

December 31, 1975

Dr. E. E. Hartwig  
Department of Agronomy  
Delta Branch Experiment Station  
Stoneville, Mississippi 38776

Dear Dr. Hartwig:

We mailed today by United Postal Service copies of the proposals to the American Soybean Association.

Best Wishes for the New Year.

Sincerely yours,

Billy E. Caldwell, Head  
Department of Crop Science

BEC/cr

AMERICAN SOYBEAN ASSOCIATION RESEARCH FOUNDATION

Statement of Cash Receipts & Disbursements  
For the Period October 1, 1975 - December 31, 1975

Checking Account	\$ 10,817.47	
Savings Account	<u>123,034.35</u>	
Total Cash Balance 10/1/75		\$133,851.82

Cash Receipts

South Carolina Soybean Promotion Board	5,000.00	
Interest Income	<u>290.76</u>	

Total to account for		\$139,142.58
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Cash Disbursements

Iowa State University (72-ASARF-001-4)	\$ 12,321.00	
University of Illinois (74-ASARF-102-3)	5,000.00	
Consultant fees	753.76	
Audit	196.01	
Travel Expenses	<u>382.27</u>	

Total Disbursements		<u>18,653.04</u>
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Cash Balance 12/31/75		<u><u>\$120,489.54</u></u>
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Summary of Cash Balance

Checking Account	\$ 2,164.43	
Savings Account	18,325.11	
Certificate of Deposit	<u>100,000.00</u>	

	<u><u>\$120,489.54</u></u>	
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AMERICAN SOYBEAN ASSOCIATION RESEARCH FOUNDATION

SCHEDULE D-1

Contracts  
Schedule of Committed Funds

December 31, 1975

CONTRACT WITH	TOTAL CONTRACT AMOUNT	PAYMENTS MADE		FY76 PAYMENTS DUE		FY77 PAYMENTS DUE		FY78 PAYMENTS DUE	
		DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT
72-ASARF-001-4 Iowa State University (Cytogenetics)	\$ 48,963	9/1/72 7/24/73 10/9/74 10/1/75	\$12,000 12,321 12,321 12,321*						
74-ASARF-101-3 N. C. State Univ. (Glycine Max)	39,388	1/10/74 5/30/75	11,772 13,794	1/10/76	13,822*				
74-ASARF-102-3 University of Illinois (Harvesting Equipment)	30,000	6/14/73 10/9/74 5/30/75 10/1/75	10,000 5,000 5,000 5,000*	4/9/76	5,000*				
74-ASARF-103-3 Iowa State Univ. (Leaf Photosynthesis)	41,190	1/10/74 5/30/75	14,910 13,140	1/10/76	13,140*				
74-ASARF-104-3 University of Illinois (Regulating Yields)	44,756	1/10/74 5/30/75	14,904 14,929	1/10/76	14,923*				
74-ASARF-105-3 University of Minnesota (Nitrogen Nutrition)	45,000	2/15/74 5/30/75	15,000 15,000	2/15/76	15,000*				
74-ASARF-106-2 University of Missouri (Carbon-14)	21,686	1/25/74 10/9/74 8/6/75	7,230 7,228 7,228*						
75-ASARF-207-3 University of Illinois (Energy Requirements)	30,000	4/1/75	6,700	7/1/76	11,300	7/1/77	12,000*		
75-ASARF-208-3 University of Wisconsin (Effect of Temperature)	30,000	3/5/75	10,000	7/1/76	10,000	7/1/77	10,000*		

\*indicates final payment

CONTRACT WITH	TOTAL CONTRACT AMOUNT	PAYMENTS MADE		FY76 PAYMENTS DUE		FY77 PAYMENTS DUE		FY78 PAYMENTS DUE	
		DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT
75-ASARF-209-3 Auburn University (Root Restriction)	\$ 30,000	3/1/75	10,000	5/1/76	\$10,000	5/1/77	\$10,000*		
75-ASARF-210-3 Louisiana State Univ. (Insect Pests)	30,000	5/30/75	10,000	6/1/76	10,000	6/1/77	10,000*		
75-ASARF-211-3 Purdue University (Root Growth)	30,000	6/30/75	10,000	7/1/76	10,000	7/1/77	10,000*		
Totals	\$420,983		\$255,798		\$113,185		\$ 52,000		

SUMMARY

FY76	\$113,185
FY77	52,000
FY78	-0-
TOTAL	
<u>COMMITTED</u>	<u>\$165,185</u>

\*indicates final payment



# NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

SCHOOL OF AGRICULTURE AND LIFE SCIENCES

DEPARTMENT OF CROP SCIENCE  
Box 5155 Zip 27607

December 29, 1975

MEMORANDUM TO: American Soybean Association Research  
Advisory Committee

R. W. Judd	R. W. Howell
L. D. Newsome	W. R. Nave
E. E. Hartwig	W. L. Colville

FROM:

Billy E. Caldwell *B.E. Caldwell*

SUBJECT:

Proposal Review and Committee Meeting

We now have a revised schedule for the review of ASA Research Foundation Proposals and Advisory Committee meeting.

The meeting scheduled for January 22 is cancelled. After a discussion with some of you at Chicago recently, we decided it would be impossible to adequately review the 35 proposals prior to January 22. The advisory group is now scheduled to meet at 1:00 March 31 at the Hilton Inn in Memphis. We will complete our discussion by noon April 1. On April 2, those of us that are available will meet with the Foundation Board and make our recommendations. Mr. Jackson has made room reservations for us for the night of March 31.

As agreed at our last meeting, Dr. Hartwig will chair a small review panel to evaluate the proposals. After this evaluation, Dr. Hartwig will forward the top 15 to the Advisory Panel by March 15. At our meeting in Memphis we will rank the 15 proposals and select 10 for presentation to the Board. The Board will make its selection from these 10.

Later I will forward other discussion items. If you have any questions, please let me know.

Best Wishes for the New Year.

BEC/cr

cc: Ralph Jackson  
Nick Rose

November 17, 1975

MEMORANDUM TO: Dr. George J. Kriz  
FROM : Billy E. Caldwell  
SUBJECT : Draft Proposal for Submission to American  
Association Research Foundation.

The attached proposal is a joint proposal by Crop Science, Plant Pathology and Entomology. Dr. P. A. Miller acted as coordinator and the proposed cooperators prepared the proposal. Dr. J. R. Bradley served as leader.

I think this represents a unique effort for an interdepartmental approach to a real farmer problem. It is also in an area where we have the expertise and interest. Dr. Bradley's cover memorandum indicates the proposed time contribution by each of the scientists. This slight shift in Dr. Corbin's effort is in keeping with my desire to have his work more applied oriented. Dr. K. L. Knight participated in the initial discussions.

After your reviewing and suggestions, we will be glad to prepare the final for submission.

BEC/cr

Attachment



American Soybean Association Research Foundation

P.O. Box 158/Hudson, Iowa 50643 U.S.A. Phone 319-988-3295/Telex 465637

October 15, 1975



Dr. J. C. Williamson, Jr., Director  
North Carolina Agricultural Experiment Station  
P.O. Box 5847  
North Carolina State University  
Raleigh, North Carolina 27607

Dear Dr. Williamson:

The American Soybean Association Research Foundation announces the availability of funds for new innovative soybean research approaches in the area of pesticide interactions. Research proposals should deal with problems of pesticide interactions with broad national or regional significance. This research is to be aimed at the goal of increasing yields per acre.

We are inviting proposals from your institution on research in the area mentioned above. These proposals should be submitted as quickly as possible, but no later than November 30, 1975. The proposals are to be sent to Ralph T. Jackson, Executive Vice President, ASA Research Foundation, P. O. Box 158, Hudson, Iowa 50643 and should contain the following:

1. Title
2. Objectives
3. Plan of Research
4. Relate proposed research to other research underway
5. Relate proposed research to increasing soybean yields
6. Budget - submit budget showing ASA vs. other contribution, i.e. college, ARS, other
7. Qualification of individuals and institution
8. One page summary of objectives and expected benefits in 'farmer' language

Proposals and budget requests from the Foundation should not exceed \$10,000 per year for a maximum duration of three years.

The Executive Vice President will acknowledge receipt of the proposals and forward them to the Chairman of the Soybean Advisory Panel for evaluation. The Panel will begin their evaluation soon after the proposals are received and the Chairman will report to the Foundation in January. The following criteria will be used to rate each proposal:

1. Appropriateness of proposed research (including importance, relevance, and need)
2. Adequacy of objective



Dr. J. C. Williamson, Jr.

-2-

October 15, 1975

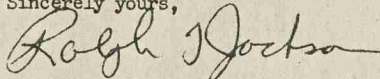
3. Originality of approach
4. Feasibility of realizing objectives
5. Documented qualification of principal scientist
6. Adequacy of facilities
7. Relevance of budget to objectives and plan of research

Once the proposals have been rated, they will be presented to the Foundation Board for final ranking and selection for funding.

The Executive Vice President will be responsible for notifying all institutions relative to the acceptance or rejection of the proposal. For those approved a Memorandum of Understanding between the ASA Research Foundation and the institution will be negotiated. For the purpose of evaluation, we request seven copies be sent to this office.

We hope to hear from your institution soon on your research proposal.

Sincerely yours,



Ralph T. Jackson  
Executive Vice President  
AMERICAN SOYBEAN ASSOCIATION  
RESEARCH FOUNDATION

RTJ/ms

NORTH CAROLINA STATE UNIVERSITY | AT RALEIGH

SCHOOL OF AGRICULTURE AND LIFE SCIENCES

AGRICULTURAL EXPERIMENT STATION  
Box 5847 Zip 27607

October 22, 1975

MEMORANDUM

TO: Dr. B. E. Caldwell

FROM: George J. Kriz *George J. Kriz*

SUBJECT: Proposals for the American Soybean Association Research Foundation

Attached is a copy of a letter from the American Soybean Association Research Foundation inviting research proposals dealing with problems of pesticide interactions. Please note that any such proposals must be submitted prior to November 30. If you think you will submit a proposal, please discuss it with us first.

GJK:ac

Enclosure

# NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

DEPARTMENT OF ENTOMOLOGY  
Box 5215 ZIP 27607

SCHOOL OF AGRICULTURE AND LIFE SCIENCES

November 17, 1975

## MEMORANDUM

TO: Dr. P. A. Miller  
Crop Science  
NCSU Campus

FROM: J. R. Bradley, Jr. *JB*

SUBJECT: Research proposal to be submitted to the American Soybean  
Association Research Foundation

Attached is the proposal Fred Corbin, Don Schmitt, John Van Duyn and I have prepared for ASA. We were somewhat unsure as to the percentage of research time to allocate to this project, but feel the following to be reasonable. (Bradley 5%, Corbin 20%, Schmitt 10%, Van Duyn 5%)

Only 2 of us have experiment station projects specifically on soybeans, Corbin - NC03470 and Van Duyn - NC03382. Don Schmitt has not been on the faculty for a sufficient time to have a project approved. I suppose my activity could be charged to NC03474, a project of Rabb, Stinner and Bradley which includes soybeans as one of the crops.

I assume that you will direct the proposal through the proper administrative channels on campus.

fls  
Attachment



AGRICULTURAL EXTENSION SERVICE

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

SCHOOL OF AGRICULTURE AND LIFE SCIENCES

AGRICULTURE EXTENSION SERVICE  
AGRONOMY SPECIALIST  
Box 5155  
RALEIGH, N. C. 27607

November 5, 1975

MEMORANDUM TO: Dr. Jim Dunphy  
FROM: Guy L. Jones, In Charge  
Crop Science Extension

The Board of Directors of the American Soybean Association will hold its annual winter meeting here in Raleigh at the Velvet Cloak on November 30 - December 3. On the afternoon of December 3, they will go out to the Cotton Incorporated for a tour. We have agreed to furnish some transportation for this.

Would you please arrange to have five cars with someone to drive them to take these people out from the Velvet Cloak to the Cotton, Inc., Crabtree Valley. Please contact Jim Wilder and confirm with him the times that he needs the cars. It would be my suggestion that maybe you would want to go with them as driver of one car so that you could become acquainted and also tour Cotton, Inc. and that you would use Donnie Hinnant. Work with some of the other specialists to get some of their technicians and cars to fill up the other gaps. If you find a specialist that has not been out there and wants to go on the tour this may be an opportune time. I will leave this to you to work out the details with Jim Wilder.

GLJ/pf  
cc: Dr. B. E. Caldwell



COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS, NORTH CAROLINA STATE UNIVERSITY AT RALEIGH, 100 COUNTIES AND U. S. DEPARTMENT OF AGRICULTURE COOPERATING



American Soybean Association Research Foundation

P.O. Box 158/Hudson, Iowa 50643 U.S.A./Phone 319-988-3295/Telex 465637

October 7, 1975

Memorandum

To: ASA Research Foundation Board  
From: Ralph T. Jackson  
Re: Minutes of Memphis Meetings

Enclosed are copies of the August 9 and August 13, 1975, ASA Research Foundation Board meeting minutes. After you have read these over, let me know if you have any corrections or additions.

Encl.

Minutes of Special Meeting  
American Soybean Association  
Research Foundation Board  
Memphis, Tennessee  
August 9, 1975

President Kuehn called the special meeting of the ASA Research Foundation Board to order at 3:30 p.m. Those present were: Harold Kuehn, President; F. C. Laughinghouse, Vice President; James Esche, Secretary-Treasurer; Howard Adler, Joe Coleman, Frank Ray, Vernon Scott, W. B. Tilton, Bob Judd and Dr. B. E. Caldwell. Board member Seymour Johnson was absent. Also in attendance were Ralph Jackson, Dr. Hal Lewis, Robert Howell, Gil Harrison, Ellsworth Stewart.

It was moved by Ray, seconded by Esche, that the ASA Research Foundation Board Minutes of January 22, 1975 meeting be approved as mailed. Motion carried.

SOYBEAN ADVISORY PANEL

Billy Caldwell reported on the meeting of the soybean advisory panel and officers of the ASA Research Foundation held on April 10, 1975, at Memphis, Tennessee. It was decided to change the name of this panel which was formerly referred to as the Blue Ribbon panel, to the Soybean Advisory Panel, and that this panel should meet once each year with the Board to discuss the status of current programs and the potential for future research programs. Ralph Jackson suggested that a number nine be added to the list of recommendations to the Board resulting from the special advisory committee meeting to read: The members serving on the Soybean Advisory Panel should be selected on a rotating basis with one or two year terms. However, the present members would serve for the remainder of this year without change. Frank Ray moved that the proposal by Billy Caldwell concerning the Soybean Advisory Panel be approved. It was seconded by Laughinghouse. Motion carried.

Future priorities outlined by the soybean advisory panel were to be discussed further in January when a clearer picture of sources of funds would be available.

FINANCIAL

Treasurer Esche distributed copies of the year-end financial statement. There was discussion of cash balance and future funding commitments. Many of the research project contracts will be expiring in this coming fiscal year. It was decided that these should be reviewed to determine if any should be extended or renewed.

FULL-DAY BOARD MEETING

It was agreed that a full day was needed to cover all the business of the

ASA Research Foundation. This meeting would probably be held in January and possibly at one of the areas in which a project is now being carried out. A definite place and time will be determined at a later date and the Board will be informed of it at that time.

#### WINTER NURSERY PROPOSAL

Hal Lewis reported on the Winter Nursery Proposal. The winter nursery would allow soybean breeders to grow more than one crop in a year. The winter nursery for cotton located in Iguala, Mexico was discussed and the possibility of the American Soybean Association Research Foundation funding such a program was considered. It was moved by Ray, seconded by Adler, that a pilot committee be formed to investigate the feasibility and physical aspects involved in establishing a winter nursery with the idea of making it self-sustaining after the initial investment. Discussion followed. Motion carried.

#### FARM IMPLEMENT AND EQUIPMENT INSTITUTE MEETING

Ralph Jackson reported on the meeting of the Farm Implement and Equipment Institute held in Kansas City on May 31, 1975, indicating that he had received some feedback from companies concerned with equipment and implements as they relate to soybean production. It was suggested that a follow-up was needed to these company heads to confirm their interest and enlist possible support from them in the future.

#### REPORT ON CURRENTLY FUNDED PROJECTS - DR. HAROLD LEWIS

Dr. Hal Lewis, ASA Research Foundation Consultant, distributed a mimeographed sheet listing and explaining the status of the projects currently being funded by the ASARF. All new projects are under way and satisfactory progress has been made on ongoing projects.

#### WORLD SOYBEAN CONFERENCE - ROBERT HOWELL

Dr. Howell, University of Illinois, served as chairman of the World Soybean Research Conference which was held in Urbana, Illinois on August 4-8, 1975. He reported that 622 people registered at the conference. Of that number, 149 were foreigners from 47 different countries. It was termed a successful conference which helped to establish a channel of communications between soybean producers around the world. Proceedings will be available in January and 25 copies will be sent to the ASARF at that time. Dr. Howell also reported on the National Soybean Research Coordinating Committee's recent meeting in which research priorities formerly established, were reviewed and re-evaluated as to their significance at this time.

Esche moved that the meeting be adjourned. Ray seconded. Meeting adjourned at 5:40 p.m.



Minutes of Annual Meeting  
American Soybean Association  
Research Foundation Meeting  
Wednesday, August 13, 1975  
Memphis Convention

The annual meeting of the ASA Research Foundation was called to order at 8:10 a.m. Those in attendance were: Hugh Wilson, F. C. Laughinghouse, Harold Kuehn, Howard Adler, Frank Ray, W. B. Tilson, Don Zaunbrecher, Nick Rose, Bob Judd and Hal Lewis.

The floor was opened for nomination of officers:

Harold Kuehn nominated Nick Rose as President of the ASA Research Foundation. Seconded by F. C. Laughinghouse. Carried.

Nick Rose then acted as chairman for the remainder of the meeting.

Mr. Tilson nominated Frank Ray as Vice President. Seconded by Howard Adler. Carried. F. C. Laughinghouse nominated Howard Adler to the position of Secretary-Treasurer. Seconded by Harold Kuehn. Carried.

Hal Lewis then pointed out the need to develop a rotation plan for members of the advisory panel to the Research Foundation Board.

A winter breeding facility was discussed as pending business for the January ASA Research Committee meeting.

Bob Judd spoke briefly on upcoming plans.

Harold Kuehn discussed the need for contact with agri business for additional contributions.

It was moved by F. C. Laughinghouse and seconded by Frank Ray that Hal Lewis contact FIEI to try to get on the marketing information program to explain ASA Research Foundation's programs with the purpose of soliciting funds. Carried.

Meeting was adjourned at 9:00 a.m.



SOYA—Serves The World

September 5, 1975

Dr. B. E. Caldwell, Head  
Crop Science Department  
North Carolina State University  
Raleigh, North Carolina

Dear Bill:

On behalf of the Research Committee of the American Soybean Association who met recently in Memphis, I want to pass on the special commendation and vote of thanks as expressed unanimously by the Committee to you for your excellent contribution to the Research Committee and to the soybean research effort. Bill, I might add that we don't expect to put you out to pasture just because you are changing jobs as we will be calling on you from time to time for advice and guidance on soybean research problems and priorities.

Again, thanks for a job well done and best wishes in your new assignment.

Sincerely,

*Vernon Scott*  
Vernon Scott



AMERICAN SOYBEAN ASSOCIATION  
55th Annual Convention  
Holiday Inn Rivermont, Memphis, Tennessee  
August 8-13, 1975

\*Heritage of LEADERSHIP\*

----- SCHEDULE OF EVENTS -----

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FRIDAY, AUGUST 8

Afternoon	Arrival of Directors and staff	
For entire convention	Secretarial Room	Suite 928
"	Press Room	Rooms 303 & 304
"	Black & White Photo Room	Board Room
"	Television Room	Rooms 301 & 302
"	Business Office	Suite 828
"	Storage Room	General Office
7:30 p.m.	Executive Committee Meeting	Heywood Room

SATURDAY, AUGUST 9

7:00 a.m.	Board of Directors Breakfast	Gloucester Room
8:00 a.m. - 8:30 a.m.	Board Meeting - Opening Session	Ivanhoe & Jerome
8:30 a.m. - 9:30 a.m.	Board of Directors Executive Session	Ivanhoe & Jerome
7:00 a.m.	State President's Breakfast & Meeting	Rivermont Club
9:45 a.m. - 12:00 Noon	Market Development Committee	Fairfax Room
9:45 a.m. - 12:00 Noon	Government Relations Committee	Library Room
9:45 a.m. - 11:00 a.m.	Research Committee	Heywood Room
11:00 a.m. - 5:00 p.m.	Resolutions Committee	Rivermont Club
1:00 p.m. - 2:30 p.m.	Credentials & By-Laws Committee	London Room
1:00 p.m. - 3:30 p.m.	Membership Committee	Ivanhoe Room
1:00 p.m. - 3:30 p.m.	PR and Publication Committee	Jerome Room

SATURDAY, AUGUST 9, Cont.

1:00 p.m. - 2:00 p.m.	Awards & Convention Committee	Kingston Room
1:00 p.m. - 3:30 p.m.	Budget & Finance Committee	Fairfax Room
3:30 p.m. - 5:00 p.m.	ASA Market Development Foundation Board	Fairfax Room
3:30 p.m. - 5:00 p.m.	ASA Research Foundation Board	Gloucester Room
6:00 p.m. - 10:00 p.m.	"Memphis Queen" Showboat Trip and Dinner hosted by Cook Ind.	Board Buses outside Hotel Door

SUNDAY, AUGUST 10

9:00 a.m. - 7:00 p.m.	Registration Desk Open	Outer Lobby
7:30 a.m.	Board of Directors Breakfast	Gloucester Room
8:30 a.m. - 10:30 a.m.	Board of Directors Meeting	Ivanhoe & Jerome
10:30 a.m.	Break for Church and Lunch	
1:30 p.m. - 5:00 p.m.	Board of Directors Meeting Continues	Ivanhoe & Jerome
10:30 a.m. - 11:30 a.m.	Quality & Standards Committee	Heywood Room
11:45 a.m. - 1:15 p.m.	Meeting of Quality Panel Members	Fairfax Room
6:00 p.m.	Princess Soya Reception (By invitation only)	London & Kingston
7:00 p.m. - 8:30 p.m.	Welcome to Tennessee Reception	Ballroom

MONDAY, AUGUST 11

8:00 a.m. - 5:00 p.m.	Registration Desk Open	Outer Lobby
9:00 a.m. - 4:45 p.m.	GENERAL SESSIONS	Ballroom
12:00 Noon - 1:00 p.m.	National Directors Luncheon and guests	Rivermont East
7:30 p.m. - 9:30 p.m.	Princess Soya Pageant and Awards Presentation	Ballroom
9:30 p.m.	Elanco Reception	Rivermont East

TUESDAY, AUGUST 12

8:00 a.m. - 12:00 p.m.	Registration Desk Open	Outer Lobby
8:30 a.m. - 11:45 a.m.	GENERAL SESSIONS	Ballroom
12:00 Noon - 1:30 p.m.	Luncheon for Voting Delegates and Wives	River Restaurant
12:00 Noon - 1:30 p.m.	Advertisers Luncheon	Kingston & London
2:00 p.m. - 5:00 p.m.	ANNUAL MEETING OF VOTING DELEGATES AND MEMBERS AND GUESTS	Main Ball Room
5:00 p.m.	Meeting of New Board of Directors (Immediately upon adjournment of Annual Business Session)	Ivanhoe & Jerome
7:00 p.m. - 9:00 p.m.	Banquet	Ballroom
10:00 p.m. - 1:00 a.m.	Princess Soya Ball	Ballroom

WEDNESDAY, AUGUST 13

7:30 a.m. - 8:30 a.m.	ASA Research Foundation Board Breakfast	London Room
7:30 a.m. - 8:30 a.m.	ASA Market Development Foundation Board Breakfast	Kingston Room
8:30 a.m. - 9:30 a.m.	Board of Directors Meeting	Ivanhoe & Jerome
9:00 a.m. - 3:00 p.m.	Ames Plantation Tour	

# Heritage of Leadership

ASA 55th Annual Convention \*\*\* August 10-13, 1975  
Holiday Inn Rivermont \*\*\* Memphis, Tennessee

## Sunday, August 10, 1975

- 9:00 a.m. Registration  
7:00 p.m. Welcome To Tennessee Reception

## Monday, August 11, 1975

- 8:00 a.m. Registration  
9:00 a.m. Opening Remarks & Meeting Called To Order  
Door Prize Drawing  
9:03 a.m. Invocation  
9:10-9:30 Welcome Speaker—John Wilder, Lt. Governor of Tennessee  
9:30-10:00 Annual President's Address—W. B. Tilson, ASA President  
10:00 Coffee Break  
10:25 Door Prize Drawing  
10:30 World Oilseed Supply/Demand Situation—J. E. Randag, President, International Association of Seed Crushers, London, England  
11:00 Far East Soybean And Oilseed Supply/Demand Situation—H. Nakamura, Director, Hohnen Oil Co. Ltd., Tokyo, Japan  
11:30 Featured Speaker—To Be Announced  
12:00 Recess For Lunch  
1:30 p.m. Research And Its Impact On The Future Of Soybeans—Dr. Harold Lewis, ASA Research Consultant, Dell, Arkansas  
2:00 p.m. "Heritage Of Quality, We Must Preserve It"—(Soybean Quality And Standards Panel)  
Panel Moderator—Seymour Johnson, ASA Vice President And Quality And Standards Committee Chairman  
Importer—Fred Deroost, Vandemoortele N. V., Izegem, Belgium  
Importer—H. Nakamura, Hohnen Oil Co., Tokyo, Japan  
USDA—N. G. Jackson, Chief, Standardization Branch, Grain Division, AMS/USDA, Hyattsville, Maryland  
Exporter—Ray Fratz, Sr. Vice President, Cook Industries, Memphis, Tennessee  
Producer—Herbert Turin, Grower, Odebolt, Iowa  
(After Presentations, Audience Will Direct Questions To Panel Members)  
4:30-5:00 Adjournment  
6:30 Princess Soya Program And Awards Presentations

**Tuesday, August 12, 1975**

- 8:30 a.m.** General Session Called To Order
- 8:32** Door Prize Drawing
- 8:40** ASA Market Development Reporting Session—Gerald Michaelson, Chairman, ASA Market Development Committee—Presiding  
Worldwide Market Development—Dennis Blankenship, ASA Market Development Director  
The Mid East As A Potential Market—Keith Smith, ASA Animal Nutritionist  
The Far East—Lloyd Reid, ASA Far East Director  
Country Report—Taiwan—Steve Chen, ASA Country Director  
Eastern Europe—Kenneth Lepley, ASA East European Director  
Western Europe—Harold Richard, ASA West European Director  
Country Reports—Germany, Austria, Switzerland—Karl Fangauf, ASA Country Director  
The Attache's Role—Turner Oyloe, Agricultural Attache, Germany  
Northern Latin America—Gil Harrison, ASA Northern Latin American Regional Director
- 12:00** Voting Delegate And Wife Luncheon
- 2:00** ANNUAL MEETING OF MEMBERS
- 6:00** Reception
- 7:00** Banquet & Ball

**Wednesday, August 13, 1975**

- 9:00-3:00** Ames Plantation Farm Tour (Lunch Included)

**Ladies' And Children's Programs**

**Monday, August 11, 1975**

- 9:00-3:00** Ladies' Tour—Memphis Shopping Spree, Fashion Show And Luncheon
- 9:00-3:00** Children's Tour—Riverboat Ride, Lunch And Overton Park Zoo

**Tuesday, August 12, 1975**

- 9:00-3:00** Ladies' Tour—Sightseeing Of Memphis And Riverboat Tour
- 9:00-3:00** Children's Tour—Chucalissa Indian Village Tour, Lunch And Lakeland Amusement Park



AMERICAN SOYBEAN ASSOCIATION RESEARCH FOUNDATION, INC.

Contributions Received

June 1, 1972 - August 8, 1975

DATE	NAME	PROMOTION BOARDS	AGRI-BUSINESS
6/12/72	Iowa Soybean Association	\$ 12,000.00	
8/18/72	Monsanto Company		\$ 10,000.00
11/8/72	South Carolina Soybean Board	3,000.00	
3/13/73	BASF Wyandotte		5,000.00
3/15/73	Elanco Products		5,000.00
4/10/73	Iowa Soybean Promotion Board	18,000.00	
4/26/73	Indiana Farm Bureau Coop Ass'n		2,000.00
6/ 6/73	American Soybean Association	25,000.00	
6/12/73	South Carolina Soybean Board	2,000.00	
6/14/73	Ford Foundation		2,000.00
7/10/73	Taiwan Vegetable Oil Mfg. Ass'n		2,000.00
8/13/73	Texas Soybean Producers Ass'n	500.00	
	CIBA - Geigy Corporation		1,500.00
8/27/73	Virginia Soybean Association	600.00	
9/10/73	Mississippi Soybean Promotion Board	10,000.00	
11/21/73	German Oil Millers Ass'n		5,000.00
1/ 3/74	North Carolina Soybean Producers	5,000.00	
1/17/74	Massey Ferguson, Inc.		200.00
1/18/74	BASF Wyandotte		5,000.00
2/1/74	Crown Iron Works		100.00
2/ 7/74	Iowa Soybean Promotion Board	30,000.00	
2/19/74	Cook Industries		5,000.00
2/25/74	Ferrall-Ross, Inc.		50.00
3/27/74	Elanco Products		5,000.00
	Monsanto Company		10,000.00
5/20/74	Arkansas Soybean Promotion Board	12,000.00	
5/28/74	American Soybean Association	25,000.00	
5/31/74	Minnesota Soybean Research & Promotion	20,000.00	
5/31/74	Virginia Soybean Association	667.67	
6/10/74	Japan Oilseed Crushers		4,000.00
7/23/74	Texas Soybean Producers Ass'n	500.00	
10/10/74	South Carolina Soybean Producers Board	5,000.00	
11/11/74	Mississippi Soybean Promotion Board	12,750.00	
2/28/75	American Soybean Association	25,000.00	
3/20/75	Arkansas Soybean Promotion Board	12,000.00	
3/31/75	North Carolina Soybean Producers	5,000.00	
4/22/75	Virginia Soybean Association	666.67	
5/27/75	Minnesota Soybean Research & Pro. Bd.	20,000.00	
Totals 8/8/75		\$244,684.34	\$61,850.00
<u>TOTAL CONTRIBUTIONS 8/8/75</u>			\$306,534.34





JUL 8 1975

*Memphis  
folder*

American Soybean Association Research Foundation

P.O. Box 158/Hudson, Iowa 50643 U.S.A./Phone 319-988-3295/Telex 465637

July 3, 1975

Memorandum

To: Research Advisory Panel

From: Ralph T. Jackson *RT*

As agreed in our meeting in Memphis earlier this year, we will be sending each of you, as they come in, copies of progress reports on projects supported by the ASA Research Foundation. We hope you will find these helpful and, of course, we would appreciate any comments as to your evaluation of these reports.

Enclosures: Progress Reports on 74-ASARF-102-3  
74-ASARF-103-3

AMERICAN SOYBEAN ASSOCIATION RESEARCH FOUNDATION

SCHEDULE D-1

Contracts  
Schedule of Committed Funds

CONTRACT WITH	TOTAL CONTRACT	PAYMENTS MADE		FY75 PAYMENTS DUE		FY76 PAYMENTS DUE		FY77 PAYMENTS DUE	
	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT
74-ASARF-101-3 N. C. State University (Glycine Max)	\$ 39,388	5/30/75 1/10/74	\$ 13,794 \$ 11,772			1/10/76	\$ 13,822		
72-ASARF-001-4 Iowa State University (Cytogenetics)	48,963	9/1/72 7/24/73 10/9/74	12,000 12,321 12,321			10/1/75	12,321		
74-ASARF-102-3 University of Illinois (Harvesting Equipment)	30,000	5/30/75 6/14/73 10/9/74	5,000 10,000 5,000			10/9/75	10,000		
74-ASARF-103-3 Iowa State University (Leaf Photosynthesis)	41,190	5/30/75 1/10/74	13,140 14,910			1/10/76	13,140		
74-ASARF-104-3 University of Illinois (Regulating Yields)	44,756	5/30/75 1/10/74	14,929 14,904			1/10/76	14,923		
74-ASARF-105-3 University of Minnesota (Nitrogen Nutrition)	45,000	5/30/75 2/15/74	15,000 15,000			2/15/76	15,000		
74-ASARF-106-2 University of Missouri (Carbon-14)	21,686	1/25/74 10/9/74	7,230 7,228			10/1/75	7,228		
75-ASARF-207-3 University of Illinois (Energy Requirements)	30,000	4/1/75	6,700			7/1/76	11,300	7/1/77	12,000
75-ASARF-208-3 University of Wisconsin (Effect of Temperature)	30,000	3/5/75	10,000			7/1/76	10,000	7/1/77	10,000

ASA RESEARCH FOUNDATION - SCHEDULE OF COMMITTED FUNDS

PAGE 2

SCHEDULE D-1 Continued

CONTRACT WITH	TOTAL	PAYMENTS MADE		FY75		FY76		FY77	
	CONTRACT AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT
75-ASARF-209-3 Auburn University (Root Restriction)	\$ 30,000	3/1/75	\$10,000			5/1/76	\$ 10,000	5/1/77	\$ 10,000
75-ASARF-210-3 Louisiana State Univ. (Insect Pests)	30,000	5/30/75	10,000			6/1/76	10,000	6/1/77	10,000
75-ASARF-211-3 Purdue University* (Root Growth)	30,000	6/30/75	10,000			7/1/76	10,000	7/1/77	10,000
TOTALS 5/30/75	\$420,983		\$231,249		paid		\$137,734		\$ 52,000

SUMMARY

FY76	137,734
FY77	52,000
<u>TOTAL COMMITTED</u>	<u>\$189,734</u>



American Soybean Association Research Foundation

P.O. Box 458/Hudson, Iowa 50643 U.S.A./Phone 319-988-3295/Telex 465637

July 25, 1975

AMERICAN SOYBEAN ASSOCIATION  
RESEARCH FOUNDATION BOARD

President Kuehn has asked that you be reminded of the Research Foundation Board meeting to be held on Saturday, August 9, at the Holiday Inn Rivermont in the Gloucester Room beginning at 3:30 p.m. A suggested agenda is enclosed for your information. Minutes of the last meeting are also enclosed for your review.

Harold Kuehn and I served as delegates to a USDA sponsored Working Conference on Research to Meet World Food Needs. Bob Judd also served as a delegate representing the NCIC. I am enclosing a brief report on this meeting.

The new ASA Research Foundation Board to be elected will meet on Wednesday morning for the purpose of electing officers. The time and place will be announced during the new ASA Board meeting on Tuesday afternoon.

Ralph Jackson  
Executive Vice President

RTJ:sr

Enclosures

cc: Hal Lewis



TENTATIVE AGENDA  
ASA RESEARCH FOUNDATION BOARD MEETING  
Holiday Inn Rivermont Hotel  
Saturday, August 9, 1975  
Gloucester Room  
3:30 p.m.

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Opening Remarks - Harold Kuehn, President

Minutes of previous meeting - Ralph Jackson

Minutes and recommendations of Memphis meeting of special advisory panel  
and officers of ASA Research Foundation - Dr. B. E. Caldwell

Review of current financial status and financial report - Jim Esche, Sec.-Treas.

Report of FIET meeting - Ralph Jackson

Current projects and recommendations - Ralph Jackson and Dr. Hal Lewis

Winter Nursery proposal - Dr. Hal Lewis

Report on project evaluation - Dr. Hal Lewis

Report on Working Conference on Research to Meet World Food Needs - Harold Kuehn and  
Ralph Jackson

Other business

Adjourn

Minutes of Meeting  
American Soybean Association  
Research Foundation Board  
Washington, D. C.  
January 22, 1975

Vice President F. C. Laughinghouse, presiding in the absence of President Harold Kuehn, called the meeting of the ASA Research Foundation Board to order at 9:00 a.m. in the Washington office of the American Soybean Association on Wednesday, January 22. In addition to Vice President Laughinghouse, other Board members present were Howard Adler, Joe Coleman, Frank Ray, Vernon Scott, W. B. Tilson, Robert Judd and Dr. B. E. Caldwell. Also in attendance were Ralph Jackson, Executive Vice President; Dr. Harold Lewis, Research Consultant; and William Kling, ASA Washington Representative. Absent were Harold Kuehn, James Esche and Seymour Johnson.

Minutes

It was moved by Scott, seconded by Ray, that the ASA Research Foundation Board Minutes of the August 10, 1974 meeting be approved as mailed. Motion carried.

Financial

Executive Vice President Jackson distributed copies of the 6-month financial statement ending December 31, 1974. In the absence of Treasurer Esche, Jackson presented and explained the financial statement. On motion by Tilson, seconded by Scott, the statement was approved as presented. Motion carried.

Report on Currently Funded Projects - Dr. Harold Lewis

Dr. Harold Lewis, ASA Research Foundation Consultant, gave a brief report on the projects currently being funded by the Foundation.

Report on Improved Equipment for Soybean Harvesting Project - Ralph Nave

Ralph Nave gave a comprehensive report on the project "Improved Equipment for Soybean Harvesting" at the University of Illinois which has been partially funded by the Foundation. Following Nave's report, a presentation of economic data was presented by Dr. Lewis as a recommendation of materials to be shown to the major implement manufacturers top management. A full discussion was held on follow-up procedure in establishing a task force of producers along with Dr. Lewis and Ralph Nave to contact the management of major implement firms with the objective of getting the air jet soybean header into production. After discussion, it was moved by Adler, seconded by Ray, that the management of implement manufacturing firms be contacted as soon as possible and this information be presented to them. Motion carried.

As a separate part of this discussion, it was the unanimous consensus of the group that the remaining funds under the agreement with the University of Illinois be continued in support of Nave's work in other phases of improvement of harvesting equipment.

Modification of Missouri Project Being Currently Funded

Dr. Caldwell presented a modified proposal entitled "Nitrate Reduction in Soybean Nodules in Relation to  $N_2$  ( $C_2H_2$ ) Fixation", which was a supplement to the existing "Carbon-14 Translocation in Relation to Nitrogen Metabolism in Soybeans" project by David Johnson, which did not change the basic objectives but the emphasis was changed from  $14C$  translocation to nitrogen metabolism aspects. It was moved by Tilson, seconded by Scott, that the Foundation support this modified proposal by David Johnson at the University of Missouri for one year and allocate \$10,000. Motion carried.

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The Board recessed at 12:00 noon for a special luncheon at the Golden Ox Restaurant. Also attending the luncheon, in addition to the Foundation Board, were T. W. Edminster, Administrator, Agricultural Research Service; Dr. R. L. Lovvorn, Administrator, Cooperative State Research Service; and Dr. H. O. Graumann, Assistant Administrator, Agricultural Research Service. Administrator Edminster and Administrator Lovvorn gave brief reports on agricultural research programs.

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The meeting of the ASA Research Foundation Board reconvened at 1:45 p.m. in the ASA Washington office.

Review of Solicited Soybean Root Growth and Development Research Proposals -  
Dr. B. E. Caldwell

Dr. Caldwell presented for evaluation and discussion the top ten proposals as evaluated and rated by the Blue Ribbon Committee of soybean research scientists to the group for further evaluation and action on funding. The Foundation Board agreed to commit funds on a 3-year basis at a rate not to exceed \$10,000 a year as follows. Four of the top ten proposals as rated by the Blue Ribbon Committee were approved for funding. A fifth one was approved for funding if it was determined by the Executive Vice President that adequate funds were available without depleting the Foundation's funds to a level where we could not meet our other commitments.

Within the top ten proposals as rated by the Blue Ribbon Committee, the first project discussed was ASARF2-4 submitted by Rogers, Thurlow and Elkins at Auburn University entitled "Alleviation of Soybean Root Restriction in Soils with Compacted Pans by the Use of a Deep-Rooted, Vigorous Grass" for three years totaling \$30,000. It was moved by Ray, seconded by Coleman, to fund this project subject to some modification and emphasis being place on objective "B" in the proposal. Dr. Lewis was directed to visit with the Auburn University officials prior to making a commitment to see if objective "B" could be emphasized to our satisfaction. Motion carried.



The next project discussed was ASARF2-16, entitled "Interrelationship Between Energy Requirements of Plant Roots and the Maintenance of Water Balance in Soybean Plant Communities" submitted by Johnson, Boast and Peters at the University of Illinois for three years totaling \$30,000. It was moved by Coleman, seconded by Tilson, that this project be approved as submitted. Motion carried.

Discussion next was on project ASARF2-35 entitled "The Economic Importance of Root and Nodule Infesting Insect Pests of Soybeans" submitted by Newsom at Louisiana State University for three years for a total of \$30,000. It was moved by Coleman, seconded by Ray, that this project be approved with some reservations. Louisiana State University scientists should be requested to cooperate with the University of Illinois scientists in implementing this, possibly as a joint project. Dr. Lewis was directed to contact LSU officials prior to final approval on funding. Motion carried.

Discussion next was on project ASARF2-33 entitled "Investigations of the Effect of Temperature on Soybean Root Growth and the Physiological Processes Related Thereto" submitted by Schrader and Pendleton at the University of Wisconsin for three years for a total of \$30,000. It was moved by Ray, seconded by Adler, that this project be approved as submitted. Motion carried.

Discussion next was on the project ASARF2-23, "Relation of Soybean Root Growth Rates and Root Morphology to P&K Uptake Rates, Shoot Growth Rate and Soybean Yield" submitted by Barber at Purdue University for three years totaling \$30,000. It was moved by Ray, seconded by Adler, this project be funded subject to availability of funds and the Executive Vice President be directed to fund this project when he determines adequate funds are available. Motion carried.

#### Policy on Overhead Costs

Jackson reported he had received several inquiries from university scientists about the Foundation's policy on project funding as it relates to overhead cost of the institution. It was emphasized that a policy was needed as one had not been

Foundation Board Meeting  
Washington, D. C.  
January 22, 1975

established. After considerable discussion, it was moved by Tilson, seconded by Coleman, that ASA Research Foundation funds not be used by research institutions to defray overhead or indirect costs. This policy will be subject to review and possible amendment if and when a situation warrants it.

World Soybean Research Conference

Jackson reported on the request by Dr. Howell, University of Illinois, serving as Chairman of the upcoming World Soybean Research Conference to be held at the University of Illinois, Urbana, Illinois in August, 1975. Howell requested the ASA Research Foundation lend its name and monetary support to the Conference. It was recognized that the Conference would be a prestigious affair, offering an exchange of scientific information between many soybean research scientists, both domestic and foreign. Also, the Conference would include much emphasis on marketing and utilization research as well as production research. After considerable discussion the Foundation Board agreed to lend its support to the Conference. It was moved by Coleman, seconded by Ray, that the Foundation support the World Soybean Research Conference in an amount not to exceed \$5,000, subject to ASA getting proper recognition for its sponsorship and to include receiving an adequate number of copies of the Proceedings of the conference, complimentary registrations, etc. Motion carried.

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There being no further business, the American Soybean Association Research Foundation Board meeting adjourned at 3:30 p.m.

July 14, 1975  
Ralph Jackson Report  
Working Conference on Research To Meet World Food Needs  
Kansas City

ASA was selected by USDA to be allocated two delegates to the Working Conference on Research to Meet World Food Needs held in Kansas City, July 9-11. There were a total of 189 delegates divided up in the following 15 broad research need areas: 1) human nutrition, 2) food technology and safety, 3) natural resources, 4) cereals, 5) oil crops and sugar, 6) vegetables, potatoes, dry beans and cheese, 7) fruits, nuts and bees, 8) forage pasture and range, 9) beef, sheep and other animal products, 10) dairy, poultry and aquatic food sources, 11) human resources and social institutions, 12) marketing systems, 13) production inputs and systems, 14) public policy and finance, 15) international development. The delegates, representing probably the most outstanding assembly of scientific brain power from the food and agricultural field ever put together, met for 3 days, in truly a working conference on establishing and setting priorities for research emphasis. The conference was opened by Secretary Butz and the first day's sessions were chaired by other top officials of the USDA and the land grant colleges.

The second day and evening was spent on individual work groups in which each of the 15 work groups developed 40 problems and opportunity areas of need for a total of 600. Each work group then rated and voted on the top 20 priorities in each work area. The system of voting and analysis was completely computerized, which enabled the delegates and participants to see the results of their ratings and how each work group stacked up with the other within a matter of a few hours. By this method the original 600 research priorities developed were rated and voted on with the top 300 in all group categories then brought together for all the delegates to rate and vote on as a group.

July 14, 1975  
Ralph Jackson Report  
Working Conference on Research To Meet World Food Needs  
Kansas City

Each work group chairman presented the recommendations of his group to the entire delegate body and by feeding the votes in to the computer the results of the ratings were known to the delegate body before the conference adjourned. The 300 priorities as presented to the entire delegates were narrowed down to 100 and rated in 1-2-3 order.

Soybean production research aimed at yield improvement came in second in the entire group rating second only to energy. Soybean research needs in several categories were also rated in the top 50 and, of course, rated extremely high in their own work group category consisting of oil seeds and sugar. Harold and I consider this to be a major accomplishment in our efforts to get attention given to soybean research needs. Results of the conference with the prestige backing that it had will be the main tool used by Congress and administration officials in allocating research priorities and funds. Because of the results obtained, Harold and I also feel that the 3 days were some of the best ever spent for ASA.



JUL 11 1975



SOYA—Serves The World

*file*

July 8, 1975

Dr. B. E. Caldwell  
Oilseeds Specialist  
National Program Staff  
Agriculture Research Center West  
Beltsville, Maryland 20705

Dear Bill:

On behalf of the Officers and Board of Directors of the American Soybean Association, we cordially invite you to attend our 55th Annual Convention to be held in Memphis, Tennessee, August 11-13, 1975. Registration will begin on Sunday, August 11. Enclosed is a tentative schedule of events.

The theme of our convention this year will be "A Heritage of Leadership" and the program will be very much international in flavor with guest speakers from Europe and Japan. In addition, major emphasis is being placed on preserving the quality of soybeans and soybean products in the marketing system. A special international panel on this subject promises to be one of the highlights of the convention.

Headquarters will be at the Holiday Inn Rivermont Hotel and Convention Center. Enclosed are the necessary reservation and registration forms. We hope to see you in Memphis.

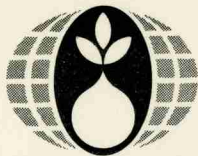
Sincerely yours,

*Ralph T. Jackson*

Ralph T. Jackson  
Executive Vice President

RTJ/klb  
Enclosures

JUL 8 1975



SOYA—Serves The World

B/

Heritage  
of *Leadership* Hope y'all can come

to the 55th Annual Meeting of ASA hosted by the Tennessee Soybean Assn.  
The Holiday Inn Rivermont will be the convention hotel, August 10-13, 1975.

Convention sessions will cover some of the following:

- M**ore ways to sell your soybeans
- E**uropean and Far Eastern oilseed crushers
- M**arket development operations with reports
- P**lanning a future course for U.S. soybeans
- H**eritage of Leadership
- I**nternational panel on grain grading standards
- S**elling quality soybeans overseas

The 1975 American Princess Soya will be crowned, and a fantastic women's and children's program is planned. A shopping spree, fashion show, tours of Memphis by bus and paddlewheel plus visits to a zoo and an amusement park will be featured. A preliminary program of all activities is enclosed.

Please fill out and return the enclosed room reservation and convention registration cards today. See ya there!

Sincerely,

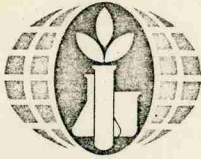
*W. B. Tilson*

W. B. Tilson  
ASA President

Enclosures

MAY 20 1975

B



American Soybean Association Research Foundation  
P.O. Box 158/Hudson, Iowa 50643 U.S.A./Phone 319-988-3295/Telex 465637

May 8, 1975

Memorandum

To: Special Advisory Committee to ASA Research Foundation

From: Ralph T. Jackson

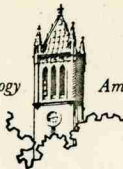
In line with our discussions at the recent ASA Research Foundation meeting, I am enclosing a copy of two annual reports from Iowa State on projects receiving Foundation support. These are for your information as requested.

I felt the Memphis meeting was most productive and agree that this should be an annual affair in order to establish better long range guidelines and goals for Foundation research support.

Enclosures

cc: Harold Kuehn  
F. C. Laughinghouse  
Jim Esche

Iowa State University of Science and Technology Ames, Iowa 50010



Department of Agronomy  
Telephone: 515-294-1360

June 23, 1975

Mr. Ralph Jackson, Executive Vice President  
American Soybean Association Research Foundation  
P.O. Box 158  
Hudson, IA 60543

Dear Ralph:

From the enclosed Interim Report you will note that we have found it necessary to alter our approach in the NPR research. The experience of 1974, along with that of 1973, leads to the conclusion it would be pointless to, at this time, pursue the Plan of Work as outlined for 1975 and 1976 in our original proposal. Instead we need to develop better techniques and procedures. Those previously used, which are the standard ones for physiological research involving few different lines, simply are inadequate for this project.

Although this represents a departure from our original "Plan of Work" and probably means that some of the objectives as stated in the original proposal cannot be achieved during the term of the grant (specifically, that of determining the relationship of NPR and yield), it does not, in our view, depart from the original intent of the proposal. We do wish to accomplish those objectives ultimately. It is simply that we must go through a period of attempting to refine techniques before we can proceed.

When Hal Lewis was in Ames before the ASARF Board meeting in April, I discussed with him the possibility that it might be necessary for us to shift gears, so to speak, on this project. So, he is aware of our thinking. Also, I have sent him a copy of this interim report.

Unless I hear from you to the contrary, I will presume that it is satisfactory for us to proceed with our 1975 plans along the general lines as presented in the Interim Report.

Sincerely,

Richard Shibles  
Professor

RS/11m

RECEIVED

JUN 27 1975

AMERICAN SOYBEAN ASS'N.  
HUDSON, IOWA



"Leaf Photosynthesis and Soybean Productivity"

Research Supported by ASARF

PLANS FOR 1975

In the annual progress report of April 1975, I concluded that we had been able to make only minimal (6%) progress in selecting for net photosynthetic rate (NPR). Further analysis of the 1974 data indicates that even that small figure may be misleading. After further analysis, we were able to compare the NPR of individual lines across the several measurement periods of 1973 and 1974, and it became quite obvious that there was essentially no consistency in their performance. The highest lines in the first measurement series were only mediocre in the second and third series. Low lines in one period would be high in the next, and so on. There was considerable "jumping around" from period to period.

This means that, using present techniques for measuring NPR, we are unable to distinguish differences among NPR lines -- if differences exist. There can be two reasons why we were unable to distinguish differences. First, our technique may not allow us to take enough measurements; secondly, the non-genetic (environmental) variability in NPR may be masking true genetic differences. The two problems are really closely associated, for one approach to the variability problem is to make more measurements on each line. However, our present technique -- the standard technique for estimating NPR -- does not allow that. We have to develop other techniques and/or devise procedures to reduce environmental variability.

Based on our experience to date, we conclude it is pointless to follow the outlined "Plan of Work" for 1975 and 1976 as presented in our original proposal of Sept. 20, 1973 (see p.3). We would be wasting time and resources. Instead, for the present, we should concentrate our resources on developing better techniques and procedures for measuring NPR. Some possible approaches we intend to consider for the summer of 1975 include:

- (1) Testing a <sup>14</sup>C<sub>2</sub> technique for measuring NPT. Individual measurements, using radioactive carbon dioxide, can be taken much more rapidly. But, there is a necessity to determine the accuracy of this technique and the variability associated with it compared to the standard infrared gas analysis technique.
- (2) Testing a dry-weight increase method using leaf punches. Eastern European scientists have used this with several crops; however, very many samples must be taken to obtain accuracy. This may severely limit the number of lines we can test.
- (3) Better standardization of leaf development stage relative to measurements. Growing leaves have low rates. Though we don't think so, we may be using leaves of differing developmental stages which would introduce variability.
- (4) Determining whether variable sink size (pod load) causes variability in NPR.
- (5) Continue to advance NPR lines toward genetic homozygosity and select within the lines for uniformity of maturity.

ANNUAL PROGRESS REPORT  
to  
The American Soybean Association

IMPROVED EQUIPMENT FOR SOYBEAN HARVESTING

May 1975

by  
W. Ralph Nave, USDA Project Leader

R. R. Yoerger, Professor

D. L. Hoag, Associate Professor

Agricultural Engineering Department  
University of Illinois  
Urbana, Illinois 61801

Research on the project during the past 12 months has been hampered somewhat due to the lack of graduate student availability. However, special research problems by two undergraduate students helped us progress in two areas of the harvesting research: (1) Additional field tests were conducted with the experimental air-jet header during the fall of 1974. and (2) Comparisons were made on the laboratory test stand using a double sickle cutterbar, a 3-inch stroke Didier cutterbar, and a standard 3-inch cutterbar.

Project Objective:

The overall objective is to develop and evaluate improved equipment and techniques for harvesting soybeans with reduced field loss and damage.

The major goal of the FY 1975 research was to further evaluate the experimental air-jet header under field conditions and to continue demonstrating the advantages of the air assist principles to the farm equipment industry.

A second goal of the FY 1975 research was to continue the investigation of improved cutting devices for soybean harvesting on the laboratory test stand.

Progress in FY 1975:

Additional field tests of the air-jet header were made in the fall of 1974. Figure 1 shows a 15-foot header equipped with the air-jet nozzles and the 15 horsepower fan. A cross section of the experimental air-jet header showing delivery of air across the cutterbar is shown in Figure 2. The attached references give more detail on the design of the air-jet components.

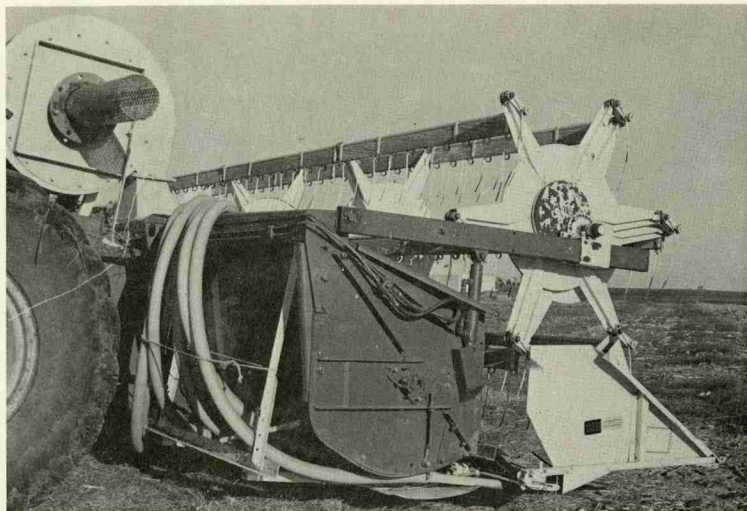


Figure 1. Right side of experimental air-jet header, showing fan and air lines to the nozzles.

## AIR-JET HEADER

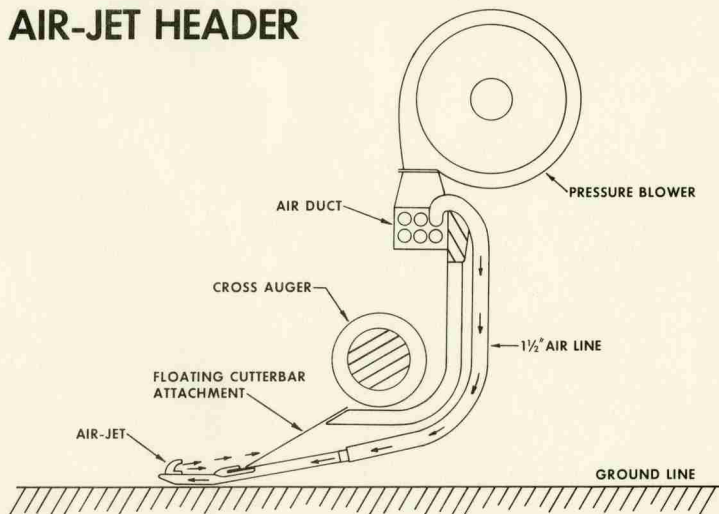


Figure 2. Cross section of experimental air-jet header.

The 1974 data showed a significant reduction in losses when harvesting Amsoy-71 variety at moistures below 12 percent. There was also a significant reduction when harvesting Williams Variety at a moisture of 14 percent. Table 1 shows the results of the 1973 data when harvesting Amsoy-71 and Williams Variety at 12 percent moisture. Table 2 shows the results of the 1974 data for Amsoy-71 at 11 percent harvest moisture and Table 3 shows the results from harvesting Williams Variety at 14 percent moisture in 1974.

In Table 4 a comparison is made of the floating cutterbar, air-jet with floating cutterbar, and standard headers. When the floating cutterbar was compared to the standard header a somewhat greater savings was shown than has been in past comparisons. A savings of 34 percent when harvesting Amsoy-71 at 11 percent moisture in 30-inch rows and a savings of 48 percent when harvesting Williams Variety in 30-inch rows at a moisture of 14 percent. The comparison of the air-jet and floating cutterbar combination to the floating cutterbar indicates a 67 to 70 percent savings when harvesting soybeans at a moisture of 11 percent. However, there was no reduction in harvesting losses due to the air jets when harvesting Williams Variety at 14 percent moisture.

The 1973 data indicated a greater reduction in harvesting loss when using the air-jet attachment in 8-inch rows. The 1974 data did not show the greater reduction in harvesting loss when harvesting Amsoy-71 soybeans in 7-inch rows.

With an average soybean yield of 30 bushels per acre, the air-jet header with a floating cutterbar could save the producer about  $1\frac{1}{2}$  bushels of soybeans per acre, (loss reduction from 8 percent to 3 percent). For a typical 200 acre soybean producer the added cost of equipment and its operation could amount to about \$2.75 per acre (Table 5).



Table 1

Header losses for Amsoy-71 and Williams  
soybeans at 12% moisture (1973)

Row Width (in.)	<u>Attachment used</u>		Reduction in harvest- ing losses
	Floating cutterbar	Floating cutterbar with air jets	
30	5.3%*	2.7%*	49%
8	5.2%	1.7%	67%

\*Percentage of total yield

Table 2

Header losses for Amsoy-71 soybeans at 11% moisture. (1974)

Row Width (in.)	<u>Attachment used</u>		Floating cutterbar with air jets
	Standard	Floating cutterbar	
30	8.8%*	5.8%	1.9%
7	7.0%	6.6%	2.0%

\*Percentage of total yield

Table 3

Header losses for Williams soybeans at 14% moisture. (1974)

Row Width (in.)	<u>Attachment used</u>		Floating cutterbar with air jets
	Standard	Floating cutterbar	
30	2.3%*	1.2%	1.2%

\*Percentage of total yield

Table 4

Harvesting loss reduction (%) from using a floating  
cutterbar and air jets (1974)

	<u>Variety, Row Width and Harvest Moisture</u>		
	Amsoy-71 30-in. 11%	Amsoy-71 7-in. 11%	Williams 30-in. 14%
<u>Attachment</u>			
Floating cutterbar vs. standard	34	6	48
Floating cutterbar with air jets vs. standard	78	71	48
Floating cutterbar with air jets vs. floating cutterbar	67	70	0

Table 5

<u>Estimated costs for the air-jet header</u>		
Capitol cost	\$2.05	(\$2,300 estimated price for air jets and floating cutterbar)
Extra fuel	.20	
Taxes & Interest	.20	
Maintenance	.30	
	<u>\$2.75</u>	

Assuming only 60 percent of the soybeans are harvested below 13 percent moisture, at \$6.00 per bushel the increased income to the producer would be about \$2.65 per acre above the costs shown in Table 5. Converted to the total acres produced this could result in a clear profit of over \$150,000,000.00 per year for soybean producers.

The air-jet header and the results of the 1973 and 74 harvest seasons have been demonstrated and discussed with all major manufacturers of combines. Field demonstrations as shown in Figure 3 have been held at the University of Illinois research farm both in 1973 and 74. A 15 minute sound film describing the development of the air-jet header was released in 1974 and has been most helpful in demonstrating the reduction in harvesting losses. Figure 4 shows loss reductions from the air assist.

In addition to the field studies with the air-jet header, laboratory analyses of different cutting devices has also been continued with the aid of undergraduate agricultural engineering students. The details of an experiment to evaluate faster sickle speeds is described in one of the attached publications. The results of the study indicated there is no advantage in operating a standard cutterbar at faster than the normal 500 strokes per minute. However, there was an advantage when using a sickle and shear bar configuration without the standard guard. High speed movies show that the impact to the soybean plant by the top part of the guard during the cutting action causes a large portion of the soybean shatter at harvest. Sickle and shear-bar configurations at 2-inch and also at the standard 3-inch spacing were tested.

A double sickle cutterbar with both sickles moving was also evaluated on the laboratory test stand. Studies were conducted at travel speeds of 3 and 4.4 miles per hour. The double sickle cutterbar provided the lowest shatter loss of any cutting device evaluated. However, the complicated drive and the reliability of such a device may create extra costs and production problems. Some modification of the conventional guard appears to be a reasonable approach to reducing shatter losses either with or without the aid of the air-jet assist.

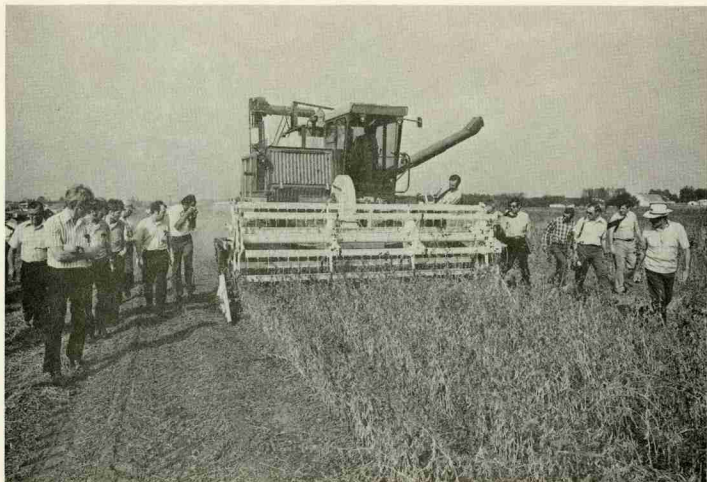


Figure 3. Demonstration of experimental air-jet header on a conventional combine to engineers from industry.



Figure 4. Air-jet header in operation showing shattered soybeans and plant material moving into the combine.



Plans in FY 1976:

Another USDA engineer and an engineer on the University of Illinois staff will both be available for full time soybean research beginning in the fall of 1975. Additional studies are planned for the laboratory test stand to develop an improved cutting device for soybeans. With the addition of the new staff support studies on soybean damage from handling, drying, and storage will be expanded in 1976. An evaluation of soybean planting equipment is underway and a major effort will be made to develop an improved soybean planter.

Specific Objectives for FY 1976:

1. Evaluation and further development of improved cutting devices for reducing soybean harvesting loss on the laboratory test stand.
2. Continue the investigation of physical properties of the soybean plant related to the shatter.
3. Begin an analysis of damage encountered to soybeans during the harvesting and handling process.

Publications in FY 1975:

- Wait, J. J., W. R. Nave, and B. J. Butler. Reducing Soybean Cutterbar Losses with Low-Pressure Air Jets. Transaction of the ASAE. Vol. 17, No. 5, pp 817-820, 1974.
- Nave, W. R. and R. L. Cooper. Effect of Plant Population and Row Width on Soybean Yield and Harvesting Loss. Transactions of the ASAE. Vol 17, No. 5, pp 801-804, 1974
- Nave, W. R. and R. R. Yoerger. Research Investigates an Air-Jet Header. SOYBEAN DIGEST, pp 10-11, August 1974.
- Reducing Soybean Harvest Loss. Lead article in AGRICULTURAL RESEARCH, February 1975.

Nave, W. R. and R. R. Yoerger. Use of Air-Jet Guards to Reduce Soybean Harvesting Losses. Accepted for publication in the Transactions of ASAE during 1975.

Nave, W. R. and D. L. Hoag. Relationship of Sickle and Guard Spacing and Sickle Frequency to Soybean Shatter Loss. ASAE Paper No. 74-1557 accepted for publication in the Transactions of ASAE during 1975.

**PROJECT TITLE:** The Application of Cytogenetics to a Soybean Improvement Program.

**LOCATION:** Iowa State University Agricultural Experiment Station and USDA, ARS, Ames, Iowa.

**PROJECT LEADER:** Dr. R. G. Palmer.

This project is in its third year of operation under ASARF funding. During the past year a technician has been provided to Dr. Palmer's program by ARS. In addition, ARS has recently transferred a plant breeder from oats to soybean breeding. He will work with Dr. Palmer. This represents a significant increase in ARS effort in soybean genetics.

Considerable progress has been made in locating genes on their chromosomes using primary trisomes. Three primary trisomes have been identified. Eighteen mutants have been used in the linkage test experiments.

Good progress has been made in identifying and characterizing male-sterile lines of soybeans. These male-steriles may have significance in developing hybrid soybeans in the future.

Three technical papers have been prepared by Dr. Palmer for publication in the scientific press. Dr. Palmer is doing an outstanding job of communicating this results to other scientists working with soybeans.

PROJECT TITLE: Carbon-14 Translocation in Relation to Nitrogen Metabolism in Soybeans. ( Nitrate Reduction in Soybean Nodules in Relation to  $N_2$  ( $C_2H_2$ ) Fixation )

LOCATION: University of Missouri Agricultural Experiment Station, Columbia, Missouri.

PROJECT LEADER: Dr. David Johnson.

Preliminary experiments showing high levels of Nitrate reductase enzyme in soybean nodules were reported last year. These experiment have now been confirmed and a new facet of nitrogen nutrition of soybeans has emerged.

As a result of the unique progress made on this project, the Foundation has extended the project for one year to allow full investigation of the nitrate reductase activity of nodules.

Dr. D. Randall of the biochemistry department of the University of Missouri is cooperating with Dr. Johnson on this project as modified and extended by the board in December of 1974.

Experiments are now underway to obtain precise quantification of just how much nitrate reductase activity is present in nodules at different stages of plant growth. This is an exciting area of work and may yield insight into some of the unusual and unexplained aspects of nitrogen nutrition of soybeans.

Dr. Johnson has developed the concept that while it is generally thought that soybeans do not use fertilizer nitrogen very efficiently, they may be among the most efficient. They do not respond to high levels of fertilizer nitrogen but nitrogen balance studies indicate that they are able to extract low levels of soil nitrogen very efficiently.

We will, undoubtedly, learn a great deal from this work.

PROJECT TITLE: Feedback Inhibition of Photosynthetic Processes  
in Glycine max (L.) Merrill.

LOCATION: North Carolina State University Agricultural Experiment  
Station, Raleigh, North Carolina.

PROJECT LEADER: Dr. W. D. Hanson.

This project is entering its second year. Good progress has been made during the first year.

Dr. Richard Yeh, a plant physiologist, has established a working physiology laboratory for evaluation of Dr. Hanson's experimental lines.

Two soybean lines which differ greatly in the rate of seedling growth have been selected for pilot physiological studies. Several physiological characteristics are being analyzed to define the reason or reasons why one of these lines grows so much faster than the other. Techniques have been worked out to a point that reliable results are being obtained. Net photosynthetic rate is, perhaps, the most significant measurement being made and results indicate that the 2 lines differ in this respect.

Concentrations of protein components from leaves of several lines are being evaluated. Preliminary results indicate that this may be a productive approach.



**PROJECT TITLE:** Improved Equipment for Soybean Harvesting.

**LOCATION:** University of Illinois Agricultural Experiment Station and USDA, ARS, Urbana, Illinois.

**PROJECT LEADER:** Ralph Nave.

Additional field tests of the Air-Jet Header were made in the fall of 1974. With an average yield of 30 bu. per acre, the Air-Jet Header with a floating cutterbar could save the producer about 1½ bu. per acre. For a typical 200 acre producer the added cost of equipment and its operation could amount to about \$2.75 per acre. Assuming only 50% of the beans were harvested below 13% moisture, at \$6.00 per bu. the increased income to the producer would be about \$2.65 per acre. Converted to the total acres produced, this could result in a clear profit of over \$150,000,000.00 per year to the soybean production industry.

This project is now set up for implementation. Contacts have been made with the Farm and Industrial Equipment Institute (FIEI) to develop an interface with combine manufacturers to get this device built and available for use on commercial combines.

Ralph Nave is cooperating in the implementation program. His research is now focused on improved cutting devices and possibly improved techniques for preserving soybean quality.

PROJECT TITLE: Leaf Photosynthesis and Soybean Productivity.

LOCATION: Iowa State University Agricultural Experiment Station,  
Ames, Iowa.

PROJECT LEADER: Dr. Richard Shibles.

This project is entering its second year. Dr. Detroy Green, soybean breeder and cooperator on this project, is currently on an off-campus duty assignment in Spain.

Only minimal progress was made last year in selecting for increased net photosynthetic rate in soybean lines. This has necessitated making changes in the techniques and methods used for detection and measurement of photosynthetic rate, since data show that most of the problem is either in the method of measurement or environmental effects.

A new approach is being developed. Methods for measuring photosynthetic rates are being investigated. Two methods show promise 1) radioactive  $CO_2$  uptake and 2) leaf slice measurements. Additional experiments are being conducted to develop better criteria for selecting leaves for measurement. The problem is that leaves should be in the same developmental and physiological stage before meaningful comparisons can be made.

Dr. Shibles is showing much flexibility in this program. He is a realist and will make the project pay off.

This pioneering effort deserves continued good support from the Foundation.

**PROJECT TITLE:** Interrelationship between nitrogen metabolism and photosynthate supply as a factor regulating soybean yields.

**LOCATION:** University of Illinois Agricultural Experiment Station, Urbana, Illinois.

**PROJECT LEADER:** Dr. R. H. Hageman.

This project is entering its second year. Dr. Jay Johnson was associated with the project during the first year but he has accepted a position at Ohio State University. Mr. John Anderson, a graduate student from North Carolina, is replacing Dr. Johnson. Mr. Jerry Vigue continues working on the project and Dr. Jim Harper, USDA, ARS, continues as a cooperator.

Due to personnel changes, progress on calibration of the acetylene reduction assay for nitrogen fixation has been slow but considerable progress has been made on determining the carbon balance within the plant.

Emmanuel Lahav, a student working on the project, has discovered a technique for growing soybeans on urea as a nitrogen source in a liquid culture medium. Soybeans modulate profusely when grown in this solution. A special technique to control the acidity of the culture solution is used. This is a very significant discovery, since modulation is usually suppressed in the presence of fertilizer nitrogen. Using this technique, Dr. Hageman expects to be able to gain new insights into the relationship between modulation and fertilization of soybeans. This should go a long way to provide an understanding of how to control and regulate nitrogen supply to fit food and energy supplies.

Shading of field grown soybeans has been found to induce early flowering, about 1 week earlier than non-shaded plants. Seed pod initiation has also been stimulated by shading. These beans, the shaded ones, mature at about the same date as unshaded ones but yield about 25% more.

Experiments done by Dr. Harper concerning  $CO_2$  enrichment were inconclusive but did show that nitrate uptake was not repressed by high  $CO_2$  levels. Some yield increases were observed.

Cooperation between Dr. Hageman's project and the new project supported by ASAIF at Illinois is underway. The new project, headed up by Drs. Jonkeau, Boett and Peters has a method for measuring photosynthesis of soybeans in the field. Dr. Hageman will utilize this technique to compare the photosynthetic rates or food producing capacity of various genetic types of soybeans. He will attempt to correlate these measurements with total yield or productivity.

Good progress is being made on this project. We can expect answers to extremely important questions concerning yield potential in soybeans.



PROJECT TITLE: Nitrogen Nutrition of Soybeans.

LOCATION: University of Minnesota Agricultural Experiment Station, St. Paul, Minnesota.

PROJECT LEADER: Dr. W. A. Brun.

This project is entering its second year of operation. Dr. Brenner, a physiologist in the Horticulture department is cooperating on the project. He brings a much needed expertise in analytical hormone physiology. Mr. Al Tima, Dr. Brenners graduate student, is applying high pressure gas-liquid chromatography to analysis of hormone levels in soybeans as the plant develops. This should generate useful information concerning what is going on inside the plant at various critical stages of development. Dr. Mandel, a post-doctoral student, will work exclusively on hormone levels within the soybean plant as it undergoes seasonal development. Results from these experiments should provide insight into developmental problems of soybeans and provide the strategy for designing experiments to answer key questions about plant development as related to yield levels.

Nitrogen fixation, as currently measured, requires destruction of the nodule and, at least, major disruption of the plant. Mr. Don Pirl, a graduate student, is developing a continuous method for detecting rates of nitrogen fixation without disrupting plants grown under controlled conditions. Several other techniques are being developed for monitoring what is happening in soybean plants as they progress through the growing season.

Work completed during the last year has conclusively established that nodules become inactive before pod filling is complete. Experiments have been set up this year to determine how  $CO_2$  enrichment at various stages of plant development will affect nitrogen fixation and nodule aging.

Work not supported directly by ASARP but stimulated by the ASARP project is being done by Ms. Linda Mustadt, a graduate student in Agronomy. Nitrate reductase, the enzyme which handles fertilizer nitrogen, is being measured in soybean leaves as the growing season progresses. Two varieties of soybeans are being cross-grafted, that is, the top of one variety is grafted onto the root of the other variety and vice-versa. This allows for evaluation of inherent root-vs-top differences in nitrate reductase activity.

The project is making good progress in defining the sequence of development of food producing and consuming parts of the plant. Food supply should be maximum when seed are growing at the highest rate. Current data indicate that this is not the case. Information developed from this project should help correct this deficiency.

PROJECT TITLE: Interrelationship between Energy Requirements of Plant Roots and the Maintenance of Water Balance in Soybean Plant Communities.

LOCATION: University of Illinois Agricultural Experiment Station Urbana, Illinois.

PROJECT LEADERS: Drs. R. B. Johnson and C. W. Boast, University of Illinois, and Dr. D. B. Peters, USDA, ARS.

This project is beginning its first year of operation under ASARF funding. A graduate student with a B.S. in physics from Oregon State University, Mr. Douglas Emery, will begin work on the project in August, 1975.

The overall objective of this project is to attempt to measure energy and mass distribution between roots and tops of soybeans. In order to know how to change the plant or the way it is grown to maximize yields, one must know what changes to make. Very little is known about the inheritance of root characteristics of soybeans, but enough is known to say that changes can be made.

The basic approach is to develop ways for more efficient use of the photosynthetic energy captured by the plant. Part of this energy is used to maintain root and may be used inefficiently by the roots especially under stress conditions such as low soil moisture.

The distribution of plant food between roots and tops of soybeans directly affects seed yields. In order to know how to modify patterns of food distribution to improve yields, we must first know how it is ordinarily done. This project will define the food distribution system and develop approaches to modify the system to give improved seed yields.



PROJECT TITLE: Investigations of the Effect of Temperature on Soybean Root Growth and the Physiological Processes Related thereto.

LOCATION: University of Wisconsin Agricultural Experiment Station, Madison, Wisconsin.

PROJECT LEADERS: Drs. L. E. Schrader and J. W. Pendleton.

The University of Wisconsin-Madison has developed a unique facility for studying plant growth and development. This facility, called a Biotron, can be computer programmed to approximate temperature and day lengths at any location in the U.S.

The Biotron will be utilized to study the effect of temperature and day length on soybean root growth and plant development. As many workers have observed, flowering of soybeans is not all together dependent on day length. High temperatures will cause early flowering in many soybean varieties. It is thought that root temperatures may be the critical factor in this relationship. This possibility will be closely evaluated during the course of the work.

Sucrose is the major translocatable sugar in soybeans. The effect of temperature on its production transport and storage will be carefully evaluated. Similar work will be done on asparagine, the major translocatable amino acid in soybeans.

The effect of temperature on seed yield and nitrogen fixation will be closely examined. The root will be characterized as a storage place for plant food and as a source of nitrogen. Results from this work should provide practical information about improved approaches to double cropping and optimum planting dates. Information concerning frost damage to beans should also develop from this research.

75-ASARF-209-3

PROJECT TITLE: Alleviation of Soybean Root Restriction in Soils with Compacted Pans by the Use of a Deep-Rooted Vigorous Grass.

LOCATION: Auburn University Agricultural Experiment Station, Auburn, Alabama.

PROJECT LEADERS: Drs. H. T. Rogers and D. L. Thurlow, Auburn University, and Mr. C. B. Elkins, USDA, ARS.

This project will study factors which restrict soybean root development. The original work on root restriction at Auburn University was funded by ASARF several years ago. Out of this program came the development of the Rhizotron. It is very appropriate that ASARF is now funding a major study of soybean root in the Rhizotron.

The Auburn Rhizotron is one of 4 major root observation laboratories in the world and the only one devoted primarily to annual plants.

A multiple objective approach will be made to studying soybean root growth, stressing principles of soil and root interactions. Recent studies have shown that bahiagrass roots are capable of penetrating rather densely compacted soils. If we understood the mechanism, or mechanisms, by which bahiagrass roots penetrate compacted soils, then we would know the properties which soybean roots should have in order to do the same.

Simultaneously, work will be conducted to evaluate efficient tillage methods and to define the physiological aspects of restricted root growth.

A breakthrough in this area could have tremendous significance for higher soybean yields, since sufficient sub-soil moisture is usually available for normal growth and yield.

75-ASARF-210-3

PROJECT TITLE: The Economic Importance of Root and Nodule  
Infesting Insect Pests of Soybeans.

LOCATION: Louisiana State University Agricultural Experiment  
Station, Baton Rouge, La.

PROJECT LEADER: Dr. L. D. Newson.

This project is beginning its first year of operation. Project personnel are expected to be assembled in time for a sizeable quantity of data to be collected in the 1975 growing season.

Good methods are available for evaluating the degree of infestation and damage done to crops by foliar feeding insects. The primary purpose of this project is to develop practical methods for assessing field populations of soybean root and nodule feeding insects.

The importance of root growth and nodule development to a good yield of soybeans makes this an extremely important program. Much work has been done on insect populations above the ground but little work has been done on the hard to study root zone. Soybeans are attacked by the bean leaf beetle throughout most of the U.S. production area. Adults feed on leaves and pods but the larvae attack roots and nodules. This research should go a long way to fill this serious gap in our knowledge about soybean root growth and development.

Dr. Newson is a highly qualified scientist and will coordinate his work with other programs, especially similar work at the University of Illinois.



75-ASARF-211-3

PROJECT TITLE: Relation of Soybean Root Growth Rates and Root Morphology to P and K uptake Rates, Shoot Growth Rate and Soybean Yield.

LOCATION: Purdue University Agricultural Experiment Station, Lafayette, Indiana.

PROJECT LEADER: Dr. Stanley A. Barber.

This project is beginning its first year of operation.

Dr. Barber brings several years of experience and considerable success from the study of corn root growth and fertilization. The timing of fertilizer application can be extremely critical to high yields and the method of placement and mixing with soil determines the actual availability of nutrients to the roots.

It is reasonable to think that good soybean yields requires proper root growth and development. This project will characterize root development in high yielding fields. The influence of soil texture and P and K absorbed by roots and other plant parts will be evaluated.

The mechanical techniques for adequate sampling of roots has been developed to a high level of sophistication by Dr. Barber. As a result, pertinent information should arise rapidly from this work.



AMERICAN  
SOYBEAN  
ASSOCIATION  
RESEARCH  
FOUNDATION

Box 158  
Hudson, Iowa 50643  
319-825-3296

BSC

November 25, 1969

Dr. B. E. Caldwell, Leader  
Soybean Investigations  
Agricultural Research Service  
Crops Research Division  
Beltsville, Maryland 20705

Dear Bill:

The Board of Directors and the various committees of the American Soybean Association, including the Research Foundation Board, will be meeting in Hot Springs, Arkansas on December 2.

As I see it at this time there is not very much business for the Research Foundation Board to discuss as at the present time. We do not have any requests for support except for Maryland and that has been approved and arrangements made for the funding.

I regret that I did not indicate to you earlier about this meeting, so that you could have made arrangements to attend if you so desired or to report on any thing that you think needs attention.

You are still welcome though I can appreciate with the very limited area for discussion at this time, it would be hard to justify expenditures of funds to attend.

I will very much appreciate having you call me on Friday afternoon, November 28 if you have any specific things to recommend or questions to raise. We will be leaving here Sunday morning as we are driving. You could also contact me at the Arlington Hotel in Hot Springs, Arkansas on Monday or Tuesday, December 1 or 2.

I'll pass on any information that there is relative to the meeting as well as send you a copy of the official minutes of the meeting after I return.

Sincerely,

Howard

Howard E. Grow  
Executive Secretary-  
Assistant Treasurer  
AMERICAN SOYBEAN ASSOCIATION  
RESEARCH FOUNDATION

ARS - CRD  
SOYBEAN INVESTIGATIONS  
RECEIVED

NOV 28 1969



2

*Ranking*  
Project Ratings

Project No.	State	Hartwig	Athow	McWhorter	Newsom
<del>1</del>	Nebraska	--	63 <sup>3</sup>	52 <sup>10</sup>	60 <sup>5</sup>
<del>2</del>	Minnesota	--	--	--	60 <sup>5</sup>
<del>3</del>	Tuskegee	--	55 <sup>13</sup>	--	--
<del>4</del>	Minnesota	--	--	--	--
✓5	Iowa	66 <sup>3</sup>	57 <sup>10</sup>	55 <sup>2</sup>	--
✓6	ARS	34 <sup>15</sup>	64 <sup>2</sup>	--	50 <sup>12</sup>
<del>7</del>	Missouri	45 <sup>12</sup>	--	46 <sup>6</sup>	60 <sup>5</sup>
<del>8</del>	Missouri	--	--	54 <sup>1</sup>	65 <sup>2</sup>
<del>9</del>	Kansas	38 <sup>14</sup>	--	-- <sup>12</sup>	--
<del>10</del>	Texas	46 <sup>11</sup>	--	51 <sup>1</sup>	--
<del>11</del>	Florida	67 <sup>2</sup>	57 <sup>10</sup>	55 <sup>2</sup>	--
✓12	N.C. State	70 <sup>1</sup>	55 <sup>13</sup>	52 <sup>10</sup>	60 <sup>5</sup>
✓13	ARS	53 <sup>8</sup>	56 <sup>14</sup>	58 <sup>1</sup>	50 <sup>12</sup>
✓14	Michigan	53 <sup>9</sup>	62 <sup>5</sup>	54 <sup>4</sup>	56 <sup>10</sup>
<del>15</del>	Ark. State	--	--	--	64 <sup>4</sup>
<del>16</del>	Iowa State	--	65 <sup>1</sup>	-- <sup>3</sup>	55 <sup>11</sup>
✓17	Georgia	58 <sup>11</sup>	55 <sup>13</sup>	50 <sup>3</sup>	--
<del>18</del>	Murray State	44 <sup>13</sup>	--	54 <sup>1</sup>	--
<del>19</del>	Clemson	64 <sup>5</sup>	61 <sup>6</sup>	55 <sup>2</sup>	60 <sup>5</sup>
<del>20</del>	Illinois	--	63 <sup>3</sup>	--	70 <sup>1</sup>
<del>21</del>	Georgia	48 <sup>10</sup>	--	--	--
<del>22</del>	Tennessee	--	--	--	--
<del>23</del>	Minnesota	--	--	--	50 <sup>12</sup>
<del>24</del>	Purdue	--	--	--	--
<del>25</del>	Kentucky	--	--	55 <sup>2</sup>	--
<del>26</del>	Wisconsin	--	56 <sup>14</sup>	--	--
✓27	Auburn	60 <sup>6</sup>	60 <sup>8</sup>	49 <sup>14</sup>	--
<del>28</del>	Delaware	--	--	--	45 <sup>15</sup>
✓29	Arkansas	66 <sup>3</sup>	61 <sup>6</sup>	55 <sup>2</sup>	65 <sup>2</sup>
<del>30</del>	Arkansas	--	--	--	--
✓31	Arkansas	--	60 <sup>8</sup>	--	--
32	Louisiana	--	<del>48<sup>11</sup></del>	--	--

<sup>1</sup>with modification 70.

# Panel Structure

## 1. Structure

- discipline vs Capable individual w/o regard to disc. Someone can see forest from trees.

## 2. Role of Foundation in future

## 3. Role of Our Panel -

---

- ~~- Re-affirm the need of advising~~
- Operating board - premise -
- Pay travel & expenses of board  
Serve without personal compensation

+

Board be expanded to 8.

6 Rot

2 Permanent - ARS - NSCIC

No re-election - 1 year off.

Off. + new member to begin a  
Annual meeting  
Chairman <sup>Caldwell</sup> & Vice Chairman Howell

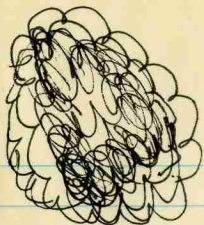
Howell 1  
Caldwell 1  
Colville 2  
Nane 0  
Hartwig 0  
Turnpseed 2

0 = August 76  
1 August 77  
2 August 78

---

New members

~~Nane Johnson~~  
~~Lloyd West~~  
~~Christie and Hunter~~  
~~Dick Kennedy~~  
~~Jim Wilcox~~ ←  
~~Shelley~~



## Proposed Research Area. Next year.

1. Water use Eff - Highest priority in
2. Soybean Pest Mgt -  
Realistic threshold values
3. Germplasm collection

4. Nitrogen nutrition

Soil Mgt & Root Factors.

5. Dist. of organic Sub.

Physiology & Growth

6. Regulation of pod - Seed Set & Abortion

7. Mechanism - Energy reg -  
Seed damage & Loss.

Seed drying as related

8. Pubic Sector

Speciality needs.

9. Chemical composition.

10. Production System.

Critical attributes of

Water Use Efficiency

Managing these traits to obtain high energy utilization and increased soybean yield





16 Responses  
3 Against  
1 Leg. opposed  
1 mis - read & approved.

- make changes

# American Soybean Association Research Foundation

P.O. Box 158/Hudson, Iowa 50643 U.S.A./Phone 319-988-3295/Telex 465637

## AMERICAN SOYBEAN ASSOCIATION RESEARCH FOUNDATION PROPOSED PATENT POLICY

- 6 objected
- Clemson - ok  
P.R. - ok  
La - ok  
Ohio - ok  
Okla - ok  
VPI - Conflict  
Cubana - ok  
Minn - ok  
Penn - ok  
N.C. - ok
- A. The basic policy of Sponsor (American Soybean Association Research Foundation), and the purpose of these Patent Provisions, is to insure that the results of sponsored research are applied in a manner which best serves the interest of the producers of soybeans and the public, while also protecting the interests of Cooperator and the inventor or inventors. To secure these ends, Cooperator may, in appropriate cases, seek to secure patents or certificates of plant variety protection, or to negotiate licensing or royalty arrangements, especially when such arrangements can provide an incentive for wider use or exploitation of any invention, new seed variety or discovery made under sponsored research.

In furtherance of this purpose and policy, the following provisions are mutually agreed to:

1. Any invention, new seed variety or other discovery which results from work performed by Cooperator under this agreement shall be promptly made known to Sponsor in writing.

Have - Should not interfere with decision

Any decisions made as to whether or not to seek to secure patents or certificates of plant variety protection, or to negotiate licensing or royalty arrangements, and the terms thereof, shall be joint decisions of Cooperator and Sponsor. *as far as they do not conflict with established policy of the institution.*

3. Sponsor and Cooperator agree to hold jointly any and all rights they may have or may assert to such invention, seed variety or discovery *insofar as it does not conflict with established university policy.*
4. *In appropriate cases* Sponsor will assist Cooperator in the preparation and prosecution of applications for patents or plant variety protection certificates.

The application for Letters Patent or Certificates of Plant Variety Protection shall be made at the expense of Cooperator and through attorneys named by them, and all expenses, including staff time, and travel for or in connection with the preparation, filing, prosecution, assignment and recording, are payable by Cooperator. All such expenses incurred by Cooperator under this section shall be paid from funds other than those provided by Sponsor for the conduct of research described under this agreement. *Sponsor may provide in sp. cases provide fund.*

6. Sponsor is a non-profit organization and any revenues accruing to it from such licensing or royalties will be used for further research or market development programs beneficial to the producers of soybeans and to the public. Net revenues shall be divided between Sponsor and Cooperator





*All suggest his sponsor approved of use of funds*

in proportion to the declared and verified contribution which each party makes to the research during the period of this agreement. [Any revenues accruing to Cooperator from such licensing or royalties will be used for further soybean research approved in advance by Sponsor. Cooperator assumes responsibility for obligations to inventors and others employed by Cooperator or its agents.] *Killer suggest deep*

- C. Cooperator shall observe the usual and reasonable precautions to maintain research records which can be referred to for the purpose of establishing priority of inventorship. Such precautions on the part of a research worker include the recording and disclosure to a knowledgeable co-worker of research findings which may be of patentable significance and having the co-worker witness the record. Although, ideally, the witness should also have observed the experimental work, the Cooperator need not cause to be performed any unnecessary experiments in the presence of otherwise unnecessary observers for the sole purpose of establishing a good record.
- D. Exceptions or other conditions mutually agreed to concerning patents or plant variety protection certificates are (if none, write "none"):

	<u>Howell</u>	<u>Judd</u>	<u>Nave</u>		
Clemson. S.C.	✓	SC	SC	SC	①
Ark	✓	Ark	Ark	Ark	②
N.C.	✓	NC	NC	NC	③
→ Ga	✓	Ga	Ga	ARS- (Ga)	
Ala	✓	Ala	Ala	Ala	

Clem. Ark - Each prep. to stand alone -

- They prepared together so the Complement
- Same Chemical
- Two different pest
- large plots  $\frac{1}{2}$  acres. 3 rep.
- Ark to work coop in Ga
- Field & Lab Studies
- SC. Path & Ent 28K
- Ark - 2 Ent. 29K

- Some merit of Approving as a pair -  
a point of regional effort.

- If question raised Clemson over Ark  
Because of broad base scientist. Path & Ent.

N.C.

- Emphasis is on herbicides as they relate to nematocides & insecticides.
- Deals with interactions of pesticides

### Ag. Engineering - (not Ranked)

Received <sup>request</sup> ~~proposal~~ ~~of~~ From U. of Ill to extend the program ~~of~~ on - "Improved Equipment for Soybean Harvesting". Recommend Board favorable consideration <sup>of this project</sup> since this is needed to complete the ~~project~~ to evaluate current industry interest.

No	Colville	BEC	Name	RWH	Judd
1	S.C	S.C.	S.C	S.C	SC
2	ARK	Ark	Aek	Ark	Ark
3	N.C.	N.C	N.C.	N.C	N.C.
4	ARS-13	ARS13	Ga	Ga	<u>Ga</u> (4)
5	Ga-17	Ga-17	Ala	Ala	<u>ARS-13</u> 5
6	Ala	Iowa5	<del>ARS-13</del>	<del>ARS-13</del>	<u>Ala</u> - 6
7	Iowa-5	Ala	Iowa5	<del>Ala</del>	⑧ Mich
8	Mich-14	ARS-6	ARS-6	<del>Iowa-5</del>	⑨ ARS6
9	ARS-6	Mich-14	Mich	ARS-6	③ Iowa

discussion  
 & accept.  
 no  
 rank  
 given

Colville & Caldwell Abstained in discussion of Ga & N.C. proposals respectively.

file ASARF

line 3

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Unless there is a compelling reason that I am aware of this appears to be a constraint not in keeping with the aims of the foundation. Information copies to the Foundation prior to publication should be furnished ~~to~~ as a courtesy.

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What is excessive overhead? Often outside the control of the scientist submitting the proposal. Suggest that one criterion be one which <sup>considers</sup> funds requested for the work to be done - but should not be sole criterion as this implies. Other agencies have long since abandoned this criterion for funding proposals. If its good enough it should be funded. This implies that mediocre proposals could be funded over good ones.