

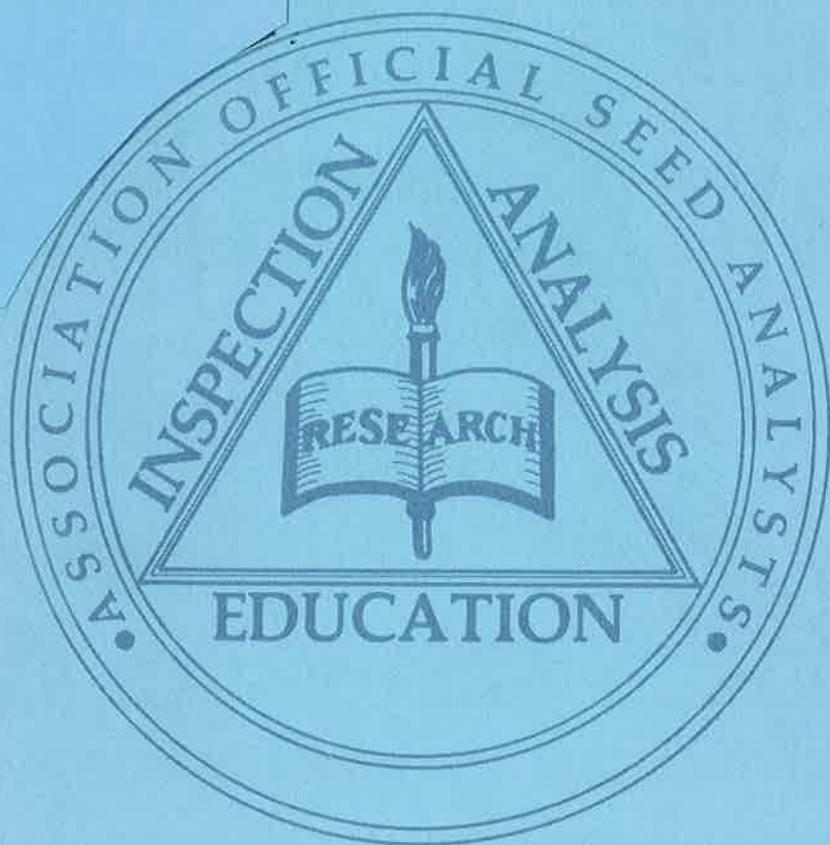
JOURNAL OF SEED TECHNOLOGY

Volume 10

1986

Number 2

(Contains Papers and Proceedings for FY 1985)



Editor's Note

During the past year, members of the Editorial Committee and myself have been negotiating with a major abstracting service in order to have the *Journal of Seed Technology* (JOST) included in their publication. A number of issues regarding publication procedures of the abstracting service were resolved. The final conflict for inclusion of the JOST was the publication date had to reflect the year of publication. In order to accommodate the abstracting service, Volume 10, 1986, Number 1, reflects the true date of publication. In order to help subscribers locate the annual meeting notes, a section has been added to the front cover that describes the contents of the volume. As in the past, issue number 2 of the volume will contain the annual meeting notes. We realize that this change may initially cause some confusion among our readers. However, in order to better carry out the education and research aspects of the Society, inclusion of the JOST in this major abstracting publication is essential. It will encourage researchers to submit manuscripts that will benefit members of our Society, and will advertise the existence of our Society throughout the world. Please accept our apologies for this temporary inconvenience.

JOURNAL OF SEED TECHNOLOGY

Volume 10 • Number 2
1986

Published by the
Association of Official Seed Analysts

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Lansing, Michigan

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SUGGESTIONS TO CONTRIBUTORS TO THE JOURNAL OF SEED TECHNOLOGY

General Requirements. Articles should be original reports covering some area of seed science and technology not previously or simultaneously published in any other scientific or technical journal. Three kinds of articles may be considered for publication: (1) research papers, (2) brief communications covering new techniques or developments, and (3) review articles by special arrangement with the editor.

Page Charges. Eight pages of each article accepted will be printed free of charge. Charges for pages in excess of eight will be based on the actual printing costs.

Manuscripts. The manuscript must be typed on good-grade bond paper approximately 21 x 28 cm. The lines of type must be numbered on each page. Two carbon or xeroxed copies, also on line-numbered paper, are required. The entire manuscript must be double spaced. Each table must be typed on a separate sheet. An abstract and list of Additional Index Words must be included at the beginning.

Order. Assemble the manuscript in the following order: Title (no separate title page), Author(s), Abstract, Additional Index Words, Text, Literature Cited (begin on a new page), Tables, Captions for Figures (begin on a new page), and Figures. Although the text is most commonly divided into the following sections: Introduction, Materials and Methods, Results and Discussion, and Acknowledgements, the specific arrangement for articles submitted to the *Journal of Seed Technology* will vary. Place headings in the center of the page and capitalize throughout. Begin the subsection headings at the left hand margin (do not indent), capitalize the first letter, underline, and follow with a period. Begin the first sentence on the following line with the first word indented five spaces. Do not include a summary or list of conclusions.

Numbers. Use arabic numerals for all numbers with two or more digits and for all measurements such as time, weight, or degrees except when the number is the first word in a sentence. Spell out numbers when they are the first word in a sentence or when they are less than 10 and not measurements, except when in a series in which one figure has two or more digits.

Author(s). Place the name(s) of the author(s) in full caps below the title and footnote with a superscript arabic two (2). In listing the authors, do not leave a space between the period after each initial and the next letter. Give the place where the study was conducted and the title and address including the zip code of each author in footnote two at the bottom of the page.

Footnotes. Footnotes are *numbered* consecutively and typed at the bottom of each page. Number 1 should contain identification of the article

or research project. It includes the "date received" supplied by the editor. Number 2 identifies the author(s).

Tables. Tables are numbered consecutively. Use the following symbols for footnotes, in this order: a, b, c, d, etc. Use asterisks (*, **, etc.) to indicate statistical significance (5%, 1%, etc.). Do not duplicate information that is presented in charts or graphs.

Figures. Photographs for half-tone reproduction should be glossy prints with good dark and light contrast. Prepare drawings for graphs and charts with India ink on white drawing paper or blue tracing cloth. Type-written words should be avoided on graphs and charts. Label each figure with name of author, title of article, and number of figure. Do not use figures which duplicate information presented in tables.

Style Manual. The *Style Manual for Biological Journals* prepared by the Committee on Form and Style of the Council of Biology Editors and published by the American Institute of Biological Sciences (AIBS) shall be followed for writing papers submitted to the *Journal of Seed Technology*.

Abbreviations. Use standard abbreviations listed in the AIBS Style Manual without definition. Other abbreviations should be defined at first usage and may be used thereafter without further definition. Names of states should be abbreviated following city names, using the two letter abbreviations of the U.S. Post Office Department.

Nomenclature. The Latin binomial or trinomial and authority must be shown for all plants, insects, and pathogens at first listing (in title, abstract, or text). Crop varieties should be identified by single quotation marks at first listing only, e.g., 'Ranger' alfalfa (*Medicago sativa* L.) or *Medicago sativa* L. 'Ranger'; *Bothriochloa ischaemum* var. *songarica* (Rupr.) Cel. et Harl, 'King Ranch.'

Units of Measure. Metric units must be used for all measurements.

References. All citations whether to published literature or to unpublished work are to be listed alphabetically by senior authors at the end of the manuscript. Citations to published works should include names of all authors, the year, complete title, publication, volume number, and inclusive pages, as appropriate.

Subscription Information

Subscription rates are \$18.00 per year for the *Journal of Seed Technology (JOST)* and may be obtained by writing to the Secretary-Treasurer, Association of Official Seed Analysts (AOSA). Back issues of the *JOST*, as well as other AOSA publications are also available.

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THANKS TO OUR REVIEWERS

The *Journal of Seed Technology* is pleased to publish a list of Society members and other individuals who reviewed papers for the Volume 10 issues. All reviewers gave valuable time and thought to evaluating papers that were sent to them by the Associate Editor or Editor. Publication of their names is a token of our appreciation for their service to the journal and to the Society.

R. W. Yaklich, Editor

F. Bonner

W. Meudt

J. Burris

K. Obrebski

G. Buta

M. Orzolek

L. Copeland

E. Roos

R. Danielson

J. Schoen

O. Hall

P. Stanwood

A. Knapp

W. Vanderwoude

M. Kulik

L. Weisner

A. Larsen

L. Woodstock

M. McDonald, Jr.

R. Yaklich

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 Vice-President.....E. Chirco
 Secretary-Treasurer R. Trent

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L. Wiesner		A. B. Ednie
A. Knapp	R. W. Yaklich (Ex Officio)	W. R. Vaughan

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L. N. Bass, Editor, Science Education	M. M. Kulik, Bibliographer

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 Region V
 Region VI

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 B. Jackson
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 M. Lange
 M. S. Dhaliwal

Research

W. Guerke, Chairperson

A. Knapp
 M. B. McDonald, Jr.

P. Stanwood
 L. Wiesner

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M. B. McDonald, Jr., Chairperson

Flower Seed

E. Chirco and A. Meyr, Co-Chairpersons

Moisture Determination

D. F. Grabe, Chairperson

TZ and Biochemical Measurements

L. Copeland, Chairperson

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G. Jenanyan, Chairperson

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J. Schoen, Chairperson

Tree and Shrub Seeds

F. Bonner, Chairperson

Vigor Evaluation

D. M. TeKrony, Chairperson

Rules

A. L. Larsen, Chairperson

E. M. Chirco

S. Kirkland

S. Hurst

A. Knapp

M. Johnson

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D. Svik

R. W. Yaklich

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M. H. Day

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R. Marx

C. Sciple

Nominations

C. Sciple

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G. Fenderson

H. Smith

C.A.S.T.

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M. Bristol

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R. Danielson, Chairperson

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B. Butler

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G. E. Spain, Chairperson

A. B. Ednie

E. E. Hardin

R. Danielson

M. Lange

J. Lair

B. Jackson

R. Kocurek

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Standardization Research Funding

W. Guerke, Chairperson

A. Knapp

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P. Stanwood

L. Wiesner

Seedling Evaluation

D. Ashton, Chairperson

L. E. Everson

W. Guerke

O. Hall

J. Ruprecht

T. Turner

C. Wilson

B. Jackson

Auditing

D. Svik, Chairperson

L. Nees

W. Dunn

MINUTES OF THE ASSOCIATION OF OFFICIAL SEED ANALYSTS MEETING

Seventy-Fifth Annual Meeting

Richmond, Virginia

June 15-21, 1985

EXECUTIVE BOARD MEETING

June 15, 1985

President Still called the meeting to order at 9:00 A.M.

Members Present

A. B. "Sandy" Ednie
B. Trent
D. Svik
A. Knapp
R. Danielson
B. Vaughan
E. Chirco
R. Rudd
R. Yaklich

Others Present

W. Ditmer
C. C. Abbott
A. Larsen
M. McDonald, Jr.
W. Guerke
D. Brown
E. Hardin
R. Foy
R. Payne
J. Lair

The minutes of the 1984 Executive Board meetings were amended and then unanimously accepted.

Our relations with the British Seed Analysts Association were reviewed.

Danielson move, Svik seconded "That AOSA continue to send free Newsletters and Journals to the British Seed Analysts Association." The motion passed.

The Browse, Shrub and Forbs Handbook distribution was discussed. Danielson moved, Svik seconded "That all members receive one free copy and that the remaining copies be available from the Secretary-Treasurer at a cost of \$20.00 per copy." Motion passed. Danielson moved, Wiesner seconded "That the Browse, Shrub and Forbs Handbook have a letter attached stating that this publication is not an AOSA handbook and is not a part of the AOSA Rules." Motion passed.

The Resolution and Audit committees were then appointed by President Wayne Still and are as follows:

Resolutions

George Spain, Chairperson
 Ed Hardin
 Gail Fenderson

Audit

David Svik, Chairperson
 Larry Nees
 Will Dunn

The President's Report was received as were the Vice President and the Secretary-Treasurer Reports.

The stability of banks was discussed and Svik moved, Ednie seconded "That all AOSA funds should be held in F.D.I.C. and F.S.L.I.C. banks." Motion passed.

Reports of Standing Committees:

The Editorial and Editorial Subcommittee Reports were received.

Danielson moved, Wiesner seconded "That the document discussing species not covered in the AOSA Rules be published in a special issue of the Newsletter." Motion passed.

Jim Lair was requested to report to the Board next year "The number of Newsletters and Journals mailed, following initial distribution." The Secretary-Treasurer will issue a letter of appreciation to Steve Glassman for his services as Handbook Editor.

The Legislative Committee Report was received. A committee to review and report on testing seed under Pennsylvania's new Law was established.

The Seed Standardization Committee Report was received.

The Public Service and Archive Committee Reports were received.

The Rules Committee Report was received and the suggestion by the Rules Committee to make the Endophyte Rules tentative was passed by a majority vote of the Board.

The Liaison Committee Report was received as were the Research Report and Referee Report.

The Membership Report was received and both nominees are recommended for associate membership.

The following Reports were received, Constitution, Budget, Merit, Nominations, Necrology, Program, CAST, Seedling Evaluation and Executive Secretary.

Action taken on these reports and other areas were as follows:

Svik moved, Ednie seconded "That a disclaimer of affiliate member financial responsibility for the Association be inserted in the Constitution." Motion passed.

Knapp moved, Svik seconded "That a special Standardization Research Committee be formed to:

1. Develop research policy and purpose statements;
2. Develop guidelines for submission and handling of proposals; and

3. Investigate handling and support sources of funding." Motion passed.

Wiesner moved, Ednie seconded "That the Executive Board recommend that a part-time Executive Secretary position be established by July 1, 1987, with an honorarium of \$5000.00 plus additional financial support, amount of which will be determined by the Executive Board. The Executive Secretary position will be supported by increased dues." Motion passed.

Danielson moved, Ednie seconded "That member laboratory dues be increased from \$100.00 to \$200.00 and that associate member dues increase from \$25.00 to \$35.00. Both changes effective November 1, 1985. The monies generated will be used for the Executive Secretary and for research for standardization." Motion passed.

Associate member dues were incorrectly billed for 1985 and will be corrected.

The Executive Board reiterated their intention to continue the \$100.00 memorial to CAST in Ben Clark's name.

Ednie moved, Danielson seconded "That CAST receive a special three year grant of \$100.00 per year." Motion passed.

Chirco moved, Ednie seconded "That CAST receive a current AOSA members mailing list and the AOSA officers sign and support a CAST membership drive letter." Motion passed.

Svik moved, Knapp seconded "That the Vigor Subcommittee develop an AOSA policy statement on vigor." Motion passed.

The meetings of Affiliates were discussed by President Still.

The letter available upon request encouraging administrators to allow active participation in AOSA by their laboratory manager and staff was discussed and will be presented to the AOSA past Presidents.

A new AOSA brochure of career opportunities will be developed by AOSA

The meeting was adjourned at 11:38 P.M.

R. M. Trent, Secretary-Treasurer

ASSOCIATION MEETING

June 20, 1985

The Seventy-fifth Annual Business Meeting was called to order by President Wayne Still at 1:30 P.M. Gail Fenderson was appointed as Parliamentarian. Roll call was taken by Secretary/Treasurer Trent and the following laboratories were present:

STATE LABORATORIES - 38

Alabama	Nebraska
Alaska	Nebraska (CIA)
Arkansas	New Jersey
California	New York
Colorado	North Carolina
Florida	North Dakota
Georgia	Ohio
Idaho	Oklahoma
Illinois	Oregon
Indiana	Pennsylvania
Iowa (Ames)	South Carolina
Kentucky	South Dakota
Maryland	Texas
Michigan	Utah
Minnesota	Vermont
Mississippi (State)	Virginia
Mississippi (Seed Tech)	West Virginia
Missouri	Wisconsin
Montana	Wyoming

USDA LABORATORIES - 5

National Seed Laboratory, Beltsville, Maryland
 Seed Research Laboratory, Beltsville, Maryland
 National Seed Storage Laboratory, Fort Collins, Colorado
 National Tree Seed Laboratory, Macon, Georgia
 Forest Tree Seed Laboratory

CANADIAN LABORATORIES - 3

Seed Biology Laboratory
 Manitoba Regional Seed Laboratory
 Ontario Regional Seed Laboratory

The minutes of the Executive Board Meetings were given by Vice President Chirco. Chirco moved, Bass seconded "Acceptance of the minutes as read." The motion passed.

The Auditing Committee report was given by D. Svik and accepted.

It was voted to accept the reports of the following standing committees, subcommittees and special committees:

STANDING COMMITTEES

Editorial	Membership
Handbook	Public Service & Archives
Newsletter	Referee
Science Education	Rules
Bibliography	Research
Legislative	Liaison
Standardization	

SPECIAL COMMITTEES

SARC AOSCA Advisory Board	AOSCA Advisory Board
Budget	Program
C.A.S.T.	Certification of Analysts
Necrology	Merit Award
Seedling Evaluation	Nomenclature
Resolution	Standardization Research
Constitution	Funding
Meeting Place	

The following are actions to be taken or taken stemming from the above committee and subcommittee reports:

Incorporation of AOSA was completed by George Spain

Gary Reusche and Donald Miles were accepted for Associate Membership

Associate member dues were increased from \$25 to \$35 per year

Member dues were increased from \$100 to \$150 per year

Any rules that were accepted will appear in the Rules Committee minutes.

Installation of new officers was performed by President Still as follows:

Dave Svik, Vice President

Ellen Chirco, President

President Chirco read her committee appointments and adjourned the meeting at 6:20 P.M.

R. M. Trent, Secretary-Treasurer

MINUTES OF AOSA SPECIAL BOARD MEETING

June 18, 1985

Richmond, Virginia

President Wayne Still called the meeting to order at 8:30 P.M.

Members Present

R. Trent
L. Wiesner
A. Knapp
D. Svik
R. Ruud
B. Vaughan
A. B. Ednie
R. Danielson
E. Chirco

Others Present

D. TeKrony
J. Lair
C. Sciple
G. Freeman
L. Nees
R. Foy
L. Copeland
G. Spain

The agenda was reviewed and approved.

Additions to the Seedling Evaluation Committee Report were as follows:

1. The Committee's Handbook will be reviewed (when ready) by the membership as an extension to the "AOSA Rules for Testing Seed."
2. The committee feels the term vigorous should be removed from the Rules.
3. The Flower and Tree Seed Committees will address seedling evaluation for their respective species.

The Executive Board concurs with these ideas.

The Certification of Analysts Report was updated. A permanent record of all certified analysts will be kept by the Chairman of the Certification of Analysts Committee.

Danielson moved, Ruud seconded "That Chairman Spain be reimbursed for expenses of his Committee." Motion passed.

Wiesner moved, Danielson seconded "That the Certification of Analysts Committee develop guidelines for determining eligibility to take the AOSA Certification Exam." Motion passed.

The Association is now incorporated as a non-profit organization in the State of North Carolina.

The Special Vigor Committee Report on a vigor policy statement as requested by the Executive Board was received.

The Vigor Subcommittee recommends:

1. No policy statement.

2. In future actions, the pamphlet, "Understanding Seed Vigor" be used as the position of AOSA and any clarification be addressed to the Chairman of the Vigor Test Subcommittee.

Wiesner moved, Ednie seconded "That the Understanding Seed Vigor Pamphlet be distributed free of charge." Motion passed.

Danielson moved, Wiesner seconded "That the Executive Board write Neogen company that the use of the name of AOSA in advertising is inappropriate and be discontinued immediately." Motion passed.

Dennis TeKrony and David Svik were asked to work on a vigor resolution.

Development of an AOSA Seed Analysis Certificate for domestic use and export use were discussed.

Knapp moved, Vaughan seconded "That an AOSA Test Report Committee be appointed to study developing AOSA Seed Analysis Certificates." Motion passed.

Meeting adjourned at 11:00 P.M.

R. M. Trent, Secretary-Treasurer

SECRETARY'S REPORT

The office of the Secretary has been very active. Following our Annual Meeting in Boise, Idaho, appropriate letters of appreciation, notification of honorary and associate memberships were mailed as were current resolutions.

In regard to the Journal of Seed Technology, it is still necessary to explain that Volume 6, #2 is the Rules and is not included in the subscription price. There have also been continuing inquiries and claims concerning the lack of Volume 7, #2.

Accounts receivable continues to be a problem with the current receivable account estimated at \$6,000. Our publications inventory is in reasonable supply, except for the update inserts for the Rules. The inserts to the Rules are available at a cost of \$3.00 per copy.

I would like to thank the Association for allowing me to serve as your Secretary-Treasurer the past 3 years. I sincerely wish that I could have spent more time and could have done a better job for you. I am particularly grateful to Dr. Louis Bass, Steve Glassman, and Bob Yaklich for their dedication to our publications. Finally, I wish the incoming Secretary-Treasurer the best of luck and know he will improve the timeliness of responses.

R. M. Trent, Secretary-Treasurer

TREASURER'S REPORT

June 1, 1984-May 31, 1985

CHECKING ACCOUNT BALANCE, June 1, 1984.....\$ 8,389.91

RECEIPTS:

Dues, Active & Associate.....\$ 8,415.00

Publications: Handbooks.....\$3,788.00

Newsletters..... 1,912.00

Journal..... 4,966.00

 Rules..... 3,034.00

TOTAL PUBLICATIONS 13,700.00

Miscellaneous: Interest..... 1,372.33

 Other..... 2,979.38

TOTAL MISCELLANEOUS 4,351.71

Total Receipts..... 26,466.71

TOTAL CHECKING ACCOUNT\$34,856.62

DISBURSEMENTS:

Publications: Rules.....\$1,052.60

Newsletter.....6,011.50

Journal.....8,415.97

 Handbook..... 733.83

Total Publications.....\$16,213.90

Postage	\$ 2,858.78	
Office Supplies	260.60	
Miscellaneous:		
Memorial	\$ 100.00	
Refunds	120.00	
Money Market Cert.	10,000.00	
C.A.S.T.....	240.00	
Bond	54.00	
Other	877.03	
Travel	<u>1,325.68</u>	
Total Miscellaneous.....	<u>\$12,716.71</u>	
TOTAL DISBURSEMENTS	\$32,049.99	
Money Unaccounted for25
TOTAL CASH ON HAND, May 31, 1985.....	\$ 2,806.88	

R. M. Trent, Secretary-Treasurer

REPORTS OF STANDING COMMITTEES AND SUBCOMMITTEES

EDITORIAL COMMITTEE

Report of the Committee Chairman
and Editor, Journal of Seed Technology

The responsibility of the Editorial Committee and the Journal this year has been an exciting and educational experience. Excellent cooperation has been received from everyone and this has made Editorial Committee activities run smoothly.

One issue (Vol. 9, No. 1) of the Journal of Seed Technology was completed and Vol. 9, No. 2, is presently at the publishers. Changes in the Rules for Testing Seeds made by the society in the years 1981-1984 were published and mailed to members to update their copy of the Rules.

Special thanks is given to Dr. Martin Kulik who accepted the job as Associate Editor. Dr. Kulik has been very instrumental in preparing and expediting the various publications, selecting reviewers for manuscripts and eliminating errors from publications.

Finally, I would like to thank Dr. Larry Copeland for giving me the experience necessary to accept this assignment and President Wayne Still for giving me the opportunity.

R. W. Yaklich, Editor

NEWSLETTER

This has been a reasonably good year for materials received for printing in the Newsletter. We have had notes from 6 AOSA member laboratories, associate members or friends; 35 committee reports; 8 special announcements; 8 research articles; and 3 bibliographies. We would like to receive more notes from member laboratories, associate and honorary members, and commercial analysts.

COST OF PRINTING AND MAILING OF THE 1984-85 NEWSLETTER

	Vol. 58 <u>No. 3</u>	Vol. 59 <u>No. 1</u>	Vol. 59 <u>No. 2</u>	<u>Total</u>
Printing Newsletter	\$2,553.25	\$2,003.50	\$1,454.75	\$6,011.50
Number Printed	750	750	750	
Pages	125	96	64	
Postage (Cost of Mailing)				<u>1,546.54</u>
Cost of printing and mailing Newsletters				<u>\$7,558.04</u>

Stamps on hand 6/84	\$ 27.93
Received from Treasurer	<u>1,656.00</u>
Total	\$1,683.93
Cost of Mailing	
Newsletters	<u>1,546.54</u>
Stamps on hand 6/85	\$ 137.39

L. N. Bass, Editor

BIBLIOGRAPHY SUBCOMMITTEE

I prepared three bibliographies for the AOSA Newsletter during 1984-85. These included 634 papers on "Seed Biochemistry and Physiology," 117 papers on "Seed Pathology," 2 papers on "Identification of Cultivars and Species," 7 Papers on "Seed Anatomy, Development, and Morphology," 10 papers on "Genetics," and 36 papers on "Miscellaneous" topics, for a grand total of 806 papers listed. The above totals include papers from "Seed Science and Technology" which are listed separately in each "Bibliography." Twenty-five ISTA Committee reports from "Seed Science and Technology" were also listed.

M. M. Kulik, Bibliographer

SCIENCE EDUCATION EDITOR

During the past year the Science Education Editor either talked or corresponded with several prospective employers and employees. However, as information about the seed technology program at the Larimer County Voc-Tech Center received broader recognition, more and more employers are making contact directly with the Voc-Tech Center. Prospective employees outside of the Larimer County Voc-Tech students are still contacting the Science Education Editor. Seed technology continues to provide ample employment opportunities for people with suitable education and/or training.

L. N. Bass, Editor

LEGISLATIVE COMMITTEE

Two items of concern seem to require most of our attention. One is the determination of the presence and the percentage of fungal endophyte infected seed. The second concern is the determination of "undesirable grass seeds" as contaminants in turf grass seed.

The fungal endophyte has been attacked by Mississippi thusly:

Regulation No. 16 - Tall Fescue Labeling

"Tall fescue (*Festuca arundinacea*) seed offered for sale, exposed for sale or sold in the State of Mississippi shall be labeled with the percentage of live fungal endophyte (*Acremonium coenophialum*) as determined by laboratory test. The percentage of live fungal endophyte shall be shown on the label in the same area as other quality labeling requirements of the Mississippi Pure Seed Law."

Alabama has legislated as follows:

"(C) Effective June 1, 1985, tall fescue (*Festuca arundinacea*) seed sold, offered for sale, or exposed for sale, for forage purposes, shall also be labeled to show the percentage of fungal endophyte (*Acremonium coenophialum*) infected seed, except carryover tall fescue seed may be labeled to show only the percentage of live fungal endophyte. This information shall be stated on the analysis tags with other required labeling information and in the same size print. Tall fescue seed will be considered as carryover if more than nine months have expired from date of production.

(D) Effective June 1, 1985, fescue and ryegrass seed sold, offered for sale, or exposed for sale for lawn and turf purposes, shall be labeled to show the percentage of fungal endophyte infected seed, *if any representations as to these fungal endophytes are made in the labeling or advertising* of the seed. Carryover seed shall be labeled to show only the percentage of live fungal endophyte infected seed."

This means that analysts in and around the seed producing and consuming areas will want to learn the prescribed test for fungal endophyte.

Folks here in Virginia and further north are working on the "undesirable grass" problem. Pennsylvania has completed its amending process and the following provisions become effective on July 1, 1985: "(B) Presence of restricted noxious weed seeds in lawn and turf grasses and mixtures thereof shall be governed by the following provisions: (1) List. Except as provided in paragraph (3) the seeds of the following plants shall be restricted noxious weed seeds and shall be listed on the tag or label under the heading "undesirable grass seeds" by name and number per pound when present in bentgrass, Kentucky bluegrass, chewing fescue, hard fescue, red fescue, varieties of named turf type tall fescue, varieties of perennial ryegrass, or mixtures containing these grasses

- I Bermudagrass (*Cynodon* spp.)
- II Annual bluegrass (*Poa annua*)
- III Rough bluegrass (*Poa trivialis*)
- IV Bentgrass (Creeping, colonial, velvet), (*Agrostis* spp.)
- V Meadow fescue (*Festuca pratensis*)

VI Tall fescue (*Festuca arundinacea*)

VII Orchardgrass (*Dactylis glomerata*)

VIII Timothy (*Phleum pratense*)

IX Velvetgrass (*Holcus lanatus*)

X Redtop (*Agrostis gigantea*)

(2) Restricted noxious weed seeds set forth in paragraph (1) shall not exceed 0.50% by weight.

(3) The restricted noxious weed seeds set forth in paragraph (1) shall not apply:

(I) To grasses or mixtures clearly labeled for pasture, forage, hay, conservation or spoil bank reclamation usages.

(II) When such seeds are present in excess of 5.0% of the whole and the label contains the information required by Sec. 111.13 (A) (1) of this title (relating to labeling of lawn or turf grasses and mixtures)."

A similar amendment here in Virginia is presently tied up in court.

Maryland's law change is to become effective January 1, 1986, but there are still hearings going on.

Delaware and New Jersey are still in the process of re-writing their respective laws to accomodate the changes as are New York and Massachusetts.

All of the above States will more than likely wind up with the same "undesirable grasses" and the same limitations as Pennsylvania.

The following changes reported by the Committee are of general interest though perhaps not of first importance to the analyst.

Pennsylvania reports the following germination standards for vegetable and flower seeds:

Sec. 111.31. - Vegetable Seeds

(A) The germination standards for vegetable seeds, including hard seeds, shall be the following:

<i>SEED</i>	<i>PERCENT</i>
<i>Corn, Pop</i>	<i>75%</i>
<i>Oregano</i>	<i>60%</i>
<i>Peanut</i>	<i>60%</i>
<i>Rosemary</i>	<i>30%</i>
<i>All other kinds</i>	<i>50%</i>

Sec. 111.32 - Flower Seeds

(A) (1) Germination standards for flower seeds, including hard seeds, shall be the following:

SEED	PERCENT
<i>Abutilion</i>	35%
<i>Asparagus, Medeala myritifol</i>	25%
<i>Beaucarner recurvata</i>	40%
<i>Corn, ornamental</i>	75%
<i>Daylily</i>	45%
<i>Dracaena, Draco</i>	40%
<i>Grevillea, Robusta</i>	25%
<i>Helianthemum</i>	30%
<i>Heliotrope</i>	35%
<i>Saintpaulia (Af. Violet)</i>	30%
<i>Sunflower</i>	70%
<i>All other kinds</i>	50%

In the 1985 legislative session, Idaho amended its law to require the labeling of flower, tree and shrub seeds as follows:

FOR FLOWER SEEDS

- (1) The name of the kind and variety or a statement of type and performance;
- (2) The calendar month and year for which the seed was packaged;
- (3) The name and address of the person who labeled said seed, or who sells, offers, or exposes said seed for sale within this State;
- (4) Lot number or other lot identification.

FOR SHRUB SEED AND TREE SEED

- (1) Commonly accepted name of (A) kind of (B) kind and variety;
- (2) Lot number or other lot identification;
- (3) Origin, if known. If the origin is unknown that fact shall be stated;
- (4) Percentage by weight of:
 - (A) Pure seed
 - (B) Inert matter
 - (C) Other crop seed
 - (D) Weed seed
- (5) The name and approximate number of each kind of secondary noxious weed seed per pound;
- (6) Percentage germination and percentage of hard seed or dormant seed (if present);
- (7) The calendar year and month the germination test was completed.

North Carolina reports amending its regulations to include itchgrass, *Rottboellia exaltata*, on the prohibited noxious weed list.

Texas has proposed labeling requirements for seed sold on the basis of a pure live seed figure, but at this time, the wording of the amendment is not in its final form.

The USDA has authorized a new system of lot inspection and certification of agricultural and vegetable seed for quality factors on a fee-for-service basis. This will provide for inspectors' training in cooperating States and for analysts the need to follow ISTA Rules for Seed Testing when the destination of the seed requires their use.

The last report of the "SARC Committee" lists two major issues in dispute which concern the labeling of varieties and the provisions for an Advisory Committee. This information was distributed last September and I know of no further progress.

Analysts examining foreign seed imports are reminded that effective last July 20th (1984), APHIS added seventeen weeds to its noxious weed list. The new additions may be found in the *Federal Register*, Vol. 49, No. 120, dated June 20, 1984, page 25223.

C. C. Abbott, Chairperson

MEMBERSHIP COMMITTEE

The Membership Committee report for the year 1984-85 is as follows:
Applications for Associate Membership

Gary A. Reusche

Donald F. Miles, Jr.

No applications for Honary Membership were made.

R. K. Marx, Chairperson

RESEARCH COMMITTEE

The research within AOSA is currently maintained through the involvement of eleven subcommittees largely composed of AOSA and SCST members. A summary of the results of these subcommittees for the past year follows (chairperson in parentheses):

1. Cultivar Purity - (Miller McDonald, Jr.). Procedures for useful, quick varietal identification tests were published in the AOSA Newsletter 59(1):40-58. A session entitled "Varietal Identification Techniques" involving a formal AOSA program and informal demonstrations of techniques will be presented on Wednesday, June 19 at the Richmond AOSA Meeting.
2. Flower - (Ellen Chirco and Aleta Meyr). Performed two flower seed referees: *Dimorphotheca* germination and scarified *Geranium*

- germination. Also, a list of flower seed families was submitted to the Seedling Evaluation Committee. Rule changes recommended were concerned with, 1) 4.9d - flowers containing hard seed and, 2) 4.9k - viability testing of ungerminated seed (includes a change in 4.2e - definition of dormant seed). Objectives for the coming year are continued revision of Table 4 in the AOSA Rules and development of flower seedling descriptions.
3. Bean Seed Germination - (Guin Jenanyan). Performed a referee to determine if there is a problem interpreting small primary leaves vs. partial baldheads. It was the consensus of the referee participants that small primary leaf interpretation was not a problem with the referee sample, but most replied that some description of normal leaf size needs to be included in the seedling description of the rules. Objectives for the coming year are to make a recommendation to the Seedling Evaluation Committee as to normal leaf size, and to deal with the definition of "garden bean" and "other bean" in the AOSA Rules.
 4. Germination and Dormancy - (Allen Knapp). A parsley and parsnip referee was conducted to determine the feasibility of shortening the test period. A survey of dormancy determination procedures was also conducted. Ongoing projects concern green needlegrass germination and detached caryopsis in ryegrass.
 5. Grass Fungal Endophyte - (Charles Sciple). A testing procedure for detection of fescue fungal endophyte has been developed and a statistical tolerance table has been selected. A tissue analysis procedure has been developed for plant tissue analysis for the detection of live fungi. These procedures have been proposed for adoption by AOSA. Objectives for the coming year are to refine testing procedures and review the need for a handbook.
 6. Moisture Content Determination - (Don Grabe). Work was conducted to determine the variability introduced in oven tests by fineness of grinding, container and handling procedures. Standard procedures are being developed for using the Karl Fischer method as the standard reference methods for seeds. Variables being evaluated are fineness of grinding and moisture extraction procedures. Research is being integrated with that of the ISTA Moisture Testing Committee. Objectives in the coming year are to develop the Karl Fischer method as a standard reference method for grass seeds, and to develop oven testing procedures for grass seeds that will give results approximately equal to the standard reference method.
 7. Range Grass - (Larry Prentice). Performed a tetrazolium test referee on sand lovegrass. Progress will be reviewed and new goals established at the Richmond AOSA Meeting.

8. Seed Pathology - (James Schoen). A survey of AOSA laboratories was made to determine which fungicides were in use and on what crops. This information, with notes on the methods of application and the reasons for treating was published in the May 1985 issue of the AOSA Newsletter. Objectives in the coming year include referees of treated vs. nontreated soybean and range grass lots.
9. Vigor - (Dennis TeKrony). The major research emphasis has been to conduct procedural studies to compare the alternative methods listed in the Seed Vigor Testing Handbook for the cold test for corn and the conductivity test for soybeans, corn, peas, and peanuts. Ten corn seed lots were tested in nine laboratories using one common soil source and the shoe box, rolled towel, and tray testing procedures. Five seed lots of each crop were tested in five laboratories for conductivity using three procedures: conductivity meter, ASA 610 Seed Analyzer, and Computerized Automated Seed Analysis (CASA). Field emergence will be evaluated for all seed lots of all crops and related to both cold test (corn) and conductivity results. Also, a survey was conducted to determine how many laboratories were testing vegetable seed for vigor, what tests were being used and what species should receive priority in vegetable seed vigor research. Objectives in the coming year are to continue evaluation of vigor tests with emphasis on vegetable crop seed.
10. TZ and Biochemical - (Lawrence O. Copeland). Committee selection and objectives for a revised tetrazolium testing handbook are in progress.
11. Tree and Shrub - (Frank Bonner). Data was compiled on several tree seed problems, such as, tests on dormant seed lots, abnormal seedling problems related to medium, and split tests on 2x100 basis instead of 4x100. Objectives for the coming year are to work toward a new rule clarification on paired tests for dormant seeds, develop new seedling descriptions, and better coordination with ISTA.

W. R. Guerke, Chairperson

REFEREE COMMITTEE

POA GERMINATION, Region I, Chairperson Barbara Kopperud conducted a referee to determine if there was a significant difference in the total germination between a 21-day and 28-day test of *Poa pratensis*. A freshly harvested lot and a carry-over lot of seed was tested with both a 21-day and 28-day germination test. The results of the referee were based on 45 of the 46 participating laboratories' data (25 Northwest Region and 20 Northeast Region). Based on 4 tests per lab., 5 tests were out of tolerance at 1% probability and 8 at 5% in the carry-over seed. On the fresh

seed, 20 tests were out of tolerance at 1% and 23 were out at 5% probability. The average germination on the carry-over seed was 90.10% at 21 days compared to 90.03% at 28 days. The fresh seed averaged 87.03% at 21 days and 87.26% at 28 days. Based on this referee, there is no significant difference between a 21 day and 28 day final count.

SOYBEAN GERMINATION, Region II, Chairperson Jim Lair conducted a referee in order to 1) evaluate soybeans at each lab pictorially with slides and, 2) give verbal descriptions as to why soybeans were classified as they were.

These two items were compared to the Rules to see if a rule sufficiently described the problems being found. For soybeans, the AOSA statements of how shortened and thickened is markedly shortened and thickened and how many secondary roots are sufficient to anchor the plant were chosen. Two samples, donated by Asgrow Seed Co. and Pioneer Hybrids Int'l. were tested.

There were 37 labs initially signed up with 33 returning results and slides. The slides were then evaluated at the Iowa Seed Science Center by Dr. Knapp, Dick Lawson, the Iowa staff and myself. A set of slides per media for each sample was prepared and used at the Iowa and Illinois Regional meetings in presentations. The slides from sample B are to be shown at the Richmond, Virginia meeting. After the meeting, the slides will be made available to the Seedling Evaluation Committee for their review in rewriting any of the normal, abnormal, and dead descriptions for soybeans.

OREGANO GERMINATION: Region III, Chairperson Beverly Jackson conducted a referee to gather information to be used in establishing optimum temperatures for germinating *Origanum vulgare* and *O. heracleoticum* seeds. A 1984 and a 1985 crop of oregano seed was tested at three temperatures with 8 hours of light at each temperature, 20-30 C, 15-25 C, and 18 C. Germination counts on 400 seeds were taken at 7, 14 and 21 days.

The 15-25 C and 18 C temperatures gave approximately the same average germination percentages in both samples. The 20-30 C temperature resulted in an average 11% reduction in germination and the absence of light (six samples) resulted in significantly reduced germination.

In comparing results among laboratories, using the prescribed temperatures with controlled light, the ISTA tolerances were applied. Eighteen of 74 tests (24%) were out of tolerance at 5% probability. Eleven of 74 tests (15%) were out of tolerance at 1% probability. Seventeen of the twenty-four laboratories in the region participated in this referee.

SORGHUM IDENTIFICATION: Region IV, Chairperson Randy Kocurek collected seeds of various *Sorghum* spp. and distributed them to

the laboratories for identification. The *Sorghum* spp. consisted of Shattercane (*S. bicolor*), sudangrass (*S. sudanense*), johnsongrass (*S. halepense*), sorghum alum (*S. alnum*) and black amber sorgho (*S. bicolor*). Of these, sudangrass and johnsongrass were correctly identified by 100%, shattercane and black amber sorgho were correctly identified by 85% and sorghum alnum was correctly identified by 94% of those participating. A list of references useful in identifying these *Sorghum* spp. was compiled. Twenty of the thirty-five laboratories in this region participated in the referee.

ARGENTINE BAHIAGRASS GERMINATION, Region V, Chairperson Monte Lange performed a survey of germination testing procedure for Argentine Bahiagrass and the results developed into the following referee. Seven samples of Argentine Bahiagrass were distributed to each laboratory and were tested according to the prescribed procedures. The seven testing methods were as follows: (No. 1): 0.2% of KNO_3 , blotters in plastic boxes, 20-35 C. (No. 2): H_2SO_4 soak 10 minutes followed by a 10 minute water wash, 2 hour air dry then placed on 0.2% KNO_3 blotters in boxes 20-35 C. (No. 3): Same treatment as No. 2 except acid soak was extended to 20 minutes. (No. 4): Same treatment as No. 2, except acid soak extended to 30 minutes. (No. 5): Same treatment as No. 2, except acid soak extended to 55 minutes. (No. 6): Deglume 100 seeds and test at 20-35 C and (No. 7), Prechill at 10 C, overnight, test with 0.2% KNO_3 , blotters in boxes at 20-35 C. All tests except No. 6 were to be run on 400 seeds and tests were allowed to be extended to 35 days. Germination counts were taken and dormancy was determined at the end of the test.

The results indicate that there is a high degree of uniformity in the routine testing procedures of using 0.2% KNO_3 and the prechill treatment (methods 1 and 7). An increase in germination over methods 1 and 7 occurred with treatments 2, 3, 4 and 6. There is less uniformity in the methods using acid treatments and degluming, and in determining dormancy. Three of the 14 participating laboratories determined dormancy by the TZ method while the remainder used the "pressing" method. The lack of uniformity of results may be due to the lack of familiarization of prescribed procedures and/or method of determining dormancy.

AGROPYRON IDENTIFICATION: Region VI, Chairperson M. S. Dahliwal conducted a referee to differentiate morphologically complex species of Agropyron. Included were species with florets having overlapping characteristics such as *A. dasystachyum*, *A. riparium*, *A. smithii*, *A. spicatum f. inerme*, and *A. repens*. Participants were asked to identify the specimens, record the total number of florets of a given species and group florets of the same species together. Nineteen out of 21 laboratories participated in the referee. Results indicated that florets of *A. repens* and *A. spicatum* were most often correctly identified and *A. dasystachyum*, *A. riparium* and *A. smithii* florets were most difficult to differentiate. One

laboratory correctly identified all florets, 2 identified 17, 4 identified 16 and 14 identified 15 or less correctly.

POA PRATENSIS BLOWING: The purpose of this referee was to make an initial assessment of variation in percent heavy fraction reported in the blowing of *P. pratensis* samples. Two subsamples representing a high quality composite sample and two representing a low quality composite sample were distributed to 24 laboratories. Information such as the type of blower, blowing point or KMR, temperature, humidity and weather conditions was requested. Some factors causing variation in percent heavy fraction reported by the 17 participating laboratories were in mixing and sampling, calibration setting and analyst error. Blower type did not appear to consistently affect the percent heavy fraction results and weather conditions did not appear to affect results. It was recommended that those laboratories which reported percent heavy fraction values consistently higher or lower than the average check their calibration sample and blowing point.

RULES COMMITTEE

Seventeen Rule change proposals were presented to the membership of AOSA at Richmond, Virginia. Sixteen were accepted and one rejected. Listings of the old rules, changes proposed and justification for the proposals are found in AOSA Newsletters 59(1):17-39 and 59(2):19-23. Some moderate adjustments were made to a few of the proposals at the annual meeting, therefore, the accepted rule changes with adjustments are as follows:

1. Concerns the official nature of the "rules" and of documents referred to therein.

Insert as last paragraph in the Introduction Section on page 1. This document constitutes the official AOSA statement regarding seed testing procedures and is referred to as the "rules." Changes in either the rules or to documents referred to in the rules cannot be considered official until the changes are accepted by the AOSA membership in the general business meeting at an annual convention of the Association.

2. Concerns the working weight for noxious weed exams.

2.3a. Same as present rule but add the following:

When a purity analysis is performed on a sample, the weight of the sample used for purity analysis may be considered part of the minimum weight specified for the noxious weed seed examination.

3. Concerns "variant" and off-type" seeds in Kentucky bluegrass seed lots.

This proposal was rejected.

4. Concerns a deletion of a special exemption for Dallisgrass (*Paspalum dilatatum*) and Bahiagrass (*P. notatum*)

2.7h. Seed units with nematode galls, fungus bodies (i.e., ergot, smut, etc.) and spongy or corky caryopses which are entirely enclosed within the seed unit. Refer to section 2.10a(8) and c(1).

AND

2.10a(8). Seed units with nematode galls or fungus bodies (smut, ergot, and other sclerotia) which are not entirely enclosed within the seed unit. Refer to section 2.7h.

5. Concerns adjustment in AOSA Handbook 24 needed for Pensacola bahiagrass (*Paspalum notatum* cv. 'Pensacola') to accomodate the change in Rules sections 2.7h and 2.10a(8).

AOSA Handbook 24. The Uniform Blowing Procedure, 1983 revision. 6.5 Procedure for Purity Analysis of Pensacola Bahiagrass (*Paspalum notatum* cv. 'Pensacola').

STEP 2. Separating the Heavy Fraction.

Other crop seed (including bahiagrass cultivars other than Pensacola'), weed seed and seed like particles and inert matter (sticks, sand, etc.) are classified in accordance with sections 2.7-2.10 of the Rules.

All Pensacola bahiagrass seed units, including multiple florets and free caryopses, shall be considered pure seed. Also, broken seeds which are less than half of their original size are inert.

6. Concerns source of calibration samples.

2.11c. Calibration samples: Calibration samples for Kentucky bluegrass, orchardgrass, and Pensacola variety of bahiagrass to be used to establish a blowing point prior to preceeding with the separation of pure seed and inert matter. Calibration samples for all three species with instructions, are available on a loan basis from the Federal Seed Laboratory, AMS, USDA, Bldg. 306, Rm. 213, Beltsville, MD 20705. Kentucky bluegrass and orchardgrass calibration samples may be purchased through the AOSA Secretary-Treasurer.

7. Concerns blower restriction for rough bluegrass.

2.11d(3) Rough bluegrass, The blower setting obtained for the Kentucky bluegrass calibration sample multiplied by a factor of 0.82 shall be used (the 0.82 factor is restricted to the General-type Seed Blower, seed section 3.3(a) AOSA Handbook 24).

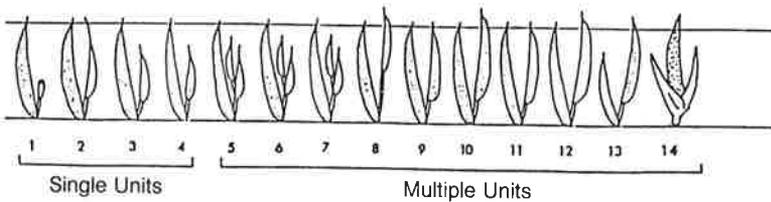
8. Concerns deletion of Handbook 24 reference in section 2.11d(5).
 2.11d(5) Orchardgrass, The blower setting obtained by the orchardgrass calibration sample shall be used.
9. Concerns further changes in multiple unit definition.

2.12b Definitions: A multiple unit is a seed unit that includes one or more structures as follows,

- (1) An attached sterile or fertile floret that extends to or beyond the tip of a fertile floret (structures 8-12);
- (2) A fertile floret with basally attached glume, glumes, or basally attached sterile floret of any length (structures 13-14);
- (3) A fertile floret with two or more attached sterile and/or fertile florets of any length (structures 5-7).

The length of an awn shall be disregarded when determining the length of a fertile floret or an attached structure. Any seed unit without attached structures, as described above, shall be considered a single unit (structures 1-4).

The stippled (dotted) portion represents fertile florets and the clear portion represents sterile florets or glumes.



10. Concerns a new method of distinguishing between yellow and white sweetclover which will replace the mottled seed count method.

3.4 *Chemical test to distinguish sweetclover.* In determining admixtures of yellow sweetclover and white sweetclover, at least 400 seeds shall be subjected to the chemical test as follows:

- a. Preparation of test solution - Add 3 grams of cupric sulfate (CuSO_4) to 30 ml of household ammonia (NH_4OH , approx. 4.8%) in a stoppered bottle to form the tetraamminecopper sulfate ($\text{Cu}(\text{NH}_3)_4\text{SO}_4$) solution used for this test. After mixing, a light blue precipitate of cupric hydroxide ($\text{Cu}(\text{OH})_2$) should form. If no precipitate forms, add additional CuSO_4 until a precipitate appears. Since the strength of household ammonia can vary, this insures that a complete reaction takes place between CuSO_4 and NH_4OH ; otherwise fumes from excess ammonium hydroxide may cause eye irritation.

- b. Preparation of seeds - To insure imbibition, scratch, prick, or otherwise scarify the seed coats of the sweetclover seeds being tested. Imbibe seeds in water for 2 to 5 hours in a glass container.
- c. Chemical reaction - When seeds have imbibed, remove excess water and add enough test solution to cover the seeds. Seed coats of yellow sweetclover will begin to stain dark brown to black; seed coat of white sweetclover will be olive or yellow-green. Make the separation within 20 minutes, since the seed coats of white sweetclover will eventually turn black also.
- d. Calculation of results - Count the number of seeds which stain dark brown or black and divide by the total number of seeds tested; multiply by the pure seed percentage for *Melilotus* spp. the result is the percentage of yellow sweetclover in the sample. The percentage of white sweetclover is found by subtracting the percentage of yellow sweetclover from the percentage of *Melilotus* spp. pure seed.

Example,

Pure *Melilotus* spp. = 98.76%

Number of seeds tested = 400

Number of seeds staining dark brown or black = 32

% Yellow sweetclover = $(32/400) \times 98.76 = 7.90\%$

% White sweetclover = $98.76\% - 7.90\% = 90.86\%$

11. Concerns the expansion of the dormant seed definition to all species.

4.2 Definitions

- e. Dormant seed - Viable seeds, other than hard seeds, which fail to germinate when provided the specified germination conditions for the kind of seed in question. Viability of ungerminated seeds of all species listed in Tables 3, 4, and 5 may be determined by any appropriate method or combination of methods. The Percentage of dormant seeds, if present, may be reported in addition to the percentage germination. Refer to 4.9k. If the presence of dormant seeds is suspected but not determined the statement "viability of ungerminated seeds not determined" should be written on the germination analysis report.

12. Concerns families containing hard seed.

4.9d(6) If at the end of the germination period provided for species belonging to Convolvulaceae, Geraniaceae, Malvaceae and Fabaceae, there are still swollen seeds present, or seeds which have started to germinate, all seeds or seedlings except the above stated shall be removed and the test continued for five

additional days. Any additional normal seedlings shall be included in determining the percentage of germination. Refer to section 4.9k.(6).

13. Concerns a new section (4.9k) on determining viability of seed remaining ungerminated at the end of the prescribed germination test period.

4.9k Viability testing of ungerminated seed. - Any of the following methods or combination of methods, unless otherwise specified, may be used to determine the viability of ungerminated seed which remain at the end of the prescribed test period. The results are to be reported as percentage dormant or hard seed as determined by the specified method.

- (1) Embryo excision test (EE) - Principles and procedures may be found in the following literature a.) "Reliability of the excised embryo method as a rapid test for determining the germinative capacity of dormant seed." F. Flemion, 1948. Boyce Thompson Institute for Plant Research Inc., 229-241; b.) "The excised embryo method for testing germination of dormant seed." C. E. Heit, 1955. Proc. Assoc. Seed Anal. 45:108-117; and c.) "Provisional rules for excised embryo test." Appendix C. 1976 Seed Sci. and Technol. 4(1):174-177. The test may be placed at the prescribed temperature or at room temperature if maximum temperature does not exceed 24° C.
- (2) Tetrazolium test (TZ) - Principles and procedures may be found in the following literature: a.) "Tetrazolium testing handbook for agricultural seeds." D. F. Grabe, ed. AOSA Handbook No. 29, 1970, 62 p. and b.) "Biochemical test for viability." Annex to Chapter 6. Seed Sci. and Technol. 4(1):133-159.
- (3) Scarification - For tree and shrub species listed in Table 5 impermeable seed coats of ungerminated seeds may be modified by either mechanical or chemical scarification. The seed may be clipped, filed or pierced opposite the radicle end, or rubbed with an abrasive material, i.e., sandpaper.

Dry seed may be placed in concentrated sulfuric acid (H₂SO₄) for the prescribed length of time, rinsed thoroughly in running tap water and then returned to the test condition.

Caution: Concentrated sulfuric acid is caustic and can cause severe skin burns and produce holes in clothing on contact. It is advisable to wear rubber gloves and protective clothing while working with this chemical.

Note: When rinsing acid treated seed always add acid to water. Heat produced by the chemical reaction of adding water to the acid may injure or kill the seed.

- (4) Germination promoting chemicals - Gibberellic Acid (GA_3) - (ISTA formulation - Seed Sci. and Technol. 4(1) pg. 112). The germination substratum should be moistened with the recommended concentration, 200 PPM-500 PPM GA_3 for most cases. Stronger solutions may be used for stronger cases of dormancy. When the concentration is higher than 800 PPM the use of a buffer is recommended. A 500 PPM solution of GA_3 is prepared by dissolving 500 mg GA_3 in one liter of water.
- (5) Cutting test for tree and shrub seeds (Table 5) - The seed is cut open and internal structures are observed. Fully developed, firm tissue with the proper coloring is considered viable while shriveled, decayed and discolored tissue or seed lacking an embryo is considered nonviable. If the seed has not been prechilled and an extremely high percent of viable seed is found, a retest of prechilled seeds may be advisable.
- (6) Hard Seeds - The percentage of hard seed is to be reported in addition to the percentage germination. If swollen seeds or seeds which have started to germinate are present at the end of the prescribed germination period, remove all hard seeds (record their number) and for flat pea (*Lathyrus sylvestris*), continue the swollen seed in test for 14 days, when germinating at 15-25C or 10 days when germinating at 20C. For all other species listed in Tables 3, 4, and 5 continue the test for 5 additional days. The additional normal seedlings shall be included in the Percentage of germination. Refer to section 4.9d(6).

For hard seeds in tree and shrub seed (Table 5) see 4.9k(3)

Other changes;

4.6b. (Delete reference “. . . , such as the presence of firm ungerminated seeds, . . .”

4.9d. (last paragraph) delete in this position and transfer concept to 4.9k(5).

Table 3 footnotes (page 58)

a. Replace “see sections 4.2e and 4.9” with “see sections 4.2d and 4.9k(6).”

d. Replace “see section 4.2e” with “see sections 4.2e and 4.9k.”

e. Replace text following “Hard seeds often present” with “see section 4.9k(6).”

Table 4 footnotes (page 74)

b. Final count may vary with certain types, cultivars, or strains within any flower seed kind. Remaining seeds at the end of test should be critically examined for any viable seeds and recorded as dormant seeds (see 4.9k).

- c. Replace text following "Hard seeds often present" with "see section 4.9k(6)."
- d. Replace text with "Embryo excision method: see 4.9k(1)."
Table 5 footnotes (page 84)
- a. Replace text with "Embryo excision method: see 4.9k(1)."
- b. Replace text with "TZ tetrazolium: see 4.9k(2)."
- c. Replace text with "Hard seed often present, see 4.9k(6)."

14. Concerns correcting inconsistency in soybean germination procedures in Table 3.

In Table 3, section, Vegetable and Herb seeds, add TC to the substrata list for *Glycine max* to conform to the list for the same species in the Agricultural seeds section.

15. Concerns references to photographs of seedlings.

4.9j footnote a: Only the photographs described in the AOSA Newsletter 57(3):67-72 (September 1983) may be purchased from the Office of Information, United States Department of Agriculture, Washington, D. C. 20250.

16. Concerns changes in seedling descriptions for lettuce (*Lactuca sativa*).

Appendix 1, Seedling descriptions, for lettuce was amended as follows:

2. Asteraceae, sunflower family

A. *Lactuca sativa*, lettuce

One type of necrosis on lettuce cotyledons is a physiological breakdown of the plant tissues, the cause of which has not been determined. It is manifested by discolored areas on the cotyledons, first appearing on or adjacent to the midrib and lateral veins, and should not be confused with the natural pigmentation of the different lettuce cultivars.

Seedlings with extensive physiological necrosis on the cotyledons may be slower in growth than those without such affected areas. Hypocotyl and root length may be affected by other factors such as proximity to light, delayed germination or dormancy.

Colored photographs and an interpretive drawing are available from the Federal Seed Laboratory, Beltsville, Maryland, and should be used as guides to classification of lettuce seedlings.

Magnification up to 7X may be used for inspections. Remove attached seed coats for seedling evaluation.

The following interpretations are to be made only at the end of the test period:

Normal seedling

Root	Strong primary root, usually with root hairs with no splits or lesions.
Hypocotyl	Strong, with no cracks or lesions extending into the conductive tissues.
Cotyledons	(a) Two (b) If necrosis or injury is present, classify as normal if the necrosis or injury covers less than half the total cotyledon area.
Epicotyl	Present and entirely free from necrosis or decay. (May be assumed to be present if cotyledons are normal).

Abnormal seedling

Root	(a) Primary root missing, damaged or weak. (b) Tips blunt, swollen, discolored. (c) Splits or lesions.
Hypocotyl	Severely twisted, grainy or with cracks or lesions extending into the conductive tissue.
Cotyledons	(a) Only one. (b) Necrosis or injury covering one half or more of the total cotyledon area. (c) Swollen cotyledons usually associated with extremely short or vestigial hypocotyl and root.
Epicotyl	Missing or with any degree of decay.

17. Concerns testing for fungal endophyte (*Acremonium* spp.) in tall fescue and other species.

9. FINAL ENDOPHYTE TESTING

- 9.1 Method of preparation of aniline blue stain for use in testing grass seed and plant material for the presence of *Acremonium* spp.
- Prepare a 1% w/v aqueous aniline blue solution in water (dilute 1 gram aniline blue to 100 ml water).
 - Prepare a solution of one part of 1% aniline blue solution with 2 parts of lactic acid (85%).
 - Use stain as is or dilute with water if sections are too dark.
- 9.2 Procedures for determining levels of *Acremonium* spp. in grass seed.
- Take a sub-sample of seed (1 gram is sufficient).

- b. Digest seed at room temperature for 12-16 hours in a 5% sodium hydroxide solution or other temperature/time combination resulting in adequate seed softening.
- c. Rinse thoroughly in running tap water.
- d. De-glume seed and place on microscope slide in a drop of seed stain. Slightly crush seed. Use caution to prevent carryover hyphae of *Acremonium* from one seed to another.
- e. Place coverglass on seed and squash with gentle pressure.
- f. Examine with compound microscope at 100-400X magnification, scoring a seed as positive if any identifiable hyphae are present.
- g. Various sample sizes may be used for this test. Precision changes with sample size, therefore, the test results must include the sample size tested.
- h. Test tolerances - see section 5.6, Table 12.

9.3 Procedure for determining levels of fungal endophyte (*Acremonium* spp.) in grass plant material.

- a. Tillers from field stands.
 - (1) Tillers must be randomly collected; one tiller each from each clump.
 - (2) Samples should be free of contaminating fungi and other grasses such as annual ryegrass, orchardgrass and crabgrass.
 - (3) Freezing will preserve samples and make subsequent peeling of tissue easier.
- b. Seedlings from seeds suspected to contain fungal endophyte.
 - (1) Select seeds at random and germinate.
 - (2) Examine seedlings from the sample germinated after growing for a minimum of 48 days.
- c. Remove the outermost sheath from the tiller or seedling. Tissue should have no obvious discoloration from saprophytes and should have as little chlorophyll as possible.
- d. Isolate a longitudinal section of sheath approximately 3-5mm in width.
- e. Place the section on a microscope slide with the epidermis side down.
- f. Stain immediately with aniline blue-lactic acid stain. Allow dye to remain at least 15 seconds but no more than one minute.
- g. Blot off excess dye with tissue paper. Sections should remain on the slide, but may adhere to the tissue paper (if so, remove and place on proper position on the slide).

- h. Place a coverglass on the sections and flood with water.
- i. Examine section at 200X magnification. Score a section as positive if any identifiable hyphae are present.
- j. Various sample sizes may be used for this test. Precision changes with sample size, therefore the test results must include the sample size tested.
- k. Test tolerances - see section 5.6, Table 12.

5.6 Tolerance for endophyte testing.

Table 12. Tolerances for fungal endophyte tests when results are based on 30 to 400 seeds, seedlings, or plants in a test.

Seed, seedling, or plant count percent	Number of seeds, seedlings, or plants in tests						
	30	50	75	100	150	200	400
100 or 0	0	0	0	0	0	0	0
98 or 2	6.0	4.6	3.8	3.3	2.7	2.3	1.6
96 or 4	8.3	6.4	5.3	4.6	3.7	3.2	2.3
94 or 6	10.1	7.8	6.4	5.5	4.5	3.9	2.9
92 or 8	11.5	8.9	7.3	6.3	5.2	4.5	3.4
90 or 10	12.8	9.9	8.1	7.0	5.7	4.9	3.8
88 or 12	13.8	10.7	8.7	7.6	6.2	5.4	4.1
86 or 14	14.7	11.4	9.3	8.1	6.6	5.7	4.5
84 or 16	15.5	12.1	9.8	8.5	7.0	6.0	4.8
82 or 18	16.4	12.6	10.3	8.9	7.3	6.3	5.0
80 or 20	16.9	13.2	10.7	9.3	7.6	6.6	5.3
78 or 22	17.6	13.6	11.0	9.6	7.9	6.8	5.5
76 or 24	18.2	14.1	11.5	9.9	8.1	7.0	5.7
74 or 26	18.6	14.4	11.8	10.2	8.3	7.2	5.8
72 or 28	19.0	14.8	12.1	10.5	8.5	7.4	6.0
70 or 30	19.5	15.1	12.3	10.7	8.7	7.5	6.2
68 or 32	19.9	15.4	12.5	10.8	8.9	7.7	6.3
66 or 34	20.2	15.7	12.7	11.0	9.0	7.8	6.4
64 or 36	20.5	15.8	12.9	11.2	9.1	7.9	6.5
62 or 38	20.6	15.9	13.0	11.3	9.2	8.0	6.6
60 or 40	20.9	16.1	13.2	11.4	9.3	8.1	6.7
58 or 42	21.0	16.2	13.3	11.5	9.4	8.1	6.8
56 or 44	21.0	16.4	13.3	11.5	9.4	8.2	6.8
54 or 46	21.2	16.4	13.4	11.6	9.5	8.2	6.9
52 or 48	21.2	16.5	13.4	11.6	9.5	8.2	6.9
50.....	21.3	16.5	13.4	11.6	9.5	8.2	6.9

RULE CHANGE PROCEDURES AND FORMAT

The proper procedures to follow when submitting changes in or additions to the AOSA Rules for Testing Seeds have been previously published (*AOSA Newsletter* 48(3):17-18, 1974 and *AOSA Newsletter* 53(3):36-38, 1979). For your benefit, these instructions are repeated and reviewed:

1. Obtain a proposal form from the Rules Committee Chairman or member.

2. After gathering sufficient data to support a change or addition, fill in the information requested on the form and return it to the chairman. (Be sure to include at least 6 copies of all supporting data.)

It is then the responsibility of the committee members to review the proposal and determine the adequacy of data. If approved, the proposal will be published or otherwise submitted to the membership 90 days prior to the annual meeting. After presentation and discussion at the meeting, proposed changes or additions shall be adopted or rejected by the Association (refer to the AOSA Constitution and Bylaws in *J. Seed Technol.* 8(1):xiv and xvii, 1983).

Proposals accepted after review by the committee members are usually printed in the February issue of the *AOSA Newsletter* to satisfy the 90 days requirement in the Bylaws. Since the deadline for submission of articles, etc., for this issue is January 1, proposals should be sent to the Committee chairman as soon as possible (no later than mid-November) to insure adequate time for review by the Committee members.

Individuals, committees and/or groups (regardless of their affiliation with AOSA) are invited and encouraged to submit actual proposals with supporting data (*not just suggestions for changes or additions*) to the Committee. However, the proper procedures and format should be followed. Your cooperation will be appreciated.

A. L. Larsen, Chairperson

SUBCOMMITTEE ON SEEDLING EVALUATION

The Committee is continuing to work towards a Seedling Evaluation Handbook. Re-writing of the descriptions in a format without parallel normal/abnormal statements has started. An introductory chapter is being drafted which will include botany and a section on effects of substrate on seedling morphology. An experiment on the significance of cotyledon size in the cucurbits is being conducted and may result in a rule change proposal. Discussions with ISTA towards reducing AOSA/ISTA seedling description differences is continuing; it appears that agreement is unlikely to be reached in a garden bean evaluation because of different germination methodologies. The Committee hopes to produce a first draft of the Handbook by June 1986.

D. Ashton, Chairperson

PUBLIC SERVICE AND ARCHIVES COMMITTEE

During the past year the Public Service Committee continued with two of its basic functions: Maintaining the archiving file at Iowa State University and providing slide set material to the membership of the AOSA and SCST organizations.

On August 1, 1984, the following items were placed on file in the archives at Iowa State University; Administrative Practices Handbook, 1983 February Newsletter, SCST-AOSA 1983 meeting photos, 1984 February Newsletter. The purpose of these filings is to provide a working storage file for AOSA business and committee activities.

More extensive use of the slide sets was made this year. In addition some materials used in conjunction with the AOSA midwest regional referee were used to update the file sets currently in the possession of the chairman. Plastic slide pages were obtained and used to put the file sets in notebook format for ease of handling requests and storage. These materials were donated.

Slide sets used for this year included;

- Box C — Seed Identification
- Box A — Sampling Seeds
- Box D — Seed Testing
- Box B — Seed Testing Equipment & Supplies
- Box — Seed Testing in Queensland, Australia
- Individual slides requested by Gwen Jenyanan

A-D slides were used in the Federal Seed Laboratory at Beltsville, Maryland, by Dr. Richard Payne. Dr. Payne copied the slide sets for their use in Federal program schools. I was glad to see them put to use.

The slides of the Queensland, Australia facility and the other individual slides requested by Gwen Jenyanan were used for a seed school that the RST group put on in Hollister, California last fall.

At this time all slide sets have been returned. The slide sets will be available next year as well as to schools or other groups.

J. Lair, Chairperson

BUDGET COMMITTEE

AOSA Budger for Year 1985-1986

RECEIPTS

Cash on hand (May 31, 1985)	\$13,116.20
Publications:	
Handbooks	5,000.00
Newsletters	4,800.00

Journals	6,750.00
Rules	3,000.00
Membership dues	8,600.00
Interest	200.00
Miscellaneous income	<u>2,000.00</u>
TOTAL RECEIPTS	\$43,466.20

DISBURSEMENTS

Publications:	
Handbook	\$ 1,500.00
Newsletters	9,000.00
Journals	9,000.00
Rules	1,000.00
Meeting Advance	1,000.00
CAST Dues + Special Memorial	440.00
Travel for AOSA Liaison Representative(s)	4,000.00
Teaching and Training	1,700.00
Assistance for Secretary-Treasurer:	
Part-time help	1,000.00
Official supplies	700.00
Postage	3,500.00
Miscellaneous	<u>65.00</u>
TOTAL DISBURSEMENTS	\$32,905.00

E. M. Chirco, Chairperson

CONSTITUTION COMMITTEE

The Constitution was reprinted and included in the Journal of Seed Technology, 1983, Vol. 8, No. 1.

One proposal for change in the Constitution has been introduced for a vote by members in Richmond. It is a change regarding the Seed Standardization Committee make-up.

The question of the make-up of the Public Service Committee continues. Some proposals will be offered regarding this Committee and its relationship to the Archivist and Historian. Any realigning with the Public Service Committee is a constitutional change and will require a vote of the membership in 1986.

D. Svik, Chairperson

SEED STANDARDIZATION COMMITTEE

The Seed Standardization Committee was established as a Standing Committee at the 1984 Boise, Idaho meeting. In the past this Committee had been an Advisory Committee to the Seed Standardization Laboratory at Beltsville, Maryland.

The operating procedures for this Committee were printed in the September 1984 Newsletter. The three sub-committees are fully staffed and have been functioning this past year.

The Seed Sample Mediation Sub-committee has had only one inquiry to date. No fees have been determined pending the processing of several samples.

The Teaching and Training Sub-committee has formulated the contents for a Beginning Seed Analyst Short Course. Courses were held in April 1985 in Ames, Iowa and in May 1985 in Corvallis, Oregon. The same course will be offered in Colorado and New York in 1986.

The Uniformity Sub-committee referred four items to the Rules Committee for its consideration. Three of those items were concerned with testing situations not covered by the Rules, and the fourth was concerned with a newly adopted rule that needed some adjustments.

The Seed Standardization Committee has an important place in AOSA. Therefore, it needs your full support, input and cooperation.

W. P. Ditmer, Chairperson

C.A.S.T.

CAST has a new Executive Vice President. He is Dr. William W. Marion. Dr. Marion will leave his position as head of the Iowa State University, Department of Food Technology, to assume the top administrative position at CAST.

Dr. Black will remain closely associated with CAST as the Executive Chairman of the Board and will assist Dr. Marion with editorial and administrative duties.

The Board of Directors did not approve the establishment of any new task forces at the February meeting at Arlington, Virginia. However, there are some on-going task force activities that will be brought to a conclusion this year. These include,

1. The introduction and dissemination of pests of plants and animals.
2. Genetic engineering in agriculture.
3. Pesticide and growth regulator residues in imported foods.
4. Forage production and utilization in agriculture.
5. Diet and health.

6. Plant germplasm preservation and utilization in agriculture.
7. What is a toxic substance?
8. Foods are chemicals.
9. Silenium in animal nutrition.

Needless to say, this is a formidable list published or to-be-published items. They are also up-to-date, high quality and timely publications. I firmly believe that CAST is making an outstanding contribution to everyone in the American society by making them available, especially at a time that they are most needed. CAST needs the support of AOSA both as an organization and as individual members and we need CAST.

The magazine "Science of Food and Agriculture" is a success. Reports from high school science teachers have been very supportive and appreciative. (Check page 25 of Volume 3, No. 1, January 1985) Dr. Miller B. McDonald was featured in a career opportunity spot.

I urge the AOSA membership to continue the Ben Clark memorial in support of this attractive magazine.

An analysis of AOSA involvement in CAST by Charles A. Black follows:

SUBJECT: Involvement of the Association of Official Seed Analysts (AOSA) in Activities of the Council for Agricultural Science and Technology (CAST), as of 4/11/85

This is a report on the involvement of AOSA in the activities of CAST—what the involvement means to CAST and what it means to AOSA. Involvement of AOSA in CAST activities has two-way significance.

The scientific society members control CAST's activities. The guidance supplied by the Board of Directors, on which each member society is represented, is essential to the unity of agricultural science and the effectiveness of CAST. In a very real sense, the scientific society members are CAST. Each member contributes to CAST's progress, credibility, acceptance, and prestige. The collaboration of the scientific societies in their joint endeavor in CAST has made it possible to address in their full complexity the national issues in food and agriculture, which are predominantly multidisciplinary. Additionally, the collaboration of the societies in a unified way in CAST has made it possible to develop considerable funding from sources other than the societies. These additional funds greatly extend the effectiveness of the seed money and scientific input from the societies. To date, the scientific society members have contributed in the aggregate 14.68% of the total income CAST has received. At present, the annual payments by the member societies in support of CAST cover approximately the cost of the two Board of Directors meetings held each year.

At the same time, membership in CAST is beneficial to member societies, whose individual members participate in CAST projects. As professionals, many individual members of scientific societies are of the opinion that their disciplines make a significant contribution to the national welfare, and they desire to have their expertise used in the public interest to make known the scientific background of national issues to which their disciplines are relevant. This probably is the principal reason that individuals support the membership of their respective societies in CAST. Beyond this altruistic objective may lie also a certain amount of long-range self-interest in bringing to the attention of decision-makers and opinion-leaders the contribution to the public welfare that is made by their individual branches of science, thereby justifying further public support.

The value of CAST to member societies in terms of addressing these objectives cannot be assessed in quantitative terms. Certain aspects of the process by which the objectives are addressed can be measured, however, and the analyses supplied herewith provide such an assessment.

The attached analyses show that persons recommended by AOSA have been members of two task forces that have produced publications, and have participated in five other CAST activities. AOSA participants are also involved in one other task force that is still at work.

ASOA's payments (totaling \$1,713) in support of CAST activities are equivalent to 0.06% of CAST's expenditures. The total cost of the pages in all publications to which AOSA participants have contributed has been \$210,192.

A. L. Larsen, Chairperson

MEETING PLACE COMMITTEE

The Meeting Place Committee did not receive any formal invitations from member States during the past year to host future meetings. As a result, the Committee strongly encourages those member States who have not hosted the annual meeting for several years to begin serious consideration of being a host State beginning with 1988 as the next open year.

We look forward to meeting in the following locations in 1986 and 1987:

1986 - Minneapolis, Minnesota, hosted by the Minnesota State Seed Laboratory.

1987 - Sacramento, California, hosted by the California Department of Food and Agriculture, Division of Plant Industry.

L. W. Nees, Chairperson

LIAISON COMMITTEE

President Wayne Still officially represented AOSA at the 1985 annual meeting of the Association of Seed Certifying Agencies (AOSCA) held June 17-20 in Boise, Idaho. He gave a summary of AOSA activities but stressed some of the new activities such as the Standardization committee and its three subcommittees, Analyst Accreditation, Tall Fescue Endophyte Committee, and Varietal Purity Committee. Loren Wiesner who has been appointed to a two year term on AOSCA's Advisory Board was also present to participate on the Advisory Board. Ed Hardin and Bob Trent also attended.

President Still represented AOSA at the American Seed Trade Association's (ASTA) annual meeting June 24-27 in Denver, Colorado where he again provided a welcome and summary of AOSA activities to the Seed Analyst Liaison Committee. Also in attendance were Louis Bass, Ed Hardin, Arnold Larsen and Bob Trent. Ed Hardin discussed teaching and training, sample mediation, and uniformity as envisioned by the Seed Standardization Committee. Arnold Larsen explained to the Lawn Seed Division the procedure for initiating a rule change in AOSA Rules.

Some resolutions from ASTA affecting AOSA are as follows:

1. AOSA is urged to rapidly develop endophyte testing procedures.
2. Request AOSCA through its Grass Variety Review Board to maintain a list of ryegrass fluorescence descriptions and that it be assumed perennial varieties are 0 and that annual are 100 percent fluorescent unless otherwise proven.
- 3a. Variants in facultative apomictic varieties (e.g., bluegrass) be considered pure seed and not off-types to be included in other crop.
- b. Accept AOSCA's definition of variant.
- c. State of origins analysis and tags represent lot unless it is determined they are in error.
4. Opposed to year of production labeling of seeds.

Dr. Loren Wiesner attended the AOSCA Advisory Board Meeting in Phoenix, Arizona, March 8, 1985. Two items of interest to AOSA were discussed:

1. AOSCA accepted the ASTA resolution to have the Grass and Legume Variety Review Board maintain a list of ryegrass fluorescent descriptions.
2. Dr. Wiesner was instructed to develop a tolerance table for field inspections relative to variance.

Rodger Danielson represented AOSA at the National Association of State Departments of Agriculture (NASDA) meetings held September

14-19 in Portland, Oregon. Those items discussed which are of interest to AOSA are as follows:

1. NASDA urges APHIS to continue vigorous enforcement of the sampling and testing of imported seed, including requirement for staining of imported alfalfa and red clover seed.
2. Commends APHIS for its prompt and continuing efforts in surveying, eradicating infestations and infected seed lots, and in biological research on the virus and strongly urges the ongoing critical review by APHIS of introduction procedures for plant breeding stock which would minimize the possibility of introducing other pathogens of this type.

The Association of American Seed Control Officials (AASCO) did not meet during the year. Their meeting, held every other year, will be in August 1985.

As evidenced by topics discussed at these meetings, it is important that we have good representation at these meetings. We were fortunate to have had our President representing us at the AOSCA and ASTA Annual Meetings. We look forward to continued good liaison with these and other organizations. SCST and the Canada seed technologists share such a close relationship with AOSA it is hardly necessary to promote liaison but we do appreciate their willingness to serve on AOSA committees and provide input into the Rules as the occasions arise.

During the past year our President established an exchange of Newsletters with the British Seed Technologist Secretary. Material is to be extrapolated and used in their respective Newsletters as it seems advisable. Hopefully, this will create a better understanding of each others organizations.

E. Hardin, Chairperson

AUDIT COMMITTEE

The Audit Committee examined the records of the Secretary-Treasurer on June 17, 1985, and found them to be in order.

D. Svik, Chairperson

SYMPOSIUM COMMITTEE

The Symposium Committee has arranged a program for Thursday, June 20 on, "Major Seed Problems in Forestry, Where do we Stand?" There will be five papers presented.

The Chairperson is soliciting suggestions for a symposium theme for 1986. If you have a favorite topic, please let him know.

F. Bonner, Chairperson

VIGOR TEST SUBCOMMITTEE

The primary objectives of this Committee are, 1) to standardize the seed vigor tests in the AOSA Vigor Testing Handbook for use in seed testing laboratories and (2) to develop and evaluate tests to measure various aspects and components of seed vigor in a wide range of crop species.

Old Business

It was indicated that the demand for the Vigor Testing Handbook had been excellent, however, few requests had been received for the pamphlet entitled "Understanding Seed Vigor." The primary purpose of this pamphlet was to provide educational information regarding seed vigor to seed analysts, seedsmen and seed growers. Therefore, the Committee recommends that all remaining pamphlets be distributed at no cost to members and associate members for use in their seed programs.

Since one of the Committee's objectives is to standardize vigor tests available in the Handbook, there was discussion regarding the best procedures for updating the membership regarding these changes. Wilcox moved that as revisions to test procedures occur, the sections should be revised, reprinted, and copies mailed to AOSA, SCST and associate members. A notice will also be published in the AOSA Newsletter which will notify others who have purchased the Handbook of these revisions. The motion was seconded by Delouche and passed. TeKrony indicated that he would proceed with revising pages 50-55 of the Handbook to incorporate the changes for the accelerated aging test approved in 1984.

New Business

Two research investigations were conducted in 1984-85 to evaluate the cold test and conductivity. The primary purpose of these studies was to compare alternative methods for these two vigor tests.

Conductivity

This study was chaired by Reusche (N.C. State) and included the following members and laboratories: Ashton (Ottawa); Galbreth (ICIA); Johnson (Pioneer); Keys (N.C. State), and Knapp (Iowa State). Five seed lots of three crops (corn, soybeans and peanuts) were evaluated using the bulk conductivity procedure and the ASA-610 single seed technique. All seed lots were also evaluated using the Computerized Automated Seed Analysis System (N.C. State) and planted for emergence.

Reusche reported that the study had been delayed due to a revised procedure for the single seed technique (ASA-610). It was proposed that the seed lots be redistributed to laboratories in 1985-86 and tested as outlined except to use the "old" testing guidelines for the single seed technique. The laboratory and field emergence results for both years will then be analyzed and reported in 1986.

Cold Test

This study was chaired by Samimy (Cornell) and included the following members and laboratories, Ashton (Ottawa); Beckwith (Gustafson); Johnson (Pioneer); Knapp (Iowa State); TeKrony (Kentucky), and Wilcox (Funks). Wilcox provided 10 corn seed lots which were evaluated using the shoebox, tray, and rolled towel procedures using soil provided by Samimy. Seed lots were also evaluated for field emergence in all locations. Samimy presented the laboratory and field results (Tables 1-3) and concluded that all cold test methods provided a good separation of vigor levels in the ten seed lots. The variation in results for the tray method was related to variation in procedures and insufficient soil to conduct the method as described. It was also concluded that the procedures as presently written in the Handbook do not provide sufficient detail for repeatable results when using the tray or rolled towel methods. A wide range in final field emergence between locations (Table 2) related to the soil conditions at planting ranging from little stress (TX) to extreme stress (KY). A good relationship between all three methods and field emergence at all locations was reported (Table 3) for all tests except the tray method when conducted in Kentucky (KY) and New York (NY).

It was concluded that the data provided good reason to examine the alternative procedures (tray and rolled towel) in greater detail in addition to the shoebox test. McDonald moved (Joo seconded) that the rolled towel and tray procedures in the Handbook be clarified and all three methods be compared in 1986. The motion passed. It was concluded that no additional field emergence data was needed at this time. TeKrony appointed Knapp and Beckwith to revise the tray and rolled towel procedures, respectively.

Vegetable Seed Vigor

Jenanyan presented the results of a survey of seed laboratories regarding vegetable seed vigor testing. She reported that 7 of the 13 laboratories responding were presently conducting some type of vigor test and that most were willing to share their procedures with the Committee. A summary of the crops currently being tested and the methods used was presented (Table 4). A motion was made by Joo (seconded by Delouche) that a study be initiated to examine the cold test methodology for carrots and cucurbits and the results be related to field emergence. The motion passed. TeKrony appointed Knapp to chair this subcommittee.

TeKrony indicated that several laboratories had asked if the Vigor Committee was aware of the use of the letters AOSA in advertising for the seed analyzer marketed by Neogen Food Tech Corporation. It was concluded the Committee had not approved such usage and did not endorse such advertising.

TeKrony indicated that several States had introduced legislation during the past year regarding the requirement for seed vigor information on the analysis tag of seed sold in the State. The AOSA Executive Committee had requested a policy statement regarding such action which could be used in future legislative matters. After lengthy discussion the Committee concluded that the policy of the Vigor Committee regarding the standardization of vigor tests and marketing of seed was clearly stated in the pamphlet entitled "Understanding Seed Vigor." Woodstock moved (Wilcox seconded) that in the future this pamphlet be used as the position of AOSA and that any clarification of vigor testing be directed to the chairman of the Vigor Subcommittee. Motion passed.

Table 1. Results of the 1985 cold tests for two cultivars of corn.

Sample No.	Cold test emergence				Rolled Towels
	Shoebox	Tray (NY)	Tray (IA)	Tray (KY)	
	%				
1	81	78	96	38	91
2	69	77	82	35	74
3	91	87	95	55	95
4	53	51	89	16	85
5	94	92	96	51	93
6	88	88	94	62	94
7	74	67	79	53	81
8	72	77	80	57	78
9	83	86	90	57	91
10	48	63	69	33	71

Table 2. Final field emergence of ten corn seed lots tested in 1985.

Sample No.	Field emergence (21-day) count							Ottawa	Average F.E.
	NY	IA	TX	IL	IN	KY*			
	%								
1	95	86	89	81	88	73	91	86	
2	74	73	80	75	70	48	50	67	
3	92	82	95	72	91	80	86	85	
4	86	82	87	77	81	58	78	78	
5	91	85	94	92	87	78	93	89	
6	92	80	91	89	87	80	84	86	
7	80	68	82	75	80	68	74	75	
8	75	71	77	75	74	58	67	71	
9	85	85	86	83	87	80	88	85	
10	56	70	68	70	69	48	60	63	

*35-day count

Table 3. Correlation coefficients between the cold tests and field emergence for the 21-day count.

Location	Shoebox	Tray (IA)	Tray (KY)	Rolled towels	Tray (NY)
NY	0.76*	0.96**	0.28	0.92**	0.49
IA	0.53	0.89**	0.01	0.83**	0.43
KY	0.87**	0.80**	0.65*	0.95**	0.69*
IL	0.63*	0.67*	0.36	0.65*	0.58
IN	0.77**	0.89**	0.40	0.98**	0.54
Ottawa	0.68*	0.82**	0.34	0.93**	0.46
TX	0.79**	0.96**	0.29	0.94**	0.55
Averaged across all planting locations	0.80**	0.94**	0.39	0.99**	0.59

**,* Denotes significance at 0.01 and 0.05 level of probability

Table 4. Summary of vegetable seed vigor testing survey showing crops currently being tested for vigor and methods used.

<i>Crop</i>	<i>Method</i>
Lettuce	AA
Lettuce	Root length; 24 hour emergence; germination at 27C
Lettuce	20/30C dark; 20C dark; germination temperature range on the thermogradient table 60-90F or 50-80F
Garden beans	AA (2 labs)
Garden beans	Cold test
Lima beans	Perfect seedling
Sweet corn	AA; Cold test
Sweet corn	Cold test (2 labs)
Garden peas	Conductivity; Root emergence
Cucumber	Cold test
Tomato	3 day count; cold test - 60F measure at 5 days
Pepper	5 day count; 14 day cold test
Carrot	AA - closed tray, 72 hours at 41C
Onion	AA - closed tray, 72 hours at 41C

Requested further investigation on:

Brassicas (2), Lettuce (3), Peppers, Tomatoes, Carrots (3), Celery, Beans, Onions, all vine crops, cold test for cucurbits, heat stress test for those species planted in the desert. Comments: More field data is needed to substantiate the validity of vigor tests.

D. TeKrony, Chairperson

MERIT AWARD COMMITTEE

The recipient of this year's AOSA Merit Award has been chosen for his continued dedication and his many contributions to the field of seed technology. He is an Associate Member of AOSA and has been active in both AOSA and ISTA as Chairman of the Tetrazolium and Vigor Test committees. He has authored over 300 articles on seed quality and the diagnosis of seed disturbances, and is perhaps most noted for his "pursuance of excellence" in TZ testing. The recipient of the 1985 Merit Award is Dr. R. P. Moore.

Dr. Moore was born and raised in Blackburn, Oklahoma. He received his B.S. degree from Oklahoma State University and his M.S. degree from Iowa State University. It was at the time he was working toward his Ph.D. at Ohio State University that he started his career in biochemical seed evaluation.

He has been an Instructor in Crop Science at Oklahoma State University, Assistant Professor of Agronomy at the University of Tennessee and Associate Professor in Charge of the North Carolina State University Official Variety Testing Program. While he was Director in Charge of the North Carolina Crop Improvement Association, he

- established a genetic purification program (head-to-row and plant-to-row) for certified varieties of small grains and soybeans;
- initiated verification planting for varietal identification and purity of certified seed lots;
- introduced Tetrazolium testing for rapid diagnosis of seed quality;
- introduced and refined the embryo smut evaluation for wheat and barley to be planted as foundation or registered seed, just to mention a few of his accomplishments.

He served as Professor of Research in Crop Stands from 1953-1977 at North Carolina State University. During this time, his major emphasis was on biochemical techniques for determining seed quality. He was able to diagnose seed disturbances resulting from mechanical and insect injury, aging, heat damage, freezing, calcium deficiencies and plasmolysis deplasmolysis injury. Because of his expertise, he gained both international as well as national recognition. He received grants from the American Seed Research Foundation and served on both the American Seed Research Foundation Scientific Advisory Council and the American Society of Agronomy. Since 1977, he has held the position of Professor Emeritus of North Carolina State University.

Dr. Moore has taken part in numerous ISTA congresses, participated in an International Union of Forest Research Organization (IUFRO) symposium, conducted a Tetrazolium Testing Workshop in Brazil and edited the ISTA Tetrazolium Seed Testing Handbook. He has been an

active member of the community. He still is very active in Tetrazolium testing and plans to attend the 1986 ISTA Meetings. In addition to having membership in AOSA, SCST and ISTA, he has been a member of, The American Peanut Educational and Research Society, American Seed Research Foundation, The American Society of Agronomy and The Crop Science Society of America, to name a few.

He has received numerous awards for his achievements including:

Outstanding Service Award - N. C. Crop Improvement Association

Man of the Year Award - Southern Seedsmen Association

The R. P. Moore Award - N. C. Farmhouse Association

Outstanding Service Award - N. C. Farmhouse Chapter

Honorary Member Award - Society of Commercial Seed Technologists

Honorary Member for Outstanding Service Award - N. C. Seedsmen's Assoc.

Layman of the Year Award - Fairmount United Methodist Church

Those who have studied under Dr. Moore, or have in some way been associated with him, can easily understand how he has accomplished so much during his career. It is his energy, his inquisitive nature and his enthusiasm that has enabled him to excel in this field. After reviewing just some of his many contributions, I'm sure everyone will agree he is most deserving of this award.

Unfortunately, Dr. Moore is not here this evening to accept the Merit Award, so I have asked George Spain to accept the award for Dr. Moore and present it to him at an appropriate time.

E. M. Chirco, Chairperson

ANALYSTS CERTIFICATION COMMITTEE

Examinations for certification of seed analysts in purity and germination testing began in 1984-85. Examination coordinators for the five regions (corresponding to AOSA-SCST referee regions) are:

Northwest	Region I	Roger Danielson, Oregon
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Midwest	Region II	Jim Lair, Illinois
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Northeast	Region III	Beverly Jackson, Virginia
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Southwest	Region IV	Randy Kocurek, Texas
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Southern	Region V	Monte Lange, Arkansas
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Forty-three (43) purity and forty-seven (47) germination examinations (written portions) were sent to coordinators. They were identified by number, with instructions to supervise the examination, collect all written work and return to the Committee Chairman for scoring and for filing. Ten (10) purity exams and ten (10) germination exams were returned, not

marked. Practical examinations were developed by each coordinator for their particular regions. The coordinators were asked to score the practical exam portion during the testing procedure.

Thirty-seven (37) germination exams were given. Two (2) written and two (2) practical examinations were scored substandard. Thirty-four certificates by examinations and six (6) by RST were awarded.

Thirty-three (33) purity exams were given. Four (4) written and two (2) practical examinations were scored substandard. Twenty-eight (28) certificates by examinations and six (6) by RST were awarded.

Forty (40) analysts took either one or both purity and germination exams. Six (6) analysts were scored substandard in one or more of the written and practical exams.

Seventeen (17) States have one or more analysts certified by examinations. Three (3) States have analysts certified by acceptance of RST examinations for AOSA certification. A total of twenty (20) States and the USDA National Seed Storage Laboratory have certified analysts.

The Committee failed to survey all States and USDA laboratories for the names of official analysts who have passed the RST examinations. That should be accomplished soon and certificates will be prepared for them. Examinations for the States in the Northeast Region are yet to be scheduled. They will be notified when examinations will be given.

The Committee expresses appreciation to Joe Lamb, Illinois Crop Improvement Association Laboratory, and Jim Bruce, Vocational Technical Laboratory at Colorado, for their assistance in the examination process in their regions.

The Committee is operating on the policy that examination scores are not to be published or given to anyone except the analyst or the analysts' supervisor.

Priority on first round examinations was requested for laboratory supervisors. This was done to establish certified analysts who will be qualified to assist coordinators in future examination schedules, and to assist the Committee in a critique of the examination during the 1985 AOSA meeting. There needs to be a careful review and critique during the beginning years to be certain the examination is both comprehensive and fair.

Certificates have been developed, and approximately 500 copies of each are printed.

An AOSA seal has been developed for use by the Committee for imprinting certificates as well as for other AOSA use. It is a facsimile of the logo on the Journal and other Association forms.

Examinations during 1985-86, coming between the annual meeting will be offered to the extent that they can be handled by the coordinators.

However, the committee urges supervisors to counsel with analysts and try to advise them when they think analysts are ready. In the opinion of the committee, there is no urgent need to rush an analyst until this round of tests by supervisors is assimilated; and in light of their experiences, counseling is done with other analysts who have had training and experience adequate to prepare for the examination. At the same time, there is no good reason to hold an analyst back if he or she is ready.

Keep in mind, as far as AOSA is concerned, taking the exam is voluntary. Program managers may temper the AOSA position as they see fit for internal management reasons.

The successes of this year are attributable to the dedicated work of the exam coordinators, who are a part of this Committee. Others on the Committee are most grateful to them for their efforts. In addition to the coordinators, the following persons have served faithfully in arriving at this point in our Association's history,

Ed Hardin
Wayne Still
Sandy Ednie
LeRoy Everson (Ret.)
Dwight Lambert (Ret.)

Addendum

The Committee has had the Association of Official Seed Analysts incorporated in the State of North Carolina, April 16, 1985. We are now a non-profit corporation.

The Committee also recommends to the Association that the Constitution and By-laws be studied to determine if this function should become a part of said constitution and by-laws, and further recommends this Committee be established as a Standing Committee.

G. E. Spain, Chairperson

FLOWERSEED COMMITTEE

The AOSA/SCST Flowerseed Committee met this year at the annual meeting in Richmond, Virginia. I was very pleased that 30 people attended our meeting with good participation and interest from both organizations. We discussed the 1984 referee and possible referees for 85/86. Hopefully, these will include an evaluation of root problems on scarified geraniums and possibly a new crop Vinca.

There was an open discussion of the possibility of including flower seedling descriptions in the new Seedling Evaluation Handbook. Ellen Chirco distributed a questionnaire concerning the role of the Committee members in developing flower seedling descriptions.

Aleta Meyr suggested a possible 1 or 2-day flowerseed workshop preceding the annual meeting in California in 1987. This would be an AOSA accredited workshop dealing with specific problems in germinating flower seed. The idea was well received and I felt there would be a good turnout at a workshop of this kind.

The following is a brief summary of the two 1984/85 referees conducted by the Flowerseed Committee:

Dimorphotheca Germination

A very dormant sample of the stick type *Dimorphotheca* was sent out and participants were asked to plant it 2 ways. TB,P at 15°C according to AOSA rules and TB,P,KN₃ light at 15°C, suggested method for fresh seed according to AOSA. Participants were asked to determine the percentage of viable ungerminated seeds at the end of the new prescribed test length of 14 days, and a new method was suggested. Firm seeds at the end of 14 days could be clipped at the tip of the cotyledon end and placed back in test on media moistened with a solution of 500 ppm GA₃. The results showed that the present suggested method for fresh seed was not adequate for breaking the dormancy in this sample and the new suggested method was tried and proved to be easier and as dependable as TZ or other methods for determining dormant live seed.

Scarified Geranium Germination

Two samples of scarified geraniums were sent out, each was to be tested at 20-30°C according to AOSA and a new proposed temperature constant 20°C with a 6-day first count and 14-day final. Most labs preferred the cooler temperature and there is some indication that the 20°-30°C induces more dormancy and acts as a stress temperature on scarified geraniums. Most people felt that the growth test could be terminated on 14 days and that remaining swollen or hard seed should be clipped or rescarified to determine total viability of the test. Several people felt that a good seedling description was needed particularly pertaining to root problems in scarified geraniums.

E. M. Chirco and A. Meyr, Co-Chairpersons

STANDARDIZATION RESEARCH FUNDING COMMITTEE

Purpose:

1. To support standardization research toward development of uniform testing techniques in critical areas. This will promote the primary function of AOSA through timely establishment of uniform testing standards and rules.

2. To support the Teaching and Training Subcommittee in conducting seed analyst training workshops.

Membership survey and recommendations:

The AOSA Officers, Executive Board, Research Committee and Research Subcommittee chairmen were sent a questionnaire concerning the development of funding. Of 24 questionnaires sent, 14 responses were received. Support for funding of standardization research was indicated by 12 respondents. The 2 remaining respondents were undecided whether funding was appropriate or whether it can be generated at an effective level.

When asked whether a general fund should be established to support areas recognized by AOSA as needing standardization research or if funding should be solicited for specific projects, the consensus of opinion indicated that the latter option would likely have the most immediate success. However, development of a general fund could provide for long range objectivity and development in critical areas. Hence, it was widely indicated that both funding approaches should be pursued.

The following organizations were suggested as possible sources of funds:

- AOSA - portion of membership dues
- Federal and State Departments of Agriculture
- National and State seed trade organizations
- National and State Seed Certifying Agencies
- American Seed Research Foundation
- Commodity groups
- Seed companies

Replies emphasized that we should thoroughly develop our goals, needs and policy prior to proceeding further. This should be done with close involvement of the AOSA President and Executive Board. Following are developments recommended for the coming year.

1. Establish a Standing Committee for standardization research funding. In addition to the chairman, members should include the AOSA President, an Executive Board member, chairmen of the Research, Referee and Training committees and an SCST representative.
2. Policy should be established defining goals, procedures and methods of application for funds and progress review.
3. An information letter should be developed for presentation to potential funding sources describing specific research projects and needs. Guidelines and objectives of funding should be clearly stated.

W. Guerne, Chairperson

PROPOSED EXECUTIVE SECRETARY COMMITTEE

An Executive Secretary would work under the direction of the Association President. The Executive Board shall set policies and procedure for coordination of this position. This individual would conduct the operations of the Association as it relates to publications, financial transactions, liaison with other associations or groups, and handle other duties assigned by the Association, President, and Executive Board.

Executive Secretary Duties and Responsibilities

1. Set up and manage an Association permanent office.
2. Help the editor coordinate printing of publications.
3. See that policies and procedures established by the Association are followed.
4. Handle the financial transactions of the Association.
5. Prepare financial statements and budgets for the Association.
6. Represent the Association at various meetings at which AOSA representation is necessary and desirable.
7. Work with the Seed Standardization Committee on standardization and education.
8. Prepare announcements for trade magazines and newsletters concerning meetings, new publications, and official rules changes and their effective dates.
9. Distribute Association publications.

Executive Secretary Salary:

This position should start as a one fourth time position with a base salary of \$5,000. This salary range and type of position is similar to that of other organizations. Presently, AOSCA has an Executive Vice President at one fourth time with a salary of \$6,000.

Executive Secretary Operations Budget:

The most important operational expenses are salary for a part-time secretary and travel. Based on budgets of other organizations, I would recommend an operations budget of \$3,000. After the first year of operations, we would have a better idea of the specific expenses and could then prepare a more detailed expense budget.

Executive Secretary Financial Support:

I would recommend that we increase our dues by \$70.00 per laboratory to pay the Executive Secretary's base salary. The operational expenses would come from our present budget and, in part, from the dues increase in 1985. Present laboratory dues are \$100.00.

Other Suggestions Concerning Finances:

During my deliberations concerning financing the Executive Secretary position, I received other suggestions which should be considered.

1. Make the base salary \$4,000 and increase laboratory dues by \$50.00. This would be a minimum start to see if the position is what we need.
2. Make the base salary \$5,000 and increase laboratory dues by \$100.00. This increase would finance the Executive Secretary's salary and would have money left over for expenses and/or finance support for AOSA research projects.

L. Wiesner, Chairperson

ADHOC COMMITTEE

A joint AOSA/SCST Committee met Sunday, June 16, 1985, to discuss testing problems associated with the inclusion of certain crop seeds on the Federal all-state noxious weed seed list.

Committee members were Cecilia Kollack, Dave McClure, Loren Wiesner, Paul Johnson, Robin Foy and Gerry Lindall.

The Committee recognized that seed traditionally called crop seeds now are being called noxious when occurring in turfgrasses. This may cause confusion and non-uniformity in reporting. The main areas where non-uniformity will arise are in recognizing when a crop is considered a turfgrass and in knowing when to apply the noxious terminology and in the reporting format.

Therefore, it was the consensus of the Committee that the problem be directed to the AOSA Standardization Committee for direction regarding the uniform classification of these seeds by analysts.

R. Danielson, Chairperson

PRESIDENTIAL ADDRESS

T. Wayne Still

The objective of the Association of Official Seed Analysts is to improve seed testing in all its branches and to make it more useful to agriculture and society. So states the constitution. This is a very worthy objective and one that all of us should enthusiastically endorse and strive to accomplish. I believe for the most part we have done this - at least within the resources available to us at the time.

AOSA is a service organization and our service in one way or another touches everyone, as seed is basic to the production of food, feed, and fiber. Without seed there would be no agriculture, or society, and certainly no seed analysts. We need to recognize and understand that seed testing is a service component of the seed industry and that our major clients are seed producers, seed companies, seed consumers, and seed control.

A major responsibility of AOSA, and one which we must continually face up to, is the development and maintenance of the Rules for Testing Seeds. It is imperative that we keep these "rules" up-to-date. No one is going to do it for us. This is the purpose of this meeting. This is the reason for being at this place.

Another responsibility of AOSA is to provide to the membership through schools, workshops, and seminars instruction and hands-on training in the application and interpretation of the Rules for Testing Seeds. We are doing this, and in good fashion.

At the meeting last year in Boise the Association approved the Seed Standardization Committee. This Committee has three functions (three subcommittees) - Teaching and Training, Sample Mediation, and Uniformity. The Committee immediately went to work. The Uniformity Subcommittee submitted proposals for "rules" changes that will result in uniformity of testing, the Sample Mediation Subcommittee mediated test results of a sample, and the Teaching and Training Subcommittee conducted two basic seed schools of two-week duration, with twenty-five analysts in attendance. In addition to providing basic training for beginning analysts this group will also provide advanced training for experienced analysts, and will use standardized subject matter and teaching methods, which should contribute to uniformity of test results.

It is my belief and expectation that the activities of this Committee will do more in the areas of standardization and uniformity than we have ever before been able to accomplish.

Last year in Boise the Association also approved a procedure for examining analysts as to their competence in seed testing with subsequent certification of those successfully completing an examination. As with the

Seed Standardization Committee, this Committee (Certification of Analysts) immediately implemented the procedure and scheduled examinations at several locations. Forty candidates were examined and most passed. The Committee will administer the examination on a continuing basis.

Why have I mentioned these activities? To let you know that for the first time AOSA is, in an organized determined effort fulfilling a long overdue function and responsibility in the areas of training, standardization, and certification of analysts. AOSA is facing up to its responsibilities. In short, AOSA has come of age.

AOSA is indeed alive, well, and progressing. How do we maintain this status? I believe that several things are necessary to keep our Association viable, strong, and visible. These are:

1. Establishment of a permanent secretary - The business and activities of the Association have grown to such an extent that it is virtually impossible for anyone, in addition to their normal duties, to respond in a timely manner to the duties and responsibilities of the office and I believe it is unreasonable to ask or expect one to do so. I, therefore, recommend that this Association as soon as possible obtain a permanent secretary on a part-time basis.

In addition to relieving the workload situation this would also enhance liaison with affiliate organizations and provide AOSA with a permanent address thereby eliminating many of the communication problems we now experience. Funding would come from member laboratory membership dues.

2. Funding for standardization research - In the past research leading to "rules" changes and standardization has been from voluntary efforts of member laboratories, associate members, and the Seed Standardization Branch which is now the Federal Seed Laboratory. This research has been without financial support of AOSA and sometimes without specific financial support of the laboratory or individuals own organization, resulting in a "research when we can" atmosphere. Needless to say, this "bootleg" approach to research is not the most desirable as it is usually not a regular and continuing basis, may not speak to the priority items, and may not be of the scope and depth necessary for sound "rules" changes. I am of the opinion that the time has come for AOSA to establish a fund and a procedure for research. This can be accomplished through the present organizational structure of the Research Committee. Funding would be provided in the form of grants from various organizations concerned with standardization of seed testing and from member laboratory membership dues.

3. Uniformity of test results - Differences in test results has plagued this Association since its beginning and has been one of the most controversial aspects of seed testing.

The desired degree of uniformity has indeed been elusive and difficult to attain, but this is no reason or excuse to accept anything short of the best. To achieve uniformity we must identify and eliminate or reduce to an absolute minimum the factors that contribute to non-uniformity of interpretation, and consequently application of the "rules."

We all know that in the "rules" are statements that require interpretation by the analyst and we may not always make the same interpretation. For example, a normal seedling is described, in part, as having a "long, vigorous primary root . . ." How long is long? How is an analyst to determine whether or not a root is "vigorous"? Another example, how would an analyst recognize a root that is "clearly shortened"? We could go on and on, not only with seedling descriptions but other areas as well.

It is clear to me that the Rules for Testing Seeds contribute to differences in test results in that they are in some instances vague, incomplete, and perhaps a bit misleading. It is also clear to me that this is something we can correct. With our wealth of talent, intellect, and determination we should be able to say what we mean and mean what we say.

There is another topic I want to mention briefly — tall fescue endophyte — which is probably the most cursed and discussed subject of the year. AOSA received from ASTA, following their 1984 annual meeting, a resolution on this subject urging AOSA "to rapidly proceed with the development of testing procedures that will provide consistent, repeatable and cost effective information that may be relied upon for labeling purposes and which would permit uniform labeling among states." A subcommittee of the Research Committee was appointed to respond to ASTA's concern. The Committee, probably in record time, developed procedures and submitted them to the Rules committee. The proposed "rule" will be considered for adoption at the business meeting tomorrow. I am of the opinion that the procedures are sound, meet appropriate "rules" criteria and therefore should be adopted.

Ours is a worthy profession, one in which we can take pride, and one that we need not apologize forever.

We have a tremendous responsibility - to ourselves, to the Association, and to our clients. Anything but our best is not good enough.

We must realize, as individuals and as an Association that the significance of our work places on us a special sort of responsibility. We can't delegate or skirt this responsibility - we must face it head on. I believe we have done this, especially during the past several years.

It has been an honor and a pleasure to serve as President of AOSA, and I wish to thank the Executive Board, officers, committees and members for your support and help. Without such support our Association could not survive.

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