. Vigna umbellata (Phaseolus calcaratus) (FAO 1978 - India).
Fig. 14.280. Wisteria floribunda (Landers 1976).
Fig. 14.281. Wisteria frutescens (Graham 1941).

Fig. 15.58. Leonotis leonurus.
Fig. 15.71. Molucella laevis.
Fig. 15.79. Origanum onites.
Fig. 15.88. Salvia farinacea).
Fig. 15.129. Mentzelia lindleyi (Munz 1981).
Fig. 15.133. Ammannia coccinea
Fig. 15.141. Abelmoschus esculentus (Fong 1969.
Fig. 15.150. Hibiscus manihot (Atwater 1971).
Fig. 15.151. Hibiscus sylvestris
Fig. 15.157. Malachra alceifolia (Shinbara 1966).
Fig. 15.178. Abronia umbellata (Atwater 1971).
Fig. 15.197. Jussiaea decurrens
Fig. 15.198. Jussiaea repens var. glabrescens
Fig. 15.201. Oenothera grandiflora (erythrosepala,(Atwater 1971).

Fig. 16.59. Cobaea scandens (Atwater 1971).
Fig. 16.68. Polemonium micranthum.
Fig. 16.70. Emex australis (Shinbara 1966).
Fig. 16.72. Eriogonum spp.
Fig. 16.91. Rheum rhabarbarum (rhaponticum).
Fig. 16.100. Rumex hastatulus.
Fig. 16.125. Anagallis monelli (subsp. linifolia).
Fig. 16.128. Dodecatheon sp.
Fig. 16.132 Grevillea banksii (Gunn 1976).

Fig. 17.9. Delphinium grandiflora(um) (Atwater 1971).
Fig. 17.18. Ranunculus asiaticus (Fong 1969).
Fig. 17.51. Geum chiloense (Atwater 1971).

Fig. 17.105. Collinsia heterophylla (bicolor)
Fig. 17.109. Hebe salicifolia (Thieset 1955).
Fig. 17.122. Misopates orontium (Antirrhinum) (Hurst 19__).
Fig. 17.129. Torenia fournieri (Atwater 1971).
Fig. 17.159. Cyphomandra betacea
Fig. 17.207. Solanum ptycanthium.
Fig. 17.209. Solanum sarrachoides (Landers 1976).
Fig. 17.215. Solanum viarum
Fig. 17.252. Viola cornuta.
Fig. 17.257. Vitis rotundifolia (Landers 1976).
Images available, but need improvement

Fig. 1.85. Luzula parviflora (Fernald 1950).

Fig. 2.2. Arundo donax (Hitchcock 1950).
Fig. 2.4. Phragmites australis (Hitchcock 1950).
Fig. 2.14. Agrostis perennans (Featherly 1938).
Fig. 2.19. Alopecurus alpinus (Hitchcock 1950).
Fig. 2.26. Apera interrupta (Hitchcock 1950).
Fig. 2.29. Aristida divaricata (Gates 1937).
Fig. 2.33. Aristida rhizomorphora (Hitchcock 1950).
Fig. 2.35. Aristida wrightii (Leithead 1971).
Fig. 2.42. Calamovilfa gigantea (Hitchcock 1950).
Fig. 2.47. Muhlenbergia cuspidata (A, Hitchcock 50; B, Featherly 38).
Fig. 2.48. Muhlenbergia expansa (Hitchcock 1950).
Fig. 2.54. Muhlenbergia schreberi (Hitchcock 1950).
Fig. 2.56. Muhlenbergia wrightii (A, Hitchcock 50; B, Dayton 37).
Fig. 2.60. Oryzopsis exiqua (Hitchcock 1950).
Fig. 2.65. Phleum alpinum (Hitchcock 1950).
Fig. 2.69. Polypogon australis (Hitchcock 1950).
Fig. 2.70. Polypogon elongatus (Hitchcock 1950).
Fig. 2.71. Polypogon interruptus (Hitchcock 1950).
Fig. 2.72. Polypogon maritimus (Hitchcock 1950).
Fig. 2.76. Sporobolus buckleyi (Colbry 1957).
Fig. 2.78. Sporobolus contractus (Colbry 1957).
Fig. 2.80. Sporobolus elongatus (Reed 1977).
Fig. 2.81. Sporobolus flexuosus (Colbry 1957).
Fig. 2.82. Sporobolus giganteus (Hitchcock 1950).
Fig. 2.84. Sporobolus interruptus (Colbry 1957).
Fig. 2.85. Sporobolus junceus (Colbry 1957).
Fig. 2.86. Sporobolus nealley (A, Hitchcock; B, Colbry).
Fig. 2.88. Sporobolus poiretti (Colbry 1957).
Fig. 2.89. Sporobolus pulvinatus (Colbry 1957).
Fig. 2.90. Sporobolus purpurascens (Colbry 1957).
Fig. 2.91. Sporobolus pyramidatus (Colbry 1957).
Fig. 2.92. Sporobolus texanus (Colbry 1957).
Fig. 2.94. Sporobolus wrightii (Colbry 1957).
Fig. 2.103. Stipa neomexicana (Hitchcock 1950).

Fig. 3.3. Aria praecox (Hitchcock 1950).
Fig. 3.22. Danthonia unispicata (Hitchcock 1950).
Fig. 3.23. Deschampsia atropupurea (Hitchcock 1950).
Fig. 3.27. Deschampsia elongata (Hitchcock 1950).
Fig. 3.30. Helictotrichon hookeri (Hitchcock 1950).
Fig. 3.31. Helictotrichon pubescens (Avena pubescens) (Hitchcock 1950).
Fig. 3.36. Schismus arabicus (Hitchcock 1950).
Fig. 3.37. Schismus barbatus (Hitchcock 1950).
Fig. 3.38. Sieglingia decumbens (Hitchcock 1950).
Fig. 3.39. Sphenopholis filiformis (Hitchcock 1950).
Fig. 3.40. Sphenopholis intermedia (Hitchcock 1950).
Fig. 3.41. Sphenopholis longiflora (Hitchcock 1950).
Fig. 3.42. Sphenopholis nitida (Hitchcock 1950).
Fig. 3.49. Trisetum pennsylvanicum (Hitchcock 1950).
Fig. 3.57. Bouteloua breviseta (Hitchcock 1950).
Fig. 3.60. Bouteloua filiformis (Hitchcock 1950).
Fig. 3.63. Bouteloua trifida (Hitchcock 1950).
Fig. 3.73. Ctenium aromaticum (Hitchcock 1950).
Fig. 3.78. Dactyloctenium aegyptium (Hitchcock 1950).
Fig. 3.82. Gymnopogon ambiguus (Hitchcock 1950).
Fig. 3.86. Leptochloa fascicularis (Hitchcock 1950).
Fig. 3.90. Microchloa kunthii (Hitchcock 1950).
Fig. 3.91. Munroa squarrosa (Hitchcock 1950).
Fig. 3.94. Spartina gracilis (Hitchcock 1950).
Fig. 3.95. Spartina pectinata (Leithead 1971).
Fig. 3.96. Spartina pectinata (Hitchcock 1950).

Fig. 4.25. Cottlea pappophoroides (Hitchcock 1950).
Fig. 4.32. Alelopis texana (D. texana) (Hitchcock 1950).
Fig. 4.33. Ennaepogon desvauxii (Hitchcock 1950).
Fig. 4.52. Festuca arizonica (Hitchcock 1950).
Fig. 4.60. Festuca scabrella (Hitchcock 1950).
Fig. 4.68. Glyceria acutiflora Gress 1924, Hitchcock 1950).
Fig. 4.73. Glyceria elata (Hitchcock 1950).
Fig. 4.74. Glyceria erecta (Hitchcock 1950).
Fig. 4.77. Glyceria melicaria (Hitchcock 1950).
Fig. 4.79. Glyceria pallida (Hitchcock 1950).
Fig. 4.80. Glyceria septentrionalis (Hitchcock 1950).
Fig. 4.82. Lamarckia aurea (Hitchcock 1950).
Fig. 4.88. Melica mutica (Hitchcock 1950).
Fig. 4.98. Orcuttia californica (Hitchcock 1950).
Fig. 4.99. Orcuttia greenei (Hitchcock 1950).
Fig. 4.100. Orcuttia pilosa (Hitchcock 1950).
Fig. 4.101. Orcuttia tenuis (Hitchcock 1950).
Fig. 4.102. Pappophorum mucronulatum (Hitchcock 1950).
Fig. 4.103. Pleuro pogon californicus (Hitchcock 1950).
Fig. 4.104. Pleuro pogon oregonus (Hitchcock 1950).
Fig. 4.105. Pleuro pogon refractus (Hitchcock 1950).
Fig. 4.115. Poa cusickii (Hitchcock 1950).
Fig. 4.116. Poa fendleriana (Hitchcock 1950).
Fig. 4.118. Poa glaucifolia (Hitchcock 1950).
Fig. 4.122. Poa nervosa (Hitchcock 1950).
Fig. 4.128. Poa scabrella (Hitchcock 1950).
Fig. 5.13. Hierochloe odorata (Hitchcock 1950).
Fig. 5.68. Hystrix patula (Hitchcock 1950).
Fig. 5.99. Zizania aquatica (Hitchcock 50).
Fig. 5.101. Zizania texana (Hitchcock 1950).
Fig. 5.103. Aegopogon tenellus (Hitchcock 1950).
Fig. 5.104. Hilaria belangeri (Hitchcock 1950).
Fig. 5.105.  Hilaria jamasesii (Hitchcock 1950).
Fig. 5.106.  Tragus berteronianus (Hitchcock 1950).

Fig. 6.2.  Andropogon divergens (Leithead 1971).
Fig. 6.3.  Andropogon elliottii (Leithead 1971, Gress 1924).
Fig. 6.5.  Andropogon glomeratus (Gress 1924).
Fig. 6.7.  Andropogon tener (Leithead 1952).
Fig. 6.8.  Andropogon temarius (Leithead 1952).
Fig. 6.11.  Bothriochloa barbinodis (Leithead 1971).
Fig. 6.15.  Bothriochloa saccharoides (Leithead 1971).
Fig. 6.18.  Dichanthium sericeum (Black 1977).
Fig. 6.22.  Sorghastrum secundum (Hitchcock 1950).
Fig. 6.32.  Erianthus contortus (Leithead, 1971).
Fig. 6.33.  Erianthus divaricatus (Gress 1924).
Fig. 6.34.  Erianthus saccharoides (Gress 1924).
Fig. 6.37.  Heteropogon contortus (Leithead 1971).
Fig. 6.38.  Hyparrhenia hirta (Black 78).
Fig. 6.41.  Imperata cylindrica (Shinbara 1966).
Fig. 6.44.  Mansuris rugosa (Hitchcock 1950).
Fig. 6.45  Mansuris tessellata (Hitchcock 1950).
Fig. 6.48.  Miscanthus sinensis (A, Gress 1924; Hitchcock 1950).
Fig. 6.50.  Saccharum officinarum (Hitchcock 1950).
Fig. 6.65.  Trachypogon secundus (Hitchcock 1950).

Fig. 7.104.  Pennisetum setaceum (Shinbara 1966).

Fig. 8.27.  Gomphrena dispersa.
Fig. 8.30.  Rhus integrifolia (Anon 1948).
Fig. 8.32.  Toxicodendron diversilobum (Robbins 1951).
Fig. 8.78.  Hydrocotyle americana.

Fig. 9.13.  Fatsia japonica (Atwater 1971).
Fig. 9.16.  Asclepias fascicularis (A, Robbins 1951).
Fig. 9.75.  Bidens cernua (Gaines 1972).
Fig. 9.113.  Centaurea nigra (Flood 1986).
Fig. 9.120.  Centromedia spp. (Unknown source).
Fig. 9.121.  Carieis heterophila (Atwater 1971).
Fig. 9.170.  Eupatorium odoratum (Fong 1969).
Fig. 9.177.  Gazania splendens (Source unknown)
Fig. 9.193.  Heliopsis helianthoides (Atwater 1971).
Fig. 9.195  Helipterum roseum (Atwater 1971).
Fig. 9.197.  Heteropappus hispidus (Atwater 1971).
Fig. 9.216.  Lagascea mollis (Shinbara 1966).

Fig. 10.2.  Impatiens holstii; walleriana (Fong 1969).

Fig. 11.50.  Descurainia pinnata (Reed 1970).
Fig. 11.60. Iberis sempervirens (Bailey 1961).

Fig. 12.1. Cataceae berries (Gates 1941).
Fig. 12.28. Sambucus nigra (Flood 1986).
Fig. 12.33. Arenaria serpyllifolia (Justice 1952).

Fig. 13.61. Cucurbita maxima (Faul 1980s).
Fig. 13.65. Echinocystis lobata (Robbins 1951).

Fig. 14.60. Dalea purpurea (Source unknown).
Fig. 14.61. Desmanthus illinoensis

Fig. 15.3. Fumaria muralis (Hyde 1940).
Fig. 15.135. Cuphea llavea (Parsonsia) (Atwater 1971).
Fig. 15.136. Cuphea viscosissima (Landers 1976 or Landers 1976).
Fig. 15.177. Urena lobata (Shinbara 1966).
Fig. 15.203. Oenothera pallida (Canada 1935).

Fig. 16.33. Sesamum indicum
Fig. 16.39. Piper aduncum (Shinbara 1966).
Fig. 16.73. Fagopyrum esculentum (sagittatum) (Robbins 19__).
Fig. 16.103. Rumex longifolius (domesticus) (Kulpa 1988).
Fig. 16.130. Primula obconica (Atwater 1971).

Fig. 17.149. Veronica officinalis
Fig. 17.157. Capsicum spp. (Gunn 1974)
Fig. 17.179. Physalis heterophylla (Burbridge 1976).

Fig. 17.202. Solanum lanceolatum (Source unknown).
Fig. 17.220. Cola nitida (Hill 1952).
Fig. 17.224. Theobroma cacao (A, Bailey 1949; B, Hill 1952).
Fig. 17.229. Hesperocnide sandwicensis (Shinbara 1966).
Fig. 17.240. Lantana spp. (Fong 1969).
Fig. 17.264. Zygophyllum fabago var. brachycarpum (Robbins 1951).
AOSA and SCST SOLICIT RESEARCH PROPOSALS
TO STUDY
SEED GERMINATION AND DORMANCY

The Association of Official Seed Analysts (AOSA) and The Society of Commercial Seed Technologists (SCST) are soliciting research proposals by May 1, 2002, to support investigations of seed germination and dormancy. The primary reason for this research funding is to improve seed testing by the promotion of uniform laboratory methods and practices through seed research. The AOSA and SCST have identified Seed Germination and Dormancy as the principle area of concern for this funding cycle. Specific crop and plant species which have been identified as high priority include; rangegrasses, soybean, wild flowers, sweet corn (SH2), and field grasses. Proposals relating directly to seed germination and dormancy of these species or any other crop or plant species commonly tested in seed laboratories in North America will be accepted.

Research proposals will be accepted for investigations which cover a one to three year period, however funding will only be approved on an annual basis (July 1 to June 30). Present funding limits the annual financial support for these proposals to $3,000 to $5,000 per year. Ten copies of all proposals (5 pages maximum) must be submitted by May 1, 2002, to:

Dr. Nancy J. Vivrette, Chairman
AOSA Seed Testing Standardization Research Funding Committee
Ransom Seed Laboratory
P.O. Box 300
Carpinteria, CA 93014-0300

Specific guidelines to be followed when developing proposals are listed below. If you have questions pertaining to this request for proposals do not hesitate to contact:

Nancy J. Vivrette
Phone: (805) 684-3427
FAX: (805) 684-4157
e-mail: RansomSL@silcom.com

GUIDELINES FOR AOSA SEED RESEARCH PROPOSAL

A. Title Page
1. Concise descriptive title (100 characters or less)
2. Name of the organization submitting the proposal
3. Name, title, full mailing address and telephone number of the principal investigator and/or investigators
4. Proposed project starting date, duration and total cost

B. Overall Aim and Specific Objectives - This should be a concise statement of what you will actually do and why. It should not exceed one paragraph. Leave more detailed, context-setting to the "Background" section.
C. Relevance to Seed Testing/Technology - Discuss the relevance of this work to seed testing/technology. What differences will it make? How does it relate to the established research priorities? Discuss the potential for effective utilization of the results for the benefit of seed testing.

D. Innovative Aspects - Provide a brief statement describing the innovations of the proposed research, how it may improve an existing situation, how it relates to the state-of-the-art or develops new technology. Comparisons of methods among laboratories are generally not acceptable since these can generally be handled through the referee format.

E. Background and Rationale - Provide a substantive rationale for the proposed research. Explain the existing problem, the status of previous efforts to solve it, and the logic behind your new approach. Spell out your assumptions, theories, and research hypotheses; address the likelihood of success. Include a brief but complete literature review if appropriate. If you must cite unpublished work, please enclose copies.

F. Technical Work Plan - Describe in detail your experimental design (including any statistical issues) and research protocols (including any special techniques). Provide an estimated time schedule for meeting the research objectives.

G. Staff and Resources - List all investigators essential to the project and describe the institutional facilities and resources available for the proposed research.

H. Budget Information - Provide a full, detailed, justified budget for each year of the proposed project plus appropriate totals. Travel and training must be directly related to the research. Overhead costs are not allowed. Itemize:
1. salaries
2. equipment
3. materials and supplies
4. training (purpose, duration, when, where)
5. consultation (topic, amount, rate)
6. travel (purpose, duration, when, where)
7. other costs

I. Submission of Proposals (Not to exceed 5 pages)
1. Submit one (1) original and ten (10) copies to

   Dr. Nancy J. Vivrette, Chairman
   AOSA Seed Testing Standardization Research Funding Committee
   For U. S. mail delivery
   Ransom Seed Laboratory
   P. O. Box 300
   Carpinteria, CA U.S.A. 93014-0300
   For FEDEX and UPS
   (no U.S. mail)
   10360 Chismahoo Rd.
   Carpinteria, CA U.S.A. 93013
2. The deadline for receiving grant proposals is May 1, 2001, and investigators awarded grants will be notified before July 1, 2001. Grants will be funded on a fiscal year basis from July 1 to June 30.

J. Selection of Proposals for Funding

1. The proposals will be evaluated utilizing the following criteria:
   a. Scientific and technical quality of the proposal
   b. Scientific validity and quality of research approach
   c. Relevance of proposed research to seed germination and dormancy
   d. Feasibility of attaining objectives during proposed time period
   e. Adequacy of professional training or research experience of investigators

K. Reporting Requirements

1. Progress Reporting - A reporting schedule for major progress reviews will be developed based on the projected time requirements indicated in the original research proposal and the major developmental stages of the research. Additionally, an annual progress report will be completed two (2) months prior to the annual AOSA meeting.

2. Final Report - The general format of the final report will be established at the project's beginning. The format and approach will depend upon the nature of the project. The final report shall be prepared in a publication format to document the entire effort. Reports shall be published for the AOSA and SCST membership in either The Seed Technologist Newsletter or the Journal of Seed Technology. When handbooks or other reference materials logically result from research projects, this will not preclude a report in The Seed Technologist Newsletter even if this report simply states that such material is being developed.
Seed Technologists Training Manual

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: __________________

Email: ______________________________________ (notification of updates)

Number of Manuals ordered ________ X $125.00 = ________
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 shipping billed at cost)

Total Enclosed $ ___________

Please send order and payment to:

Anita Hall

SCST
101 East state Street, #214
Ithaca, NY 14850  USA

Allow 4-6 weeks for delivery of Manuals