

MINUTES OF THE MEETING OF
THE WESTERN ASSOCIATION OF
AGRICULTURAL EXPERIMENT STATION DIRECTORS

Reno. Nevada

July 22-23, 1987

SUMMARY OF ACTIONS

July 22-23, 1987

	<u>Page</u>
1. Adopted the agenda as presented	2
2. Approved minutes of March 1, 1987 meeting	2
3. Heard RIC report and approved recommendations to:	
a. extend projects	
IR-4 A National Agricultural Program: Clearances of Chemicals and Biologics for Minor or Special Uses	104
b. revise projects	
W-110 Interactions Between Bark Beetles and Pathogens and Their Influence on Forest Productivity	104
W-118 Impacts of Human Migration Flows on Nonmetropolitan People and Places	105
W-162 Resolving Competing Demands for Rural Land Resources ...	105
c. establish ad hoc technical committees	
W- Adaptive Control of Surface Irrigation Systems	105
W- Effects of Africanized Honey Bees on Pollination by Solitary Bees and European Honey Bees	105
W- Firm Survival and Growth	106
d. extend or renew WRCC's	
WRCC-17 Control of Fruiting	106
WRCC-28 Developing, Implementing, and Coordinating Research on Crop Loss Appraisals	106
WRCC-56 Overstory-Understory Relationships in Western Forests and Woodlands	106
WRCC-58 Production, Transition Handling, and Reestablishment of Perennial Nursery Stock	107
WRCC-59 Influence of Micro-Climate and Nutrition on Physiological Responses of Poultry	107
e. establish new coordinating committees	
WRCC-63 Rural Credit Systems in the West	107
WRCC-64 Improving Data Quality and Methodology in Rural Social Sciences	108
f. establish ad hoc coordinating committees	
WRCC- Sustainable Agriculture	108
g. assign Administrative Advisors for	
W-154 Crop Productivity as Limited by the Rhizosphere and by Water and Nutrient Use Efficiencies	109
W-166 Characteristics and Feed Value of Barley and Western Protein Supplements for Swine	109
W-171 Germ Cell and Embryo Development and Manipulation for the Improvement of Livestock	109
W- Adaptive Control of Surface Irrigation Systems	109

Page

W- Effects of Africanized Honey Bees on Pollination by Solitary Bees and European Honey Bees	109
W- Firm Survival and Growth	109
WRCC-39 Increased Efficiency in Sheep Production and Marketing of Lamb and Mutton	109
WRCC-59 Influence of Micro-Climate and Nutrition on Physiological Responses of Poultry	109
WRCC-60 Resistance and Resistance Management to Pesticides in Pests and Beneficial Organisms	109
WRCC-63 Rural Credit Systems in the West	109
WRCC- Sustainable Agriculture	109
4. Conditionally approved funding for coordinating personnel for ESCOP Water Initiative	15
5. Assessment for personnel for ESCOP Water Initiative to be handled through WDA Treasurer's office	15
6. Approved the Executive Committee recommendation that J. P. Jordan appoint an ad hoc task force to assess IR projects	17
7. Changed rank of initiative on uses of agriculture and forestry products to number 5 in list of ESCOP initiatives	20
8. Approved amended ESCOP list of 23 initiatives	20
9. Approved acceptance of the neophytes into WDA	21
10. Approved increase in salary for Director-at-Large	44
11. Election of Officers. Slate of recommended nominees was approved ..	48
12. Unanimously approved six resolutions	52
13. Approved adjournment of meeting	55

TABLE OF CONTENTS

	<u>Page</u>
1.0 Call to Order	1
2.0 Introductions and Announcements	1
3.0 Adoption of Agenda	2
4.0 Approval of Minutes of March 1, 1987 Meeting	2
5.0 Identification and Orientation of Neophytes	2
6.0 Report of Chairman/Executive Committee	2
7.0 Treasurer's Report	2
8.0 Reports from Federal Agency Liaison Representatives	2
8.1 CSRS Report	2
8.2 ERS Report	3
8.3 ARS Administrator's Report	5
8.4 ARS Western Area Report	6
8.5 Forest Service Report	7
8.6 W. Home Economics Research Administrators	7
8.7 Council of Veterinary Deans/Association American Veterinary Colleges	7
8.8 National Association of Professional Forestry Schools and Colleges	7
8.9 Western RI Directors	8
8.10 Western Extension Directors	9
9.0 Interregional Project Activities	10
9.1 IR-5 Report	10
9.2 IR-2 Report	12
9.3 IR-7 Report	13

9.5	Distribution of Written Reports from IR-4 & IR-6	13
10.0	RIC Report	14
11.0	ESCOP Committee Reports	14
11.1	ESCOP	14
11.2	ESCOP Special Initiatives	16
11.3	ESCOP Communications	16
11.4	ESCOP Pest Control Strategies	16
11.5	ESCOP FY88 Budget	17
11.6	ESCOP FY89 Budget	17
12.0	Reports from Representatives to Regional and National Committees..	17
12.1	Committee of Nine	17
12.2	Users Advisory Board	18
12.3	Animal Care	18
12.4	Joint Council	18
12.5	Aquaculture Consortium	19
13.0	Research Planning Activities	19
13.1	W. Agricultural Research Committee	19
13.2	National Agricultural Research Committee	20
13.3	Western Regional Council	20
13.4	ESCOP Research Planning & Evaluation	20
13.5	Discussion/Vote, if necessary, on research priorities	20
14.0	W-161 Management Recommendations	20
15.0	Plant-Water-Stress Task Force Report	20
16.0	Western Rural Development Center	21
17.0	Neophyte Report/Announcements	21

18.0	Plant Genetic Resources and Needs for Research: Plant Germplasm System, Plant Introduction Programs, Clonal Repositories, Curators, Changing Plant Variety release procedures, etc. Moderator -- M. H. Niehaus	21
	USDA Germplasm Policy/Diversity Magazine -- P. Fitzgerald	21
	USDA Germplasm Components & Linkages with Curators and State Activities -- H. Shands	26
	Plant Introduction Stations - ARS & SAES Roles especially relating to Biotechnology; Needs -- S. M. Dietz	30
	ESCAP Seed Policy Subcommittee Role, SAES Concerns, Plant Variety Release Procedures & IR-1 Activities -- R. L. Lower	33
19.0	Genetic Engineering Presentations	36
	19.1 Scientist -- J. D. Kemp	36
	19.2 Administration -- C. E. Hess	39
20.0	DAL Report	43
21.0	NASULGC Meeting	44
22.0	Smithsonian Exhibit	44
23.0	Local Centennials: What has been done & future plans	48
24.0	Future Meetings	48
25.0	Election of Officers	48
26.0	Other Business	49
	26.1 Regional handling of sustainable agriculture funds	49
	26.2 Agricultural Competitiveness Task Forces (proposal by Dr. Thomas, President Emeritus, NMSU)	49
	26.3 Invitation from D. W. Zinn	49
	26.4 Report on NASULGC	50
	26.5 CARET Report	51
27.0	Resolutions	52
28.0	Adjournment of formal meeting	55

INDEX OF APPENDICES

	<u>Page</u>
A Agenda	56
B Treasurer's Report	58
C CSRS Report	60
D ERS Report	63
E ARS Administrator's Report	71
F ARS Western Area Report	75
G FS Report	78
H WHERA Report	79
I Council of Veterinary Deans/AAVC Report	81
J NAPFSC Report	89
K Western Extension Directors Report	91
L CRIS Derived File	92
M IR-2 Report	101
N IR-7 Report	103
O RIC Report	104
P ESCOP Report	115
Q ESCOP Subcommittee on Communications Planning Proposal	118
R ESCOP Pest Control Strategies Subcommittee Report	122
S ESCOP FY 1989 Budget Subcommittee Report	123
T Committee of Nine Report	124
U Aquaculture Consortium Report	125
V Regional Research Planning Activities Report	128
W Management of W161	129

X	Western Rural Development Center Summary	132
Y	National Plant Germplasm System/Diversity Magazine	138
Z	Plant Introduction Stations/W-6 Information	144
AA	IR-1 Activities	154
BB	DAL Report	175
CC	Smithsonian Exhibit	179
DD	Agricultural Competitiveness Task Forces Proposal	184

WESTERN ASSOCIATION OF
AGRICULTURAL EXPERIMENT STATION DIRECTORS

MINUTES

July 22-23, 1987
Hilton Hotel
Reno, Nevada

ATTENDANCE:

Alaska	J. V. Drew	Utah	C. E. Clark
Am. Samoa	P. Tauiliili		D. J. Matthews
Arizona	G. W. Ware	Washington	J. J. Zuiches
	K. E. Foster		D. L. Oldenstadt
California	L. N. Lewis	Wyoming	C. C. Kaltenbach
	D. E. Schlegel		J. J. Jacobs
	I. W. Sherman	WDAL	L. L. Boyd
	W. W. Allen	OWDAL	H. A. Sykes
	C. E. Hess	AAVMC	C. Card
	W. R. Gardner		L. D. Koller
Colorado	R. D. Heil	ARS	W. H. Tallent
	H. F. McHugh		W. G. Chace, Jr.
	M. H. Niehaus		P. J. Fitzgerald
Guam	F. P. L. Guerrero		N. I. James
Hawaii	N. P. Kefford	CARET	Dick Joyce (OR)
Idaho	G. A. Lee		F. O Nishigushi (UT)
	R. C. Heimsch		F. McConnell (CO)
Marianas	A. A. Santos		S. Laroe (AK)
Maryland	F. Bender		B. Hamlin (OR)
Micronesia	I. Lebehn	CSRS	J. P. Jordan
Montana	J. R. Welsh		W. D. Carlson
New Mexico	J. C. Owens	CSRS/CRIS	J. Myers
	D. M. Briggs	ERS	J. Miranowski
Nevada	B. M. Jones	NAPFSC	A. A. Dyer
	S. A. Wallace	NASULGC	D. Stansbury
Oregon	S. L. Davis		
	L. J. Koong		
	M. J. Woodburn		
	V. Van Volk		

1.0 Call to Order

Chairman Oldenstadt called the meeting to order at 8:00 a.m. on Wednesday, August 22, 1987.

2.0 Introductions and Announcements

The attendees introduced themselves.

3.0 Adoption of Agenda

The motion was made and seconded to adopt the agenda as presented. MOTION CARRIED. A copy of the agenda is included as Appendix A, pp. 56-57.

4.0 Approval of Minutes of March 1, 1987 Meeting

The motion was made and seconded to approve the minutes of the March 1, 1987 meeting. MOTION CARRIED.

5.0 Identification and Orientation of Neophytes

Tailtwister G. A. Lee conducted the preliminary orientation of Neophytes to the Association.

6.0 Report of Chairman/Executive Committee -- D. L. Oldenstadt

The major items of business discussed during the Executive Committee meeting are presented throughout the agenda and will be so identified.

Mr. Dick Joyce of CARET has proposed continuation of joint summer meetings such as the current one. It will require approval of the CAHA, Extension and RI groups, and the Western Directors Association. The Western Directors usually tend to follow the recommendation of the deans. The proposal will be presented by Dick Joyce.

7.0 Treasurer's Report -- J. R. Welsh

The Treasurer's Report was distributed by Welsh and is included as Appendix B. pp. 58-59.

8.0 Reports from Federal Agency Liaison Representatives

8.1 CSRS Report -- J. P. Jordan

The CSRS Administrator's Report is included as Appendix C, pp. 60-62.

Jordan reported that the FY87 Supplemental was signed by the President on July 10, 1987. When the Supplemental is combined with pass-through funds that CSRS is providing to the SAES from other agencies (DOD, DOS, DOE, etc.) the budget has risen from \$247 million in FY84 to just short of \$400 million in FY87. In these funds are about \$85 million of facilities money. A great deal of effort was made to put authority in the 1985 Farm Bill for facilities and equipment. The guidelines prepared emphasize a competitive approach, e.g. matching funds by the institutions. A heavy effort has been placed on peer review and quality assurance so that the facilities and equipment which come out of it have all the attributes that are desirable for a quality competitive program. Prior to 1985 there were no funds available for facilities and equipment for institutions in the system.

The FY 1988 budget is not yet marked up in the House nor the Senate. There is no set date in the Senate and the House has had its markup sessions cancelled three times. The budget will not be outstanding by any measure, but an increase of five percent in the formula funds program is likely to hold steady. There will be some stimulus in the competitive grants arena, the special grants program will be reinstated, and there will be more facilities and buildings funds. It is not certain at the moment how many of the initiatives will make it. A major effort on the water initiative has been made.

The FY 1989 ESCOP Budget Subcommittee has brought forth a multi-year strategic plan which has been well received in the Department of Agriculture.

8.2 ERS Report -- John A. Miranowski

Miranowski, Director of the Resources and Technology Division of ERS, distributed a brief summary of the organizational structure of ERS and a list of phone numbers which is included as Appendix D, pp. 63-70. He gave the following presentation:

Over the last couple of years we made some tremendous strides in developing much better working relationships in areas such as new products, crops, technology, biotechnology. I am very pleased, over the short time I've been in Washington, to see the linkages that are evolving here. There has been an increase in productivity on the federal part of the research establishment, and I think that it will ultimately lead to better linkages with the experiment stations across the country, and in the West as well. So I think this a particularly fruitful time within the USDA and research community there. Hopefully we can exploit those linkages a lot further.

I want to talk about essentially three different issues. (1) Probably the most important one for us right now, is the reorganization within ERS. (2) New areas of emphasis that we are undertaking, and (3) Other activities that may be of some interest. I'll close with a few comments on the resource situation of ERS and implications for coop agreements and funding that might be available.

The reorganization of ERS was effective July 5th. It is fully operational at this point and it has come off quite smoothly. Contrary to a lot of federal reorganizations, we got through this without a lot of bloodshed and without a lot of loss of output. The new structure essentially involves four divisions, as we had previously, but they've been redefined. We have a Commodity Economics Division (CED), which is primarily commodity specialists dealing with particular commodities. This area is probably our bread and butter area in terms of the types of work the agency does. The reorganization allows us to combine the international and domestic specialists on commodities. We realize that there's importance in globalizing our treatment of commodities in our activities. This gives us an opportunity to bring the specialists

for the international side, which has previously been in the International Economics Division, with those who have been in the National Economics Division (NED).

It has also allowed us to put additional resources in this area and to provide some better career opportunities. We felt our commodity economics area needed to be strengthened. One of the things within the federal system is to try to create opportunities for promotion and advancement, to keep the good people, and not loose them to commodity firms. I think we will be successful in accomplishing that objective.

The second division is the Agriculture and Trade Analysis Division which brings together policy people from the old International Economics Division and policy people from the National Economics Division. It recognizes the linkages between international work and domestic work whenever we review policy analysis for the Secretary's office. What we have tried to do in the reorganization is to effectively put more emphasis throughout the system on global and international aspects; not to concentrate on any one particular division, but to have it represented in all of the divisions.

The old Natural Resource Economics Division is now the Resource and Technology Division. We are very significantly increasing our emphasis on technology. That's where our links, particularly with CSRS and ARS, are critical. One of the things we have been looking at is a study on the potential impacts of growth stimulants, assuming they work effectively, not only in dairy cattle, but beef and pork as well. We will look at the impacts of those on domestic production, on the demands for feed grain versus high protein crops, on the location of production, on our competitiveness with other countries on the international scene, and what the impacts would be for the United States if those somatotropins are adopted in Europe. We cannot say definitively what the impacts are going to be. There are many technical questions left at this point. It does allow us to anticipate what those impacts could be on agriculture in the United States and on rural development or rural revitalization. We feel these are very important, and for the most part ag economists have been reluctant to go out and do studies looking into the future.

Also we are looking more at the impacts of trade on natural resources in this country, and at the impacts of trade on inputs as well as outputs. A lot of the focus so far on trade has been on outputs. Many countries are talking about food self-sufficiency. They continue to ignore the fact that there are a lot of trade inputs that are extremely important to agriculture. We feel this is a very important dimension that has been overlooked.

Finally, the productivity work that was previously done in the National Economics Division is now located in the Resource Technology Division and the work that is going on there will be integrated into the new division.

The Agriculture and Rural Economics Division is now the Agriculture and Rural Economy Division. The only real change is that the old economic indicators work has been moved into the division from NED. So we bring together all the farm financial macro economics analysis and rural development work into one division.

New areas of emphasis are: (1) technology and productivity; (2) technology and groundwater quality; (3) global competitiveness and how technology is how going to impact it; (4) rural revitalization (including rural labor issues, rural industrialization, and immigration reform); and (5) trade negotiations issues.

Other mandated activities are: (1) a study on bovine somatotropin; and, (2) ethanol as an octane enhancer and as a way to utilize excess agricultural commodities.

ERS funds remain tight and the budget for this year will have approximately \$1.2 million for cooperative agreements. Because of the way the supplemental appropriation came about, there are going to be some year-end funds for potentially interesting work. Special projects also provide a source of additional funding. The embargo study was a recent one. There are some items in the recent supplemental appropriations bill that may offer some opportunities for joint efforts between universities and ERS. The cooperative agreements funding will be approximately \$20,000 to \$30,000 per year on a three year agreement.

ERS sponsored a "Resources and Trade Linkages" workshop recently. There is a workshop titled "Rural Great Plains of the Future" in which ERS is heavily involved, which is to be held in November. We are trying to look to the future and what some of the impacts will be and link up very closely with the university community. ERS is interested in seeing what other types of arrangements can be developed between ERS and universities.

8.3 ARS Report -- W. E. Tallent

Tallent distributed information on the Agricultural Research Service which is attached as Appendix E, pp. 71-74.

He reported on the area realignment within ARS. Most area offices will have an area director, an associate area director and an assistant area director.

The associate area directors now are more equal with the area directors than they were previously. They are now in the senior executive service, and have the same rank, therefore, as the area directors. They speak for the agency and Terry Kinney in the same sense that the area director does. It is a more equal type of team leadership. Previously, the area directors were not in the senior executive service.

^
associate

In a meeting with the DALs, it was suggested that all of the directors within the boundaries of the regional associations attend the regional association meetings. ARS will make an effort to have either area directors or associate directors attend.

There has been a question among ARS directors knowing how much effort to assign to regional projects. The answer is that they should make an honest assessment of their particular CRIS unit, how much applies to the goals and objectives of the regional project, and report that amount. There has been concern that there might be double counting of the effort. John Myers of CRIS stated that ARS participation in regional projects is removed from state reporting statements and placed into the ARS category.

The Federal Technology Transfer Act of 1986 enables the ARS to sign agreements with individual firms and research and development consortia, such as universities. It permits agreements for patent licensing and distribution of royalties.

Guidelines are being developed for agreements under and implementation of the new law pertaining to confidentiality, patents, publications, technology transfer brokerages, conflicts of interest, and coordination of the technology transfer effort.

For ARS scientists, successful technology transfer will be taken into account by panels who evaluate the scientists for promotion. ARS also gives monetary awards for patent application and approval, as well as a 15 percent royalty. ~~ARS is moving away from patenting~~ germplasm and cultivar releases while universities seem to be moving toward giving patent licenses. *generally does not*

8.4 ARS Western Area Report -- W. G. Chace, Jr.

Chace distributed copies of the ARS Report of the Pacific West Area which is included as Appendix F, pp. 75-77.

Chace reported that he and N. I. James are busy with the regional realignment. Nevada and Arizona are now in the Pacific West region which has a budget of approximately \$67.9 million and 414 scientists at 27 locations in 8 states.

A great deal of effort has gone into upgrading ARS facilities. New and upgraded facilities are at Corvallis, OR; Hawaii; Fresno, CA; Riverside, CA; and Albany, CA. New germplasm repositories are at Hilo, HI and Riverside, CA. A new building is also planned at Davis, CA.

Negotiations are underway with the Pacific Southwest Forest and Range Experiment Station to move their staff of about 100 people and 27 scientists from Berkeley to the campus at Albany, CA and join ARS in a cooperative effort with the University of California - Berkeley. He noted that some of the work that the Forest Service is doing on forest trees is similar to work being done on fruit trees.

8.5 Forest Service Report -- R. R. Bay

The Forest Service Report is included as Appendix G, p. 78.

8.6 W. Home Economics Research Administrators - M. J. Woodburn

Woodburn distributed the report of the Western Home Economics Research Administrators which is included as Appendix H, pp. 79-80.

8.7 Council of Veterinary Deans/Association American Veterinary Colleges -- C. Card

Materials pertaining to activities of the Council of Veterinary Deans/Association American Veterinary Colleges are included as Appendix I, pp. 81-83.

Additional documents on a new ESCOP initiative regarding food safety and animal health were distributed and are also included in Appendix I, pp. 84-88. Card reported that the food safety problem is one that the Veterinary Association wants to stress and that food safety includes not only the food processing activity, but gets back to the producing unit where the actual infection by the organism takes place. The solution to the problems faced with salmonella, listeria, and mycotoxins, etc., are not just in the processing section or the transportation section, but also in the production section.

8.8 National Association of Professional Forestry Schools and Colleges -- A. A. Dyer

The National Association of Professional Forestry Schools and Colleges (NAPFSC) is an organization that parallels the Land Grant organization. It deals with an education and research agenda. There are committees that are similar: research, education, extension and international. NAPFSC is attempting to become more closely aligned with agriculture by having members serve on agriculture committees.

Dyer indicated that the NAPFSC meetings are a great deal like the agriculture association meetings. There are the same problems about enrollments in the undergraduate program. Actual numbers are reported at NAPFSC meetings, in an attempt to ascertain what the general atmosphere is across the country.

The research committee focuses its attention on two principal programs: the McIntire-Stennis program and the Competitive Grants in Forestry program. A major effort has been put into the McIntire-Stennis program this year and there is reason to be optimistic about some significant results. NAPFSC put forth an initiative this year to increase the appropriation for McIntire-Stennis by 200 percent. It was a timely year to do so as Senator Stennis is a member of the Appropriations Committee.

With the help of ESCOP, a document was developed, included as Appendix J, pp. 89-90, which focuses on the same kinds of issues that face agriculture. It emphasizes biotechnology, profitability for forest land owners and forest industries. There is an emphasis in the document on a multi-resource, multiple-use problem. It is possible to maintain relatively high levels of timber production, food and fiber production and still achieve the output objectives associated with water and wildlife. There is also an emphasis in development of additional scientific expertise which ties back to the parent legislation itself.

8.9 Western RI Directors -- E. Miller

Miller reported that western RI instructors are concerned about enrollment. From Fall of 1985 to Fall of 1986, there was a decline in total undergraduate enrollment of eight percent in the western region. There was also a decline in graduate enrollment of eight percent. This is a more rapid decline than nationally, where there is a six percent decline in undergraduate and a two percent decline in graduate enrollments. In 1982, in the West and nationally, where five students were enrolled in the undergraduate programs we now have four - a 20 percent drop. Graduate enrollment has shown a 14 percent decline in the West since 1982 and a 6 percent decline nationally.

The fallout of the decline results in a reduction of faculty FTE, and a decline of operating budgets for resident instruction. Not so subtle is a decline in faculty morale. There is a general sense that students are not interested in what is being done. It has an impact on attitude and perspective of the future.

What is being done about it? Two aspects are known regarding student enrollment: (1) recruitment, and (2) retention of students. In terms of student recruitment there is a tremendous amount of activity both in the West and nationally. Substantial inroads have been made in working with science teachers and directly addressing high school science students. The thrust in the West and nationally is to attract those students interested in science and business into agriculture. Many approaches are being taken: (1) Most institutions are bringing students onto campuses and giving them an opportunity to work directly with, and for varying lengths of time, faculty in the labs and out in the field, getting firsthand experience with what agriculture scientists are doing and attempting to excite them and show them that agriculture has an exciting future. (2) Traditional approaches to recruiting are being used and the activity there stepped up in letter writing campaigns, development of attractive brochures and posters, telephone campaigns, etc.

The rate of decline in the West extends as high as 20 percent in a year in some institutions. On the reverse side, Utah State University had a 20 percent increase the past year. Utah State University did all of the methods mentioned. They put more

resources and time commitment into recruiting. One of the most surprising things is the amount of time required to turn the enrollment problem around.

Substantial curriculum modification needs to take place. Programs have to be in place to attract students. Most institutions are undergoing major curriculum reviews by looking at competency base, proficiency base, kinds of curriculum, developing matrices, looking at what students need to be successful in the world of work. Then they look at what kind of courses can be provided and be sure that they have them.

Retention of students is another area. The most important ingredient of student retention is that individual student to institution contact and identification of that student with that institution. There is a perception that faculty are looking at the allocation of their time more critically and that out of class utilization of faculty time in student activities and endeavors is on the decline. When there is resistance on the part of faculty in utilizing their time outside of the classroom to get involved in student support activities, it begins to break down the institution identification by the student.

Jordan commented that RICOP has produced a booklet titled "Energizing the Green Machine" produced under a contract with Purdue which is designed to attract high school students to agriculture. An astronaut from Florida is available as an ambassador for agriculture who will give presentations to youth in an effort to encourage students to think about biology in unusual ways.

Miller reported that the EPCOT Center at Disney World is doing an outstanding job for agriculture overall by building a very positive and exciting image about agriculture to the millions of people who flow through that institution every year.

During the 1970s, the youth of this country were told that unless they were turned on to environmental issues there would be no environment. While enrollment in environmental programs increased as a result, the enrollment in traditional programs stayed flat or even declined. Today enrollment increases are in: human development related programs, agriculture business programs, and those programs which tend to lead toward involvement in biotechnology.

8.10 Western Extension Directors -- B. Jones

Jones distributed the report of the Western Extension Directors which is included as Appendix K, p. 91.

Jones reported that, approximately three years ago, the Western Extension Directors had a special meeting and established priorities for programs. California provided leadership in going through a formalized procedure which removed some of the biases of the

programs. At the February 1987 meeting of the Western Extension Directors the issue of priorities was discussed. Extension took a look at what were established as priorities and compared what was being spent versus what were the stated priorities. They were not identical. One priority which was identified that stood out above all the rest was water, but was not being allocated top resources. If priorities are to be established, Extension will have to be serious about allocating funds to those priorities.

9.0 Interregional Project Activities

9.1 IR-5 Report -- John Myers (CRIS)

Myers reported that all of the research sponsored and conducted by USDA is required to be documented in CRIS. In addition to that, most of the research that is conducted at over 100 cooperating institutions, primarily the Agricultural Experiment Stations, the cooperating forestry schools, the veterinary schools, Tuskegee and the 1890 schools is documented in CRIS. In total, that amounts to about 30,000 projects, active or recently terminated. Of that total, 8,000 are conducted by USDA agencies and 22,000 are performed by the states with a variety of sources of funds.

The CRIS budget this year is \$962,000. IR-5 contributes 22.5 percent, or \$203,000. There is a staff of 11 paid through the CRIS budget, plus two people from CSRS who handle the AD-416 and AD-417 forms which are sent in by the Experiment Stations.

Timeliness has always been an issue with CRIS. It has been improved over the past several years. Whenever forms are submitted in automated form, they go into the system within a week. The ones submitted in hard copy go into the system within two weeks. In the past, all federal projects used to be sent to the CSRS faculty to review and approve before they were entered into the system. Now, they are put directly into the system in a pending status and a copy goes to CSRS for review. As soon as a project is approved by CSRS, the pending flag is removed and it is immediately in the system.

Quality has also been an issue. It is important that information be accurate because CSRS uses the information extensively in technical write-ups. CRIS maintains 35 specialized databases which are created and updated annually in connection with CSRS Budget documents. In addition, all of the technical write-ups in CRIS are available through the Dialog database, which means that the public has direct access to all of the information. Dialog is a premier database supplier or provider and is available all over the world. Some of the benefits of Dialog are that extra subfiles can be made available for retrieval.

Automated input is available for submission of AD-416 and AD-417 data. It is used regularly by 10 institutions and only New Mexico and Montana from the Western Region use it.

Nationally, the AD-419 Funds and Manpower report for 1986 was submitted on 17 tapes, 24 floppy disks, and 12 hard copy. Of the western regional states, three submitted the AD-419 on tapes, 12 on floppy disks, and four on hard copy. The automated format helps CRIS, assuming that the data are good and that a summary hard copy is submitted as a verification document. The CRIS goal for completion of the AD-419 database is April of each year. In past years the data were not submitted in as timely manner as requested. By the end of January 1987, CRIS had received data for 1986 from 37 SAES (8 from the West); in February - 8 more were received (3 from the West); in March - 5 (2 from the West); April - 5 (2 from the West); and in June, the final SAES. Since the Congressional Hearings on the Budget are in March, CSRS would like to have an updated database ready to go by March 1 of each year. The deadline is possible, but requires cooperation and support from all of the experiment stations.

Prior to 1986, AID funds were not included in CRIS inventory reports. They are now included in the AD-419 report and states will be required to report all AID funds in the future. For those who report on hard copy, a customized AD-419 form will be provided.

CRIS installed a Prime 9750 minicomputer in the basement of the National Agriculture Library Building. A relational database management package, Oracle, has been acquired which will increase data flexibility. It will allow direct access to the database, and will provide optional on-line updating of the database. Since the database system is relational, it will allow addition of classifications without having to dismantle the system or recompile all of the programs. Most of the work is being done in-house with some contractual help.

As a result, there may be some changes in the AD-416 form; the AD-417 classification form sequence will be changed; the AD-421 progress field size will be changed and the number of citations of publications will be open-ended and will be organized so that the most recent publications cited will always be available for retrieval. The individual citations will be more accessible and manageable.

Myers distributed information on a PC derived file which is included as Appendix L, pp. 92-100. The program, developed by North Carolina State under a cooperative agreement, can run on a micro-computer with at least 256 RAM and 3.5 megabytes of dedicated space. It is menu driven, but restricted to utilization of the information on the derived file provided by CRIS. It does not include individual project information, but contains summarized information by experiment station or agency. It is possible to look at a breakdown by state of commodity, scientific discipline, or research problem area. Currently, it takes from 8 to 20 minutes to complete a query.

A revised automated form for entry of AD-421 information has also been developed at North Carolina State under cooperative agreement

and is undergoing testing. It has a menu screen formatted to look like the AD-421 form. It helps the user fill out the form and seems to be much better than anything used in the past. It will probably be available for national distribution by October or November 1987.

CRIS has a videotape which is available to states and agencies on a permanent basis. It is helpful to assist new scientists to know what information is available through CRIS and how it may be retrieved. In terms of CRIS requests made by experiment stations in the western region - only two stations have made more than a dozen requests since the beginning of FY87. One station has made requests 25 times, another station 13 times, seven stations have made requests one to five times, and four stations have not used it at all. These are direct requests of CRIS and do not include those obtained by accessing Dialog.

Briggs asked if the PC version of Oracle would be able to interface directly with the Oracle database at CRIS. Myers stated that it should be able to, and that everything that can be done on the mini-computer should be able to be done on a PC.

9.2 IR-2 Report -- J. J. Zuiches

Zuiches distributed the IR-2 Status Report which is included as Appendix M, pp. 101-102. He gave the following presentation:

The Interregional Program for collecting, maintaining and distributing virus-free tree fruit clones is predominately located at Washington State University at the Prosser, WA station. A lot of things have been happening during the past year in IR-2. In its 30 years of existence, Paul Fridlund has been the one and only plant pathologist in charge and he retired. You can understand the problems we have been facing in the transition period; when the father and the leader of an IR project retires and you try to come up with a new person to lead the project. Let me give you a background on what we have been doing this last year. The IR-2 project has four objectives: two objectives are basically in the title; Objectives A and B refer to what we're calling a service function; obtaining of the new accessions of the desirable species, virus-indexing them and distributing them both nationally and internationally. Objectives C and D are the research oriented objectives. They pertain to developing new methods of indexing viruses and also to research on detection technology and techniques.

The IR projects have been criticized by the various regional associations as projects which have a service orientation. To be objective about it, we must maintain the project and we are trying to find leadership. We identified three candidates for the position of leader; two of the candidates were interviewed and one withdrew. One was unacceptable and we offered the job to the third candidate and were declined. We had submitted a request to the Committee of Nine for supplemental funding under the assumption that we would get a new leader and we would have to redirect some of the funds in IR-2

to exploit and expand the research orientation while still providing the service component and meeting the objectives of the service activities. With the decline by the candidate of the position, we stepped back and discussed with Dr. Gaylord Mink his willingness to take on responsibility for IR-2. Given the concerns of the Committee of Nine and from the regional associations about IR-1 and IR-2, it was decided not to reopen the search for a tenure line faculty member and we would take on the responsibility for maintaining and running IR-2 with our own internal faculty member. Dr. Mink agreed to take on that responsibility.

One of the consequences of doing that, of course, is that we had to maintain and keep strong the service aspects. We had to be sure to get the accessions that people wanted us to get, we had to do the virus indexing, we had to do the heat treatment, and we had to provide the distribution, and maintain clones for future distribution. We have created a new position in IR-2, funded by the IR-2 project, called a Scientific Assistant position. We have split up the job that Paul Fridlund did for 30 years into a job that a technical specialist, the Scientific Assistant, will do for the service aspects of the job, and Dr. Gaylord Mink will do the research aspects of the job of leader of IR-2. This means that the funding for IR-2 is very tight for all these people. I have not appointed the leader full-time on IR-2 because there is not the funding there. But he will take on, even with a much reduced appointment, the leadership of it and maintain IR-2. We hope that we will continue to serve the needs of the industry, both within the region, throughout the nation and internationally in the area of provision of virus-free tree fruit clones.

9.3 IR-7 Report -- R. D. Heil

Heil distributed the report on IR-7 which is included as Appendix N, p. 103.

9.5 Distribution of Written Reports from IR-4 & IR-6

In lieu of a written report, Ware reported that IR-4 has been in existence since 1962. It was reviewed in 1985 by CSRS and, due to the review, was extended to 9/30/88. IR-4 is headed for some tough times due to several things.

Primarily, the one that is going to give it some difficulty is the National Academy Report that came out in March 1987 concerning cancer and foods and the heavy impact that it is going to have now on both IR-4 for reviewing new data, preparing and providing the data, and also on the Pesticide Impact Assessment Program. Both of these are going to carry the brunt on food crops as a result of the National Academy Report.

The regional laboratory for IR-4 is located at Davis, CA, and Jim Sieber, who is also an Associate Director of the Experiment Station is the laboratory director. Once again, the funding for the IR-4

project is in a precarious condition as it has been for the past three or four years. It is in the special grants group and those are pulled out in the very beginning and then they are put back in. IR-4 is basically a service project. But the people who are running it usually are young scientists who don't have tenure and their work is expected to be exposed as research - but it's really not - it's a service type work and is very difficult to get publications out of it. It is hoped that directors will give this attention when the people who are working on IR-4 projects come up for tenure.

In summary, for 1986, the food tolerances that were processed were up somewhat over the 1985 record, and the non-food registrations which are primarily ornamentals and herbicides were up measurably over 1985. It is a reasonably efficient project and is one that is viable to the economy of agriculture.

Jordan reported that the Department of Agriculture is trying to convince OMB that there are, within Special Grants, a group of projects such as IR-4, IPM and Animal Health, that are national in impact and must be separated out from the other projects and left in the OMB budget recommendations.

Jordan commented that the Committee of Nine has done a favor in causing us to question the IR projects, e.g. what do you want from IR projects and what kind of criteria do you want to use. The importance of that is probably related to the fact that some of these get started and tend to continue on.

There was no written report distributed for IR-6.

10.0 RIC Report -- M. H. Niehaus

The RIC Report is included as Appendix O, pp. 104-114.

11.0 ESCOP Committee Reports

11.1 ESCOP -- C. C. Kaltenbach

Kaltenbach distributed the ESCOP Report which is included as Appendix P, p. 115-117.

He reported that the ESCOP-ECOP leadership is requesting each experiment station and extension director to contribute to a central fund in the Division of Agriculture that will be utilized to hire an individual who will coordinate educational efforts with members of Congress with particular reference to the water initiative that is contained in the FY88 and FY89 budgets. Two models of how it should be funded have been discussed; 1) by Hatch formula; and 2) by size. The method of choice was to assess the states by size of program: small - \$1,000; medium - \$1,500; large - \$2,000. The size of each was determined by the amount of Hatch fund allocation. The assessment for each state would be divided equally between experiment station and extension. The 1890 institutions and

territories were removed and a separate assessment schedule was assigned for them. The total assessment for a 6-9 month effort is \$90,000 which includes salary, travel, etc. The Northeast and North Central Regional Associations have approved the assessment. The Southern Regional Association will be requested to give approval by mail as their summer meeting has already taken place. The schedule of assessments is included in Appendix P, p. 118.

Kaltenbach reported that Peggy Wheeler has been working for the past three months on a temporary assignment to gain support for the water initiative for the FY88 budget. The position funded by the assessment would be for approximately 0.5 SY and would allow the individual to spread a work schedule out over a longer period of time.

Oldenstadt reported that the Executive Committee had discussed the assessment at their July 20, 1987 meeting and made the motion that the Western Directors Association accept the Division of Agriculture recommendation for contributions to a central fund for coordination of educational efforts with particular reference to the water initiative, subject to participation by all regions and by Extension counterparts.

Discussion:

Welsh expressed concern about establishing a precedent for the assessment that might open the door for future requests. He stated that not only was the WDA voting money, they would also be voting principle. The questions is how far does the WDA get into paid lobbying? It may be an extremely successful political venture but the WDA is taking a policy stand about investing money in this kind of activity.

Kaltenbach stated that there had been other similar activities funded by the SAES and CSRS in the past, e.g. Jaenke and Associates and Al Wood. Jordan reported that the reason the initiative on Biotechnology was successful was due in part to Al Wood's efforts in contacting members of Congress who had influence on it.

Drew spoke in favor of the initiative because the water issue is one which has the possibility of seeing funding go to a whole array of different agencies, and yet the agricultural industry is perhaps more impacted by the outcome of the research that would result from this activity than almost any other industry within the United States.

MOTION CARRIED.

It was moved and seconded that the assessment be handled through the WDA Treasurer's office and be added to the annual assessment.

MOTION CARRIED.

Kaltenbach reported that in the 1985 Farm Bill there was legislation that addresses Cooperative Extension doing applied research. That issue has been discussed by the ESCOP and ECOP leadership several times with no particular action being taken. As a result, ESCOP appointed a committee to draft a position paper to which various groups could respond. The paper suggests a mechanism that the research be handled through joint appointments. ESCOP has tentatively adopted the position paper pending revisions.

There are four biotechnology information conferences scheduled. California is to host one of them. The conferences are to be strategically located near an experiment station and also near a large media base.

An ad hoc task force has been appointed to review and develop a budget initiative in the area of pest resistance.

11.2 ESCOP Special Initiatives -- L. L. Boyd

The ESCOP Special Initiatives report is included in the DAL Report, Appendix BB, pp. 175-178.

11.3 ESCOP Communications -- D. M. Briggs

Briggs reported that the ESCOP Communications Subcommittee held three symposia where many good ideas were presented by various experiment stations. Some were tried in other locations, but many were thought to be too expensive to be tried and so participants went home and no change was accomplished.

As a result, the ESCOP Subcommittee on Communications developed a proposal for administrators and communicators at state agricultural experiment stations which is attached as Appendix Q, pp. 118-121. The proposal has definite guidelines, methods and materials intended to enhance the visibility of agricultural research.

The objectives are intended to improve the working relationship between agriculture communications groups, which at times are largely Extension people, with the directors of the experiment stations. One of the problems that communications people have with experiment station directors is that they don't know specifically what the mission of that station is. It will be imperative for the directors to define the mission, communicate that mission to the communicators and then develop a plan which will be published in June of 1988 to indicate what is being done individually and mutually with other stations.

11.4 ESCOP Pest Control Strategies -- G. W. Ware

The ESCOP Pest Control Strategies report is included as Appendix R, p. 122.

11.5 ESCOP FY88 Budget -- D. E. Schlegel/L. L. Boyd

Boyd reported that the FY88 budget is not yet marked up. He has sent messages to each of the directors requesting that they contact their congressional representatives before the budget is marked up.

11.6 ESCOP FY89 Budget -- R. D. Heil/L. L. Boyd

Heil distributed the ESCOP FY89 Budget Subcommittee report which is included as Appendix S, p. 123. The proposed budget for FY89 with projections into fiscal years 1990-1991 is being mailed to each experiment station.

12.0 Reports from Representatives to Regional and National Committees

12.1 Committee of Nine -- D. E. Schlegel

The Committee of Nine Report is included as Appendix T, p. 124.

Schlegel reported that the Committee of Nine had reviewed the issue raised previously about IR funding and passed the following resolution:

That CSRS establish a national ad hoc committee to determine if the current definition of interregional (IR) projects is valid; to refine current procedures or continuing work of this nature; and assess current IR projects and associated regional projects in relation to the definitions and mechanisms proposed.

The Executive Committee of the WDA at their meeting July 20, 1987 discussed the Committee of Nine resolution and developed a statement which Schlegel presented as a motion that the WDA submit the following resolution to CSRS Administrator J. P. Jordan regarding IR projects:

The Western Directors Association requests: that CSRS Administrator J. P. Jordan proceed with the appointment of an ad hoc task force to assess and make recommendations for IR project definition, funding, termination, etc., as set forth in the minutes of the May 1987 Committee of Nine meeting; and that the Committee of Nine withhold any actions relative to IR projects until the task force report is completed and the regional associations have had an opportunity to review and respond to it.

MOTION CARRIED.

12.2 Users Advisory Board -- C. C. Kaltenbach

The following report on the Users Advisory Board was distributed by Kaltenbach:

Colin Kaltenbach and Lannie Boyd met with the Users Advisory Board in Ames, Iowa, May 6-8. In addition to obtaining an overview of some of the experiment station efforts at Iowa State and participating in a tour that included NADC and the Thompson farm (low-input agriculture flagship), we had the opportunity to present the draft FY89 ESCOP budget. This is the first time ESCOP has had the opportunity to present their budget prior to the February meeting when UAB reviews all budgets for their recommendation. We plan to present the final version of the FY89 ESCOP budget to UAB during their meeting in Raleigh, North Carolina, August 12-14.

12.3 Animal Care -- C. C. Kaltenbach

The following report on Animal Care was distributed by Kaltenbach:

Each director should have recently received the provisional final draft of the guide for the care and use of agricultural animals in agriculture research and teaching. Please note the deadline for comments on this draft is August 15. There was a good response from experiment station directors on the first draft; a similar effort is strongly encouraged on the revised version. Many, but not all, of the original suggestions appear to have been incorporated. Please do not hesitate to resubmit your thoughts even if they were ignored the first time. We are obviously going to have to live with this document for a long time. There will never be a better opportunity than the present to incorporate changes.

I am sure you are aware that the NASULGC Division of Agriculture has accepted responsibility for maintaining this guide including supervision of subsequent revisions. It is my guess that the experiment station section will inherit this little chore.

12.4 Joint Council -- J. P. Jordan

Jordan reported that the April meeting of the Joint Council brought forth a list of priorities for the FY89 budget cycle.

They have three priorities that represent societal issues that impact agriculture and are, therefore, crosscutting: (1) regain competitiveness and profitability in American agriculture; (2) increase family economic strength; and (3) revitalizing rural America. The eight national priorities for research, extension and higher education were ranked for FY89: (1) maintain and preserve water quality; (2) expand biotechnology and its applications; (3) increase and maintain scientific knowledge and expertise; (4) improve understanding of food, human nutrition, diet and health relationships; (5) sustain soil productivity; (6) assess new and

expanded uses for agricultural products; (7) preserve germplasm and genetically improve plants; (8) improve food processing, quality, safety and distribution.

The next meeting of the Joint Council will be in Battle Creek, Michigan in August and will focus on interdisciplinary science and education activities. One which will be reviewed is a regional effort that was put forth in the Northeast titled "Toward 2005" which is the Northeast agriculture, food and forestry long-range planning effort. They also will review efforts to examine a revision of the 1988 five-year plan and the 1987 Accomplishments Report. The meeting will be capped off by a tour of the Upjohn Company research facilities.

12.5 Aquaculture Consortium -- G. A. Lee

Lee reported that information was mailed to all directors containing the schedule for Aquaculture Working Group meetings. Participation from interested institutions and scientists was invited. A copy of that communication is included as Appendix U, pp. 125-127.

The Consortium for the Western Center met May 7-8, 1987 in Seattle, WA. The group is significantly farther ahead in organization and in preparing their objectives and direction than the other centers. The West appears to be in a leadership role. The other center directors also met with the Consortium in May and gathered good ideas and thoughts for organizing their programs.

The Western Directors were sent a list of seven priorities that both the technical committees and industry have jointly prepared for consideration for projects. There is a chairman or an advisor for each one of the seven objectives that have been named. The groups have met from early June through the 2nd of July.

The projects are to be finalized in early August and will be peer reviewed. The Board of Directors will meet in October to decide which projects will be funded. Those funded will be in \$50,000 increments.

An operating manual for the Aquaculture Centers has been assembled. It is patterned after the CSRS Operating Manual.

13.0 Research Planning Activities -- C. E. Clark

Clark distributed a report which combined activities of the Western Agricultural Research Committee (WARC), National Agricultural Research Committee (NARC), the Western Regional Council (WRC), and ESCOP Research Planning and Evaluation Subcommittee, included as Appendix V, p. 128.

13.1 W. Agricultural Research Committee

See Appendix V, p. 128.

13.2 National Agricultural Research Committee

See Appendix V, p. 128.

13.3 Western Regional Council

See Appendix V, p. 128.

13.4 ESCOP Research Planning & Evaluation

See Appendix V, p. 128.

13.5 Discussion/Vote, if necessary, on research priorities

Jordan provided some background information on use of the ESCOP initiatives list. The list drives off of input from 600 commodity groups, scientific societies, etc., that get trimmed to 120 suggested initiatives. The ESCOP Subcommittee on National Research Planning and Evaluation has trimmed the list to approximately 20 suggested initiatives which are long-term issues. The list has clearly stated researchable objectives that are measurable. The relationship to the base program is carefully identified.

It was moved and seconded that the priority titled "New and Expanded Uses for Agriculture and Forestry Products" be ranked as number 5 in the list of initiatives. MOTION CARRIED.

It was moved and seconded that the amended list of 23 initiatives be approved. MOTION CARRIED.

14.0 W-161 Management Recommendations -- D. E. Schlegel

Schlegel reported that, during his tenure as Administrative Advisor of W-161 "Integrated Pest and Agroecosystem Management in the Semiarid Regions of the Western United States" (IPM), his conferences with G. A. McIntyre, the Coordinator of the IPM project, and the WDAL have prompted recommended changes in the management of W-161. This is in order to avoid what might appear to be some conflicts of interest due to participation of commodity groups in the review process.

The recommendations for management of W-161 are included as Appendix W, pp. 129-131.

It was suggested that the technical committee of W-161 develop a petition for a Western Regional Coordinating Committee to replace the regional project, as RIC, the Executive Committee and the Administrative Advisor have all noted that W-161 functions more as a service project than a research project.

15.0 Plant-Water-Stress Task Force Report -- R. D. Heil

No report was given.

16.0 Western Rural Development Center -- R. Youmans

Youmans reported that he is concerned about the level of investment in research on behavioral sciences over the next five to ten years as to what is going on in rural areas of the United States. The activity on revitalizing rural America, which is coming out of Cooperative Extension, begins to help focus some on that subject. There is an ESCOP committee on Agriculture and Community Viability that is trying to develop an agenda by the time of the November Land-Grant meeting, that will help put some focus on social science research on problems in our rural communities.

He distributed copies of the Western Rural Development Center Summary of Activities which is included as Appendix X, pp. 132-137.

17.0 Neophyte Report/Announcements

Tailtwister Lee reported that, after considerable caucusing, discussion and review of the candidates, it would appear that perhaps they have not met all the criteria of this esteemed group, but we feel that they probably have exhibited the kinds of leadership that we do need.

It was moved and seconded that the WDA accept the new class of neophytes into the organization. MOTION CARRIED.

18.0 Plant Genetic Resources and Needs for Research: Plant Germplasm System, Plant Introduction Programs, Clonal Repositories, Curators, Changing Plant Variety release procedures, etc. Moderator -- M. H. Niehaus

Niehaus introduced the four guests on the panel: Dr. Paul Fitzgerald, Advisor to the Administrator of ARS concerning germplasm; Dr. Henry Shands, National Program Leader for Germplasm; Dr. Sam Dietz, Coordinator for Western Regional Plant Introduction Station at Pullman, WA; and Dr. Richard Lower, Associate Dean of Agriculture at the University of Wisconsin. The subject is germplasm, genetic resources, variety release procedures, etc.

Points which need to be made are: agriculture is being restructured and efficiency is the watchword; biotechnology is about to assert itself in agriculture; germplasm resources are disappearing as underdeveloped countries become more developed; genetic diversity in many of our species is quite narrow. All of these points indicate that we need to put more of our resources into germplasm efforts, not just dollars, but more participation by agricultural experiment station scientists.

USDA Germplasm Policy/Diversity Magazine -- Paul Fitzgerald

Dr. Paul Fitzgerald distributed information on the National Plant Germplasm System and DIVERSITY magazine which is included as Appendix Y, pp. 138-143. Fitzgerald gave the following presentation:

Good morning. I am very pleased to meet with the Western Directors about a subject--plant genetic resources--on which we have mutual interest and shared responsibilities.

I have known some of you for a long time, but for many of you this is my first opportunity to get acquainted. For several years, I met regularly with the North Central Directors, representing the ARS regional office in Peoria. I enjoyed that relationship. It provided communication, understanding of needs and opportunity, and provided a basis for joint effort in programs of mutual interest. I am sure that you enjoyed a similar relationship here in the Western region.

For some time now, I have been focusing my attention on plant germplasm. I serve as advisor to the Administrator of ARS for plant germplasm; I am in my second term as Chairman of the National Plant Germplasm Committee which provides advice, council, and coordination to the National Plant Germplasm System; and I meet regularly with the National Plant Genetic Resources Board which serves the Secretary in establishing germplasm policy for the Department and the Nation.

Today, I want to spend a few minutes on two aspects of plant germplasm: ARS patent and varietal release policy and DIVERSITY magazine. First, let me remind you that my comments, and those of the other speakers on this program segment, all relate to the function of the National Plant Germplasm System in which your institutions and your counterpart institutions in the states of the other regions are participating members--partners with Industry and the federal government in a coordinated effort to acquire, maintain, preserve, and utilize genetic resource to improve varietal development and stabilize crop production.

ARS Plant Patent and Varietal Release Policy

A major responsibility has been assumed by the federal government to provide the continuity of leadership, resources, and facilities required of a national system. Much of this federal effort is provided by the Agricultural Research Service, but the collective efforts of the State Agricultural Experiment Stations and Colleges of Agriculture have been essential to the cooperative public programs. The public sector has been supported by substantial contributions and assistance from the private sector, primarily through individual companies, the National Council of Commercial Plant Breeders and the American Seed Trade Associations representing several hundred seed companies.

You can think of the NPGS as a three-legged stool with legs from the federal, state, and private sectors. Many of you know from experience that three-legged stools work best if their legs are more or less equal. Within the NPGS, there is a continuum of activities on plant genetic resources from the exploration and collection through the cataloging, maintenance, evaluation, and enhancement to the utilization in developing improved varieties. Many of these activities involve varying levels of cooperation and are influenced by policies and procedures of the participating institutions and agencies.

From earliest times, the U.S. has adhered to a policy of free exchange of germplasm. There have been some short term exceptions due to embargoes and such but the basic policy has remained unchanged. There has been free access to the germplasm collections and federal, state and private breeders have drawn upon these collections freely to develop new varieties. Varieties developed by public institutions, federal or state, were available to all users through foundation and certified seed programs in the states.

The Plant Variety Protection Act of 1970 provided some new controls and opportunities for the developers of new crop varieties. The PVPA also brought requirements that increased the cost of releasing a variety and mandated that the question of ownership be resolved when co-developers had different varietal release policies. The states and ARS resolved these differences by agreeing to the ESCOP seed policy.

Now we are entering another era in which new varietal release policies are possible because of new patent legislation in 1985. The new patent law permits the patenting of plant parts or the whole plant under what is called a utility patent, and recognizes the added protection and royalty-producing opportunity for the developer. Some individual states have indicated the intention of exercising this new protection and release varieties under a licensing arrangement that will generate royalty income for the institution, the research program, and the developer.

In the past, ARS has followed a policy of unrestricted release, non-exclusively, and no royalty permitted. Patents, if sought, were for the purpose of protecting the public rather than individual rights. In cases where varieties were jointly developed with a state, the state was prohibited from exercising proprietary rights and collecting royalties.

The new patent law permits developers/breeders to exercise proprietary rights of ownership and control how the seed will be produced and marketed.

The ARS policies relating to plant patents and distribution of germplasm have remained relatively unchanged since the Plant Variety Protection Act was enacted in 1970, but the 1985 decision by the Board of Patent Appeals and Interference granting patents for genetically modified plants in what we refer to as the utility patent--will require change in the previous ARS policies relating to plant germplasm.

ARS has requested the National Plant Genetics Resources Board to make recommendations on changes that ARS should make in these policies. These recommendations are under study by the Board. Policy revision is also under study within ARS.

No decisions have been made as to the changes that will be made to the ARS policy statement on plant patenting and distribution of germplasm but the new policy statement will be guided by at least three important considerations:

- 1) It is the intent of the Agricultural Research Service to comply with the U.S. laws and the intent of Congress.
- 2) It is the intent of ARS to maintain strong cooperative relationships with the states and industry and that its policies are fair and equitable.
- 3) It is the intent of ARS policies and actions to serve U.S. agriculture. Interpretation and application of policies will be guided by the best interests of U.S. agriculture. This includes free exchange of germplasm.

I believe new ARS policies will provide opportunity for patenting by ARS scientists on a case by case basis when it is in the interest of U.S. agriculture. I also believe that state cooperators in joint development of new varieties will enjoy more latitude in exercising alternative release policies. ARS will try to avoid confrontational relations in this activity. I think ARS will continue to support the unrestricted distribution and exchange of raw and improved germplasm on a worldwide basis for research purposes.

DIVERSITY News Journal

The National Plant Germplasm System is made up of many activities and functions, one of which is the dissemination of information about the system. This function is accomplished primarily through the publication of the quarterly news journal DIVERSITY by the Genetics Resources Communication Systems, Inc. (GRCS).

I believe most of you have seen issues of this journal. I mailed a copy to most Experiment Station Director's office last October. We believe this is a quality publication filling an important need in a high priority program area.

DIVERSITY has had a difficult beginning and has not yet reached sufficient operational stability. Much effort and resources have been provided during recent years to help it reach a self-sustaining level but this level has not been reached and may not be reachable under present circumstances.

DIVERSITY is a product of the early effort by the Laboratory for Information in Science in Agriculture (LISA) at Colorado State University at Ft. Collins. Several years ago, ARS developed a cooperative agreement with a group at Colorado University, Boulder to develop an information system for the plant germplasm system that would be automated and current and would be accessible to all work locations and users. Shortly afterwards, the group moved to CSU and became a part of LISA.

This effort was funded for five years before ARS assumed responsibility for further development. Much was accomplished by Gil Hersh and his associates but the job was not completed. Their project, called GRIP (Germplasm Resources Information Project) developed an informational leaflet called the GRIP News. This was the forerunner of DIVERSITY. The

first issue of DIVERSITY was published by LISA in the Spring of 1982. After the termination of the ARS/LISA cooperative agreement in 1983, publication of DIVERSITY was suspended for several months. During 1984, an office was established in Arlington, VA. During 1985 the ownership of DIVERSITY was transferred from LISA to GRCS in Washington, D.C. and the office was established at the current address at 727 8th Street, S.E.

During part of this period, the staff consisted only of Deborah Strauss, the Managing Editor. Publication schedules could not be met. Financial resources were very limited and not sufficient to meet office expenses. DIVERSITY was virtually dead when an interim committee of interested germplasm workers provided guidance and support to work through the legal aspects of transferring ownership from LISA to a newly formed not-for-profit organization GRCS, to organize and name a Board of Directors, and to solicit financial assistance from the Department and from private companies.

This effort has continued. With the generous help of several private sources of funding and other assistance, and with funding from federal agencies on at least three occasions, DIVERSITY is returning to a regular publication schedule and the quality of the journal has continued to improve with each issue.

Subscriptions have slowly increased but the total is still in the 1500 range--less than 1/3 of that projected as needed for self-sustaining income. The Department just recently provided \$300,000 over the next two years (July 1987-July 1989) to help DIVERSITY establish itself for more independent operation through increased subscriptions, possible affiliation with a well-established journal, establish other sources of funding, or other alternatives to generate income and lower costs.

It is becoming more evident that under the constraints of the size and distribution of the germplasm community, the style and format of the journal, the absence of a compelling need to have your own copy, and competition for funds, that DIVERSITY is unlikely to reach financial self-sufficiency under present operation conditions.

It seems likely that some level of outside support will be necessary for an indefinite period to keep DIVERSITY publishing on a regular schedule. I believe this ongoing support must be provided by the community being served. My letter to you and your counterparts in other regions last October was to call to your attention the need for this kind of support from the states as well as from the federal and private sectors.

If you believe this is a truly national need and responsibility, and that DIVERSITY is filling this need, you should clearly convey your views to Drs. Bentley, Kinney, Jordan, Johnsrud and other federal officials. They may be willing to continue some level of support on behalf of the NPGS if you indicate your support of their actions.

On the other hand a small number of subscriptions from each station would be extremely valuable in broadening the readership and improving communication while generating a substantial sum of needed income.

USDA Germplasm Components & Linkages with Curators and State Activities -- H. Shands

Dr. Henry Shands made the following presentation:

We look at the National Plant Germplasm System as a user-driven system: a partnership of federal, state and private industry organizations and research stations that are bound together with the common goal of acquiring, preserving, evaluating and improving germplasm. These state and private components are clear and the federal elements consist of: ARS, CSRS, APHIS, USAID. ARS has the lead role in the activity.

As National Program Leader for Germplasm I touch upon three particular areas: (1) The programmatic activities of the ARS elements of the National Plant Germplasm System and that includes the Plant Germplasm Operations Committee in which all of the leaders of the repositories are brought together in a coordinated manner. (2) The interactive programs of other National Program staff persons in ARS where some of the scientist's individual programs deal, in part, with germplasm activity. (3) Lastly, The germplasm matrix team which helps establish the NPS and ARS action and policies relative to the National Plant Germplasm System.

The core sites of the National Plant Germplasm System consist of the regional plant introduction stations, of which there are four; the National Clonal and Germplasm Repositories; the National Seed Storage Laboratory in Ft. Collins; and the activities of the Plant Genetics and Germplasm Institute at Beltsville, which has the plant exploration, plant quarantine, plant introduction, GRIN system; and at some of the diverse locations where plant microbial collections at both federal and state facilities are housed.

The importance of germplasm cannot be minimized. It is the base, of course, for improved crop productivity, yield, efficiency and input costs, disease and insect resistance, improved quality in all crops. We all have a stake in that. The ARS position on plant breeding, at this time, is to discontinue plant breeding when industry is capable of conducting that particular activity. In general, ARS has pulled out of most of the breeding activities. It does continue where there is not any additional input in breeding by industry or state groups.

Of course germplasm is involved in genetic vulnerability, that is at risk to major crop losses such as occurred in the case of the corn blight of 1970. It is important in genetic engineering and biotechnology.

I have circulated an article by R. M. Goodman, et al., "Gene Transfer in Crop Improvement" AAAS, 3 April 1987, Volume 236, pp. 48-54, and there are several things I would like to highlight out of that:

"We believe that outside the agricultural research community, few people appreciate how powerful a tool for crop improvement conventional plant breeding has been. Past use of gene transfers between species and even between genera is less appreciated. The history of scientific crop improvement shows how important

technological innovation in the past has been in the enhancement of agricultural productivity. Future advances in crop improvement and solution of the many problems facing agriculture today will depend on the wide use of all resources, including new technology, to advance fundamental knowledge about plants and apply this knowledge in the field. Proven superior crop varieties developed by plant breeders provide a genetic background for introduction of new genes developed in the laboratory. Finally, consideration of the technology used in gene transfer highlights the critical importance of collecting, preserving, and characterizing the world's germplasm for plants and microorganisms. Many of the advances that will enhance agriculture in the future will probably be made as the result of entirely unforeseeable ideas and manipulations by future generations of scientists. We must preserve the raw material from which our successors will work."

This translates directly back to to the mission of the National Plant Germplasm System. We need to preserve well what we have. We need to acquire what we don't have. We need to evaluate what we have. Lastly, we need to transfer the valuable traits from the raw germplasm into useful characteristics of the commodities.

In terms of budgets, budgets do affect our management choices. The recent budget put forth by the President to the Congress shows the commitment that ARS has to the germplasm system. Of the \$9.6 million that ARS is to receive for FY88, \$7.4 million goes to plant productivity--all of that is devoted to germplasm activity. Therefore, where is this money going for germplasm? Mainly, it is going to these core stations: regional plant introduction stations; National Seed Storage Laboratory; and activities such as plant exploration. Additionally, with the budget, there is proposed \$1 million for planning, design and expansion activities at the National Seed Storage Laboratory. We have run out of space. Hopefully, that will be approved and then into the FY89 budget will go the construction funds proposed for that particular activity.

Some of the other activities we have talked about are communications and the need for effective interaction with states and industry between the federal units. I try to communicate by attending the regional technical committee meetings, such as W-006 meetings. We try to collaborate with CSRS on a number of the activities. We are involved with the National Plant Germplasm Committee activities and National Plant Genetics Resources Board activities. In all of those, there are state people, industry people and federal people collaborating. The information should be getting back to all of the states from the reports. We certainly would like to hear about it and try to get information to you as directors who have been involved with many of the important activities. We would like to see that you are brought up to date and kept current on the activities within the germplasm system. We now have 37 crop advisory committees and have more in the formation. They give us recommendations on all phases of germplasm activity on a commodity basis. I am sure that many of the people in your stations are involved in one or more of these particular committees.

This spring I had the fortune, as did Paul Fitzgerald and others, to report to the Joint Council on Food and Agriculture concerning germplasm activities. We, of course, try to work with DIVERSITY magazine to see that the information is disseminated well throughout the country.

Other activities that we are involved with at this time are embargoes, which affect the free exchange of germplasm. We feel that germplasm is to be freely exchanged among all scientists on a worldwide basis. As you are aware, there is an international issue concerning this. In terms of our own national embargoes to certain countries, we are trying to establish a memorandum of understanding between the departments involved so that we can effectively say that we do have this free exchange with all countries in the world.

We had an environmental assessment action approximately one year ago. These types of lawsuits force us into an adversary relationship, when in actuality, we have many common goals that we're trying to resolve. We must do everything we can to protect our openness because we are a receiver nation. Approximately 99 percent of our crops do not originate within our borders. We have, according to some estimates, approximately 50 percent of the germplasm that we need for effectively continuing our plant improvement programs. There is a study being conducted by the National Academy of Sciences that has gone through approximately one year at this time which is going to affect our management choices and decisions. This is looking at global resources. Within the United States there is a special review team on the National Plant Germplasm System. There will be an update to the genetic vulnerability study that was published in 1972 following the corn blight. So we know that the study and its recommendations will have some very significant affects upon our activities.

The OTA report is in the process of being reviewed by the Congress. There were three meetings scheduled on the OTA Report on Biological Conservation and Diversity. One of those has been held and two remain to be held.

Patent issues will certainly be affecting the National Plant Germplasm System. We will be trying to establish whatever guidelines we need for holding and distributing any of this material and the consequences it will have on recipients, as well as the people who distribute them. One thing we are particularly concerned about are program terminations and the valuable germplasm that occasionally is lost when programs terminate. As I talk to the different groups such as W-006, S-009, NE-009 and NC-007, I try to get those representatives to let us know when their programs are being discontinued in the states so that we can protect that germplasm material. If it sits around many years without being used it is usually in bad condition and we have lots of problems with trying to regenerate and get it back into acceptable condition. We need to receive that material early on so we can preserve it without substantial loss. The affect on the nation's genetic base as programs terminate is rather significant. There is a narrowing of genetic base as programs are terminated, whether it be ARS or state programs.

As individuals, there was much creativity and competition to introduce something new and different into the varieties. And that base, whether it was used in terms of public release varieties, or whether it was used in material that was further carried on by the private industry, was very valuable. Now with fewer programs, we have less of those individual's creativities going into the material being released. There is a pyramiding -- the best by the best -- and the industry is, of course, working to make a profit. With a pyramiding of germplasm and a narrowing of the genetic base, the risk for a corn blight or a serious regional loss does exist.

In the area of quarantines, we try to determine what we can move through as rapidly as possible. About 95 percent of the germplasm coming into this country does not go through quarantine. But that 5 percent is a very expensive introduction process. Most of it is fruit and nut crops going through a virus elimination process which has a great affect for the breeders because it takes so many years to come into the country through that process. We have made great strides working with APHIS to reduce the quarantine regulation on some commodities. We're setting up a Caribbean site in an attempt to move crops such as sorghum and corn right through without having to go through the greenhouse procedure that is also a very slow and costly procedure. Quarantine is a major issue and, again, for we who hold national clonal repositories, in particular, there is a risk assessment. There is the interest by some of the groups to bring in materials directly to those repositories in a post entry type of condition, but recognize that there is a risk to local agricultures. We would like to minimize that.

User fees are a factor of which I think all of us should be aware. Part of the FY88 budget was a user fee assigned to the private industry. Private industry uses about 6 percent of the total distribution of the germplasm system. We finally brought a study together to find out the numbers that were involved. The Secretary of Agriculture transmitted that to OMB, and in a temporary way we have certainly evaded the issue of having a charge for germplasm. But it will come up again. It came up in the Carter administration, and it seems that user fees may be in the future. However, we must all recognize that this is a jointly supported operation and each one, in terms of a partnership should be an equal partner. Someway we must reconcile the fact that there are inputs from all areas and to charge one area is perhaps a little bit improper.

Assuming that we continue to improve the National Plant Germplasm System, much still remains to be accomplished in the basics of acquisition and preservation. We must provide new raw germplasm from explorations and exchanges. We must provide evaluation data on the existing germplasm and collections. We must provide useful germplasm to the public and private breeders and determine roles and the needs of germplasm in biotechnology. All of this will help us maintain the U.S. technological lead in germplasm and biotechnology activities.

Plant Introduction Stations - ARS & SAES Roles especially
relating to Biotechnology; Needs -- S. M. Dietz

Dr. Sam Dietz made the following presentation:

I have been with the agency a third of a century, and a coordinator since 1966. We used to tour the Western region every year to personally visit your scientists, federal scientists, and the directors as well. You all know that the first thing that usually goes when budgets get tight is travel. We have not done that now for some twenty years. I think it was a mistake. We have lost communications and ties. I don't know if we can ever get it going again because of budgets, but it should have been maintained somehow. It was a good firsthand knowledge of what your people were doing with germplasm. We were able to better supply them with their needs.

The point I would like to get across about the centers of origin for crops is that there is no major crop plant that originated in the United States. Only the tepary bean and Jerusalem artichoke are vegetables which originated in the U.S. Some brambles and small fruits had origins in the U.S., but still not very many of them considering all of the fruits that are available at our supermarkets today. The sunflower is the only agronomic crop that originated in the U.S.

The same is true for animals. The alpaca, llama, guinea pig and the turkey are the only animals that originated in the entire Western Hemisphere, so we certainly are living on introductions today.

To put that another way, there are places where you can go pick beans, or dig potatoes. Nobody sprays them, nobody plants them, nobody irrigates them. They're just there. That's what our job is, to go to those areas of origin and bring in that material so that your scientists can have this with their research programs.

This leads to the handout (included as Appendix Z, pp. 144-153). The purpose of our program is to provide germplasm that is needed in the research, teaching and extension programs in the U.S. and abroad. The W-6 title "Plant Germplasm Introduction, Increase, Evaluation, Documentation, Maintenance and Distribution" spells out our objectives. If you don't have it here in the first place, you introduce it. After you've introduced it, and you have a tiny dab of seed with a hundred scientists clamoring for it, you have to increase it. While we increase it, we have our professionals evaluate it at the same time. The data received from those evaluations are documented and put into the computer. We hope through the Germplasm Resources Information Network to be able to get this material out to your scientists rapidly.

Long term maintenance is where I differ markedly from most of the prevailing thought. We're not talking a three-year or five-year CRIS project, or every four years when a new President comes in or a new Secretary of Agriculture. We're talking a forever program. An then, of

course, we distribute it, which fulfills our purpose of providing this material to your scientists to meet their needs.

The next sheet (Appendix Z, p. 146) shows some of the genera that we have at W-6. But, I think more importantly, I would like to stress that this is a very large program, even though it's only a part of the system. We have 183 different genera that we maintain. As soon as the alfalfa is shipped from the Ames station to Pullman, we will have 1461 different species that we maintain at Pullman. We will have over 40,000 accessions in total.

In terms of the history of plant germplasm, it started back in 1898. It was under the Patent Office and sort of haphazardly existed as scientists would bring in the materials and try to preserve it and use it in their programs. It wasn't until in the 1930's and the 1940's that scientists began to voice concern about the loss of germplasm. If somebody dies, somebody gets transferred, programs change, funding ends, germplasm is then lost. So there was a great clamor by some of you directors, many of your scientists and the Academy as well to get a system for preserving it. The 9B3 portion of the Agriculture Research Marketing Act of 1946 started to set this up. It then got a cooperative venture between the Hatch monies and ARS monies to develop the regional programs. The first one stationed on line was Ames, Iowa in 1948. And it wasn't until 1952 that we had the first coordinator at Pullman.

The next chart (Appendix Z, p. 147) is a historical activity of plant germ movement at W-6. From 1965 through 1979, a 15 year average, we received about 1300 accessions per year. From 1980 through 1984, that went up to 1400 per year. In 1985 we had 3100 and last year we had 760. This year we will exceed 7000 new accessions with the transfer of alfalfa. The point that I am making is that this cumulative total keeps laying more and more work upon the regional stations. Existing staff is highly overloaded and it's building. You can see the material that was sent by Pullman. We averaged 12,000 from 1965-1979; 14,000 from 1980-1984; and we're up to 21,000 for 1986. So, not only are we getting more, people out there are using more. That brings in an interesting thing, too, in terms of funding. Sometimes decisions get made very easily, such as not giving franking mailers anymore. For those who have a small mailing budget, it was pretty easy, but for those of us who are mailing seeds, it suddenly hit our budget \$4,000 to \$5,000.

In 1981 we received 35,000 additional items that were sent to the Western region. That was what came in from small grains. Henry Shands is now developing a system so in the future we will be able to report all of the transfers into the Western region. That figure will be substantially increased at that time.

I went through a whole list of requests of the last five to ten years and started writing down what scientists were requesting and what they were working with (Appendix Z, p. 148). They want to improve their existing crops, whether they're for food, fiber, ornamental, medicinal or industrial use. They want more protein, yield, vigor, hardiness, earliness, photosynthetic efficiency, wider adaptation, and improved

nutritional quality. They want tolerance to drought, smog, salt, overgrazing, heavy foot traffic, fire, and general stress factors. They want resistance to diseases, insects, mites, nematodes. They want to lower the cost of production. They want less energy used in production. They want germplasm for wildlife food and habitat, reduction in use of pesticides through resistance, erosion control, vegetative screens, beautification. It goes on and on until it finally gets to the new key word of biotechnology.

I think that if you take a look at the Western region and consider the entire climatic and edaphic, or soil, variation that you have in the Western region, it is terrific. If you are going all the way from lower California, out to Hawaii, and up to Alaska, certainly this affects the daylength. We have some of the highest mountains to below sea level in the inland valleys of California, terrific temperature changes, and rainfall -- over 300 inches in the Hawaiian Islands and over 200 in western Washington -- on down to some of the driest and most arid in our Southwest. What I am saying is that if you put all that variation together, we probably have as much variation in the Western region than all of the rest of the country put together. If you are really interested in filling all of those ecological niches, you're going to need a vast array of plant germplasm to do that job. Where are you going to get it? It is not out there in the back 160 acres because it did not originate there.

Many of the "Johnny-come-lately" ecologists say that we can only use our natives. This is provincial thinking. We need to use the very best plant to do the very best job wherever that need is. That's the way we're going to make some real progress. I'm not saying not to use natives. They're important. As a matter of fact, all the endangered species in the United States are now coming into our repositories for preservation. So we're keeping the endangered U.S. species as well, even if they don't have crop potential.

Our best scientists have one thing in common. They are not satisfied with what they have today. They do, in fact, want something new and something different and these native landraces are our most priceless irreplaceable natural resource. And, because of that, there is an international groundswell of interest in germplasm. We're training a lot of foreign scientists. These people are coming to us for additional information on how to do this job.

A chart of our staff at Pullman is included (Appendix Z, p. 150). The following sheet (Appendix Z, p. 151) is a breakdown of the actual personnel. We have eight ARS and 6.75 state, plus the temporary staff, so we end up with about 16 total FTEs. As the horticulturist retired a number of years ago, he was replaced by an ARS horticulturist. We laid off a technician last year and also a half-time graduate student. A project of growing unadapted beans in Hawaii was terminated, and a greenhouse was shut down because we couldn't afford to heat it. If you project these reductions through next fiscal year, this has saved the regional research funds at least \$82,000 per year. The funding of the regional station used to be about 50-50 ARS and regional research funds.

It is now only about one-third regional research funds. Our projections through 1989 appear that, after we take out the salaries, wages and benefits, we probably will not have more than ten percent for operations. I feel that we have been very miserly in watching closely the expenditures of funds there and we've never padded our budget.

I think, rather than going through the the accomplishments (Appendix Z, pp. 152-153), I would like to say that, in the 30's we paid \$50,000 and, as we were just coming out of the depression, \$50,000 at that time was a true fortune, to send people to China and part of the orient to pick up soybeans. The taxes that come off the production of soybeans, not the money the farmer gets, have paid for the plant introduction system from 1898 to the present date. And that's only one crop that we brought in. Plant germplasm is important to U.S. agriculture.

It has been a pleasure to meet you all here. I appreciate the opportunity.

ESCOP Seed Policy Subcommittee Role, SAES Concerns, Plant Variety release procedures & IR-1 Activities -- R. L. Lower

Dr. Richard Lower gave the following presentation:

I suspect that my presence today was prompted by two things that deal with ESCOP seed policy: (1) a fifteen year old policy statement; and (2) a letter that most of you received from the National Council of Commercial Plant Breeders relative to the process of branding. I'd like to address that first and then I'd like to talk to you about IR-1.

The ESCOP Seed Policy Subcommittee, over the last two years, has been examining several different surveys that took place and are still going on relative to germplasm. That might be germplasm policies, it might be germplasm exploration, it might be germplasm workers. So it is a pretty broad category. The surveys were triggered by industry in some cases, by professional societies in others, and also by agricultural experiment stations and universities. The industry survey, representing essentially the National Commercial Council of Plant Breeders and the American Seed Trade Association, shows a decline in state and federal support of plant breeding and genetics programs as they relate to field crops. A similar survey conducted by Texas A&M and ARS shows the same kind of demise in plant breeding programs as they are associated with horticultural crops. The NASULGC Committee on Biotechnology surveys for 1982 and 1984 show a 17 percent decline in FTEs in plant breeding and genetics and a somewhat larger decline, about 21 percent, in animal scientists. The committee has conducted another survey since then and, within the past week, you probably have received the final edition of the Committee on Biotechnology survey that will update the FTEs as they are allocated to plant breeding and genetics. We are still measuring declines. We have another survey, entitled "Research Dynamics" which shows a slight increase in FTEs in plant breeding and genetics. I suspect that we have some plant breeders who called themselves plant breeders when it was an admirable thing to do and, now that there's more interest in biotechnology, they probably have become biotechnologists.

There was also an ESCOP Seed Policy Subcommittee survey, conducted in 1982, that addresses various mechanisms that stations are using to release germplasm. Although a good study, it was somewhat incomplete. In 1985, Michigan State University conducted a survey on the same kinds of things. That also, although a good one, was somewhat incomplete. At our November meeting of the Subcommittee on Seed Policy for ESCOP, we decided that we would rely very heavily on the discussions, proceedings, and information generated from the Michigan State conference in February of this year that dealt with germplasm and variety release policies. I think it's very obvious that agricultural experiment stations are doing different things. It's not so obvious as to whether we're still essentially sticking with the Seed Policy as it was originally designed. We will always handle releases differently, I think, because of historical considerations, because of geographic locations, because of cropping differences, and because of differences in program goals. Following the Michigan State conference in February, the ESCOP Seed Policy Committee sent out a letter indicating to all agricultural experiment station directors that we were going to reexamine the existing policy using the information from MSU as our informational source, and at the same time asking for identification of potential problems as they related to what you are presently doing and whether that agrees with the ESCOP policy. We had four responses out of 52 sent out. That's not very alarming, and I don't think it is indicative at all of the concern that you have for variety release policies. But, with that as background, I would like to move ahead a little bit, about ESCOP Seed Policy.

The original policy was released in 1954. It was revised in 1962, in 1967, and twice in 1972. So it is 15 years old. The two revisions in 1972 were related to the Southern corn leaf blight problem and to the impact that plant variety protection may or may not have had on policy. It is written in a very generic form and is signed off on by ESCOP, by ARS, by SCS, by the National Council of Commercial Plant Breeders.

I want to identify branding for you which was the reason for the letter that you received from the National Council of Commercial Plant Breeders. Branding essentially is distributing the same seed for sale via more than one brand. It also must accompany a statement which says "Variety Unstated." Now, in some states, it is legal to do this. In other states it is illegal. It is interesting that there is legislation proposed in at least one state this year to make the process illegal and in another state it is being proposed to make it legal. In almost all cases, branding also involves a royalty return to an agricultural experiment station. The letter that comes from the National Council of Commercial Plant Breeders says that branding brings about four major concerns: (1) it jeopardizes basic research at land-grant institutions; (2) it inhibits the release and exchange of material between agricultural experiment stations; (3) it allows for personal gain; (4) it detracts from appropriate university activities and sources of funding. They go into a good deal more than that, and they begin to attack us somewhat on some things where I hoped we swung the pendulum back the other way. That is involvement of experiment station workers and ARS workers as well in germplasm and variety development.

What does the ESCOP Seed Policy say? Under Section 7B, it says that we will not name or register a variety under more than one name. That is, we're not going to take a soybean variety or a wheat variety and call it Alpha brand, Beta brand, Gamma brand, etc. But a brand isn't really a variety because, if you follow the branding process, it's variety unstated, so it becomes very confusing. Also under Section 10C, the ESCOP Seed Policy says that foundation seed does allow for a restricted release, and allows for exclusivity. So, in some cases, we're still on target.

The ESCOP Seed Policy does not directly communicate to branding. It does not directly communicate to patents, to biotech contributions, or to what we referred to as germplasm for sale. A new policy statement is not going to be easy. It also is going to have to be written rather broadly, because we're looking at what 50 states are doing and trying to merge all that into one statement. The Michigan State Proceedings are expected to be published and in your hands by the end of this week and, again, we will examine in earnest the existing policy statement using the proceedings from that conference, which was a very good one and very well attended, as the base information for the potential development of a new policy.

One of the concerns about germplasm that we have, that has not come out in too many of the surveys, is the decline in graduate training. It is going to be very difficult if we don't take part in the development of varieties and improve germplasm to train graduate students that are going to serve in industry. This has been something that we have been advocating with them for quite some time, that we have sought support from ASTA and the National Council of Professional Plant Breeders for graduate programs across the country.

The second item that I wish to talk to you about is IR-1. I presume that this discussion was prompted by two decisions at the recent Committee of Nine meeting. The first is that, if you read their minutes carefully, it is likely that the Committee of Nine will not obtain the votes necessary for continuation of funding of IR-1 after September of 1989, and a similar finding for IR-2 after September of 1990. The Committee of Nine also recommended the establishment of a national ad hoc committee by CSRS for three things: (1) determination of whether or not the current definition for IR projects is valid; (2) to refine current procedures or propose alternative mechanisms for initiating funding, evaluating, and continuing work of this germplasm nature; (3) to assess the current IR projects and their relationship with somewhat associated regional projects.

Most of what follows this is my own feeling. It is very biased. But I would like to make three or four points. I think that IR-1 is alive and well. There are some historical considerations concerning IR projects, where we go back to the 1946-47 legislation in the Agricultural Research and Marketing Act that allows the states to cooperate in research that was at one time under the jurisdiction of ARS. It gives every state a voice and some equity in projects such as IR-1. Another concern about IR projects is the mechanism for peer review. IR-1 is peer reviewed, as are all the others, I assume. It is reviewed first by our technical committee, then it goes through our regional research committee and all of the other regional research committees, and then through Committee of

Nine. It is a cooperative interregional effort and, although it performs an important service function, it also has a very solid research function. You can measure that in the research output. It is a proven program and its funds have certainly leveraged considerable more dollars for research efforts. I think we need to support IR-1, as well as the other IR programs, and we need to do it well. I don't think we can make a case that they shouldn't be subject to the same annual cuts that the Hatch budget goes through. They cannot be immune to those sorts of things, but I don't think we can starve them either. If we don't do it well, then we probably ought to get out of it.

I would propose two things: (1) as recommended by the Committee of Nine, that CSRS set up an investigative committee to look into IR projects; and (2) that CSRS also call for an outside peer review of IR-1 as was recently done by a committee for IR-4. In my judgement, the findings will be similar to those for IR-4, that it is a very solid program and one that we need to continue.

I am going to give you two handouts (Appendix AA, pp. 154-174). The first is the 1986 IR-1 annual report and second is a 1980 through 1986 report on the dissemination of germplasm products out of the IR-1 program. I think you will note that, of the 28,000 samples during that period, 9,000 were to the Western region.

That is my report, Mr. Chairman.

19.0 Genetic Engineering Presentations

19.1 Scientist -- J. D. Kemp

Dr. John Kemp, Director of the Plant Genetic Engineering Laboratory (PGEL) at New Mexico State University gave the following presentation:

I'm not sure what I am today. My title is Director of the Plant Genetic Engineering Laboratory and Lead Scientist, so I believe I should put my lead scientist hat on today and try to tell you a bit about plant biotechnology genetic engineering. My background is actually as a chemist. I got my degree in biochemistry many years ago. I am an animal developmental biologist and a plant pathologist. I've had quite a varied background as well as acting director of research in industry for a short period of time.

I don't know if that helps or not. I think that biotechnology is really a tool. It's simply a tool to genetically engineer plants in our particular discipline. So I look at biotechnology today as just merely an extension of biotechnology through the centuries. We've been a genetic engineer or a biotechnologist for perhaps 10,000 years. One of my favorite slides is a painting from a tomb in Thebes dated 2000 BC. I think that it clearly points out the fact that man was a genetic engineer, even in those days. He was modifying a great variety of crops in those days. The biotechnology of those days was what we understand as rudimentary plant breeding

and crossing plants sexually. The technology of breeding developed through the centuries to the point today where it is sophisticated as we have it to create such wonderful crops as high yielding hybrid corn. That technology is going to be with us for many years to come. That's where we're going to have to rely on plant improvements for quite a number of years. But, we have a new technology today, a new tool for improving plants. This technology basically involves isolating useful traits from plants as pieces of DNA because the molecular biologist has told us that DNA (deoxyribonucleic acid) is the information source for genetic traits. If we can isolate that trait as a piece of DNA, manipulate the trait through recombinant DNA, eventually we can transfer that DNA trait to a plant cell in tissue culture. If we can regenerate that transformed plant and we find that the trait is present, the technology has been proven.

So the technology, the tools are there. We haven't solved all the problems. We can't regenerate all of the useful crop plants. We can't isolate all the useful traits that we might want to. So it is going to be very important that we continue to support the basic science. We need lots of help from state and federal agencies to support the basic sciences; isolating genes that are going to be useful; and regenerating plant species that are going to be useful. That's the biotechnology tool of today. The genetic engineering comes in selecting those traits that you may want to put in.

I break goal oriented research into three categories: (1) new products, and that can be something as simple as higher yields; (2) biotic protectants. Those are all your disease resistant mechanisms, protecting plants against insects, virus, bacterial diseases, fungal diseases, nematodes; and (3) abiotic protectants. Making plants more tolerant to stress conditions, to the harsh environment. Most useful traits can be put into those categories. Let me interject at this point that germplasm is absolutely critical. We should begin thinking of germplasm, not just simply as the particular agronomically important species that we're growing today, but think of germplasm as really the entire living world, because that is what this technology does for you. If you can isolate a gene, a piece of DNA, you can transfer it into plants. If you know how to regulate that piece of DNA so that it's expressed in your new plant, it's going to be expressed. If that gene is a useful gene, then you've made a useful improvement on your plant. Think of your germplasm even more broadly. Think of all of the resistant genes that must be in native plants that we hopefully someday will be able to draw into our agronomically acceptable crops. We need to broaden our germplasm even more.

Let me give you a few examples of what the new biotechnology can do for you today. Cotton in the field reminds me of a trait you are all well aware of, it is being highly publicized by industry and laboratories all over the world, and that is bacillus thuringensis gene, the polypeptide toxin produced by a bacteria that kills lepidopteran insects, or that kills diptra, or as we know now

there's a gene that even will kill the colioptan insects. These polypeptide toxins are made by a bacteria. We have isolated the gene for those polypeptide toxins and we have engineered plant regulatory signals in front and behind that gene and we've expressed it in tobacco, tomato and many petunias. We would like to be able to express that gene in cotton. If that gene were fully effective in cotton, like it appears to be in tobacco today, think of the advantage to the farmer that wouldn't have to spray his cotton fields. Think of the advantage. Not only would he not have to spray, when a spray program is started, not only the lepidopteran insects that might be your pests are killed. You kill the beneficials. In the case of cotton, many of the beneficials are not lepidopteran insects. So this gene would not kill the beneficials, giving you biological control, giving you specificity. That's why that gene seems to be so important to all of us and to industry today. It's taking a gene from a diverse organism, a bacteria, and moving it into a plant. Your gene pool is the entire living world.

An interesting example is a ring structure produced by a fungus. When a nematode sticks its neck into the ring, the ring constricts and holds on to the nematode. The ring structure then begins to produce a hydrolytic enzyme called collagenase, which dissolves the collagen, the cuticle of the nematode. What do we have in mind here? Why not move the collagenase gene from the fungus into a crop plant? What if we lose all of our chemical control mechanisms for nematodes? We're going to have to turn to biological control. So this is a thought, why not use that collagenase gene, a gene that the plant has never seen, doesn't need, doesn't use? The plant doesn't make collagen. It should be completely innocuous to the plant. But, if that gene is turned on by a wounding, as the nematode enters the plant and makes a wound, we turn on that collagenase gene and begin to control the nematodes.

A third example is a useful biological secondary product of jojoba. Why do we grow jojoba? Because it contains a valuable oil, an industrial oil. It's really a liquid wax. It's virtually identical to sperm whale oil. Today it's used mainly in cosmetics, but that liquid wax has marvelous lubricating properties, extremely stable to biodegradation, extremely stable to high temperatures and high pressures. That oil is essentially the synthetic motor oil that some companies are synthetically producing and selling for four to five times the price of normal motor oil. Today, jojoba oil sells for \$10,000 per ton, because of the plant species. How long is it going to take to cultivate that plant, to make it an agronomically acceptable plant, so that the oil will be \$250 per ton? Probably, many years. Why not think of moving the genes from jojoba into an agronomically acceptable crop plant and make them produce this oil so that it's available to the marketplace at \$200 to \$300 a ton instead of \$10,000 a ton? You are going to open all kinds of new markets. This is the power of this technology. It's not mysterious. It's just allowing you to things that you couldn't do before.

How can we convert a more common plant oil to jojoba liquid wax? In normal plant biosynthesis of fatty acids, the protoplast of a plant cell produces oleic acids. Those acids are transported out to the cytosol of the plant where they are converted to slightly longer acids chains. Jojoba goes one step further. Jojoba merely takes the acid and reduces it to an alcohol. It then takes the acid and forms an ester instead of the triglyceride by hanging the acid onto the alcohol. There are two enzymes involved. We're beginning to characterize these two enzymes and we think that we are close to purifying those enzymes. We'll move them into one of the more agronomically acceptable crop plants and see if we can begin producing these plants with the gene expressed.

I hope I've left you knowing what I consider some of the power. It's not mysterious. The power of this technology is that the entire world becomes our gene pool. Let's keep that in mind as we preserve germplasm.

19.2 Administration -- C. E. Hess

Dr. Charles Hess, Dean of the College of Agricultural and Environmental Sciences at the University of California - Davis, presented the following report:

I would like to cover three points, (1) current funding and organization of biotechnology; (2) future funding; and (3) regulations.

Concerning the current funding and organization, as you know, we've recently had a survey on the organization and funding of biotechnology in which we had 100 percent response from the state agricultural experiment stations. It turns out that 60 percent of our experiment stations have a biotech program in their own universities; 52 percent of the state agricultural experiment stations have their own programs. They're running it either independently or in coordination with the university. The style of building biotech programs has been placing the scientists in the existing departments- 79 percent have done that; or in a center, but with departmental affiliation. It is interesting to note that most experiment stations have created a separate institute. If you talk to the molecular biologists, they say that's the only way to go as they look at life through their disciplinary eyes. But I feel that the maximum utilization of the new tools comes from the interaction of the plant breeder or the animal breeder with the molecular biologist. Stations reported that they facilitated interaction between molecular biologists and other scientists by joint appointment, through seminars and through program oriented multi-disciplinary research teams. For example, at Davis we have had a very successful program on the molecular basis of host-pathogen interaction involving faculty from biochemistry, vegetable crops, plant pathology, botany, and bacteriology. Hatch funds can be used for this and it's a good way to provide seed money to bring scientists together to help them develop an extramural

grant. In this particular case, the program I just described in the host-pathogen interaction has been funded by a foundation and has another very important component; and that is a training grant. It turns out, as you look at these programs over a period of several years, the students play a key role in linking the faculty together. Another aspect of it is to have retreats in which the faculty and students get off campus for several days to present their research accomplishments, to hear outside speakers, and just have a chance to interact. That also really solidifies their team.

Other stations reported that they facilitated interaction by not having an institute. Thirty of the stations, or 55 percent of the total, have had a special initiative in their states for biotechnology. The results are rather impressive. The average funded for those 30 states is about \$3 million. Of course, some states had mega buck initiatives, others were less successful. Of the \$3 million that were for biotechnology, that which was directed to agricultural biotechnology averaged about \$1.5 million, which is a great endorsement of the state legislatures as their expectations of the potential of the application and influence of biotechnology for agriculture. In about one-third, or ten, of those states those appropriations are recurring.

This year, where there were some one-year allocations, the total funding for FY87 was \$144 million for biotechnology and \$69 million represents recurring funds. Clearly, the states have moved ahead dramatically in funding for biotechnology. In comparison, in FY84, the state funding was about \$16.2 million. As Dick Lower, who is also on the Biotech Committee, mentioned, we have just sent out to you a survey to get the FY86 data. We think that will provide snapshots looking at 1982 - 1984 - 1986 and then we won't bother you anymore with this type of survey.

In the 1984 data, the federal funding level was \$21.4 million. The states had 38 percent of the funding, federal agencies had 49 percent, and the private sector had \$5.4 million or 13 percent. I was surprised that the state funding had a good chance of exceeding the federal level, although in the 1986 data we'll see the impact of the \$20 million increase in the USDA Competitive Grants program which is not reflected in the 1984 data.

The publication, "Agricultural Biotechnology - Strategies for National Competitiveness", is an attempt to try to help stimulate some increased funding at the federal level. We hope for an investment at the federal level of about \$500 million a year by the year 1990. That includes USDA, NSF, NIH and DOE as primary actors in it. Part will go to large grants of about \$150,000 for a three year or longer period. The difficulty is that the average grants right now are considerably smaller. NSF average grants in this particular area have been about \$70,000, DOE about \$72,000, NIH has always been larger - about \$164,000, USDA Competitive Grants - \$46,000. We feel, in view of the amount of scientist time that goes into preparation and peer review of grants, the investment should be

larger. We also call for an increase in the number of post doctorals that would work in this particular area. Also, something that we recommended initially in the augmentation of the Competitive Grants Program from the Committee on Biotechnology is a program for retraining. In other words, I think that, now that we recognize that genetic engineering does represent a tool, some of our scientists really could tool up and have, in one person, the combination of plant breeding and genetics with the tools of genetic engineering. We're saying that the retraining should be for at least 150 scientists per year for the state agricultural experiment stations and ARS system. We also recommend funding, not only for the area of molecular biology, but also to undergird the other sciences that are critical for the implementation of the new tools of biotechnology, especially plant breeding and genetics, biochemistry, physiology, etc. There is a gap in the knowledge of the basic functioning of the cell and the organism's interaction of the cells. By using the new tools of biotechnology, scientists will be in a better position to select the right gene to move from one plant to another to increase disease or insect resistance, or impact upon nutritional quality, or greater efficiency.

Programs that are currently underway include one that is being conducted by the National Science Foundation, the National Biological Centers Program. As you may recall, there are two components of that: (1) multiuser instrumentation center- those proposals were due last April 11. The initial pulse will be about 10-15 awards averaging about \$500,000; (2) multidisciplinary research centers for which proposals are due August 1. Those will be funded ranging from \$2 million to \$4 million. There will be a few one-shot type of operations and will be established for a three or four year period.

Several things that are going to be looked for, in addition to the normal criteria of quality of science, etc., will be the importance and the uniqueness of the research activities and the capabilities of the institutions involved in self-sustaining programs for maintaining the excellence of the center after the term of the NSF center award. Significant components of institutional and its industrial support should be identified and plans for training and for including new research projects in the center should be described. The capacity to obtain significant integration of different disciplines should be demonstrated, the interdisciplinary touch. Any plans to develop or incorporate new methodologies or equipment applicable to biotechnology should be specified.

As you also note from previous land-grant meetings, there is a unique program, in terms of plant science research centers. It is unique in that it is a joint effort between DOE, NSF and USDA. Originally, there were hopes that there might be about a \$50 million package and then it ended up about \$10 million, with each of the agencies going in with \$3.3 million. I believe the program now is going to be reviewed at the National Science Board meeting next month and areas that were originally suggested by the Office of

Science and Technology Policy, which was coordinating the program, include rizosphere dynamics, microbial ecology, plant biotechnology, complex carbohydrates, ecological processes, and systems research analysis. The scientific community can make a proposal for areas of research that they feel would be appropriate.

Finally, the President proposed in his State of the Union message that, in order for the U.S. to recapture or maintain its competitiveness, that there should be increased support in research. He has proposed a goal for the National Science Foundation project over a five-year period. In his budget message last October, there was about a 17 percent increase in the NSF budget, which was quite good compared to other agency budgets. His proposal for those funds, as being planned by the National Science Foundation, will be to increase grant sizes and increase the support for instrumentation, provide more funding for training, that is building up the human capital aspect. The human capital pipeline, it is sometimes called, involves: some programs at the secondary level to attract young men and women into science; support at the graduate and post graduate level; and, most importantly, our science and technology centers. In fact, the President also has issued a directive asking all agencies in the federal government to look at the possibility of establishing such centers.

Part of that is based upon experience that the NSF has had in establishing engineering research centers. There are 14 now established with 25 being the target. They are focused in particular areas of research, they are multidisciplinary and they have a linkage with industry. That is the fashion of today in Washington -- the center concept. I will say that it is not viewed with equal enthusiasm across the community. In fact, members of the National Academy of Science passed a resolution saying "Let's not forget about the individual investigator." In fact, I'm chairing a committee that is looking at this issue of the balance between individual investigators and centers and facilities. There are opportunities and we must not shoot ourselves in the foot and say we don't want centers because they're going to threaten the individual investigator awards. This is the way to get an increase in science funding. The centers do always have, as I described the NSF Biotechnology Center program, a training component, which is important. So, I would say that now is the time at your home base to bring together a group of scientists, to look at your own operations and see if you have the basis of establishing a center of some nature. You also have to look for the private sector linkage. That's an important one. Many of these will be having a matching component. Begin working with the your state legislature in terms of possible matching support from that level. The calls for proposals will be coming out later this year. It's not too early to begin looking at your own organizations to see if this would fit your particular operations. It may not, but on the other hand, if it does, now is the time to get started.

Finally, I want to mention a little about regulations. You probably have received a copy of the June 16, 1987 Federal Register in which APHIS released its final rules for comment. They became effective on July 16, 1987. In these rules are discussions about the comments that some of you sent in response to the original issue in June 26, 1986 in which there were extensive concerns expressed by many of you. They've addressed them and in some cases modified the June 26, 1986 rules in this issue. In other cases, they kept what they had. Nevertheless, these will become the rules by which APHIS will operate in terms of the regulation of recombinant DNA modified organisms that you will be releasing into the environment that are pests or potential pests of plants and animals, and also what are regulated articles. If you incorporate the genes from a plant pest into a non-pest and then there is a potential that the transformed organism will be a pest, that is a regulated article and comes under APHIS jurisdiction. They will issue permits to allow you to move such regulated articles from the lab to the greenhouse and out to the field or to send it to colleagues from state to state. The attitude of APHIS is that they wish to be dynamic and flexible and try to not become burdensome, to do their job as is required by the statutes under which they operate under the Plant Protection Act, but on the other hand not to be so onerous that it stops research. That is a good goal and we hope to work with them to see that it is accomplished. In the meantime, the guidelines are being modified by RAC and will be published in the Federal Register in time for the September meeting of RAC. There is also a second chapter, as it's called, of guidelines that John Fulkerson is working on in cooperation with ARS, APHIS, and other units, as well as some interaction with other agencies (EPA, FDA, NIH) which will cover other aspects of biotechnology like cell fusion, etc. Those are going to be very fine lines. I think it's important to have guidelines so we can convince both the national legislature and our state legislatures that we are aware of potential adverse affects and here are the guidelines under which we are operating to prevent unwanted side affects. On the other hand, we don't want to have them so stringent that we cannot operate. We're going to have to watch those very carefully so that the proper balance is reached. Most critical is that guidelines move along quickly because, if they aren't in place soon, we are finding more and more state legislators deciding that it is a great opportunity to introduce their own legislation to control the release of recombinant DNA modified organisms.

20.0 DAL Report -- L. L. Boyd

Boyd distributed the DAL Report which is included as Appendix BB, pp. 175-178.

Oldenstadt reported that the Executive Committee had information on salary increases from about 10 of the states. The salary increases averaged about 4.29 percent. The Executive Committee is recommending a 4.7 percent increase for the DAL salary effective July 1, 1987. It was moved and

seconded that the salary for the Director-at-Large be increased by 4.7 percent effective July 1, 1987. MOTION CARRIED.

21.0 NASULGC Meeting -- C. C. Kaltenbach

Kaltenbach complimented CSRS Administrator J. P. Jordan for his support for the Smithsonian exhibit and the entire Hatch Centennial activities. He also complimented F. E. Bender as being a true salesman who believes in his product; as Bender has put such a great effort into the Smithsonian exhibit. He thanked L. L. Boyd and the Western Directors for all their help on ESCOP.

The following report on the NASULGC Meeting was distributed by Kaltenbach:

The NASULGC meeting will be held at the J. W. Marriott Hotel in Washington, D.C., November 8-11, 1987. I believe everyone is aware that the format for this meeting has been changed to accommodate the centennial celebration of the parent organization. A series of mini-symposia commemorating the research effort will be held Monday afternoon. The experiment station section will meet 2:00-4:00 pm Tuesday afternoon and the Western Section of Agricultural Experiment Station Directors is scheduled to meet Wednesday from 8:00 until noon. ESCOP will meet Wednesday afternoon. Please note the various times carefully as this represents a significant departure from the normal schedule.

22.0 Smithsonian Exhibit -- F. E. Bender

Dr. Filmore E. Bender, Associate Director of the Agricultural Experiment Station at the University of Maryland distributed a handout which is included as Appendix CC, pp. 179-183. He gave the following presentation:

What I'd like to do is give you just a brief picture of what it is the museum exhibit will cover and then I'd like to talk about the activities that are planned that we'll be able to use the exhibit for. Then I'd like to talk about how we need the assistance of the directors to make this thing the success that I think it can and should be.

The title of the exhibit is "The Search for Life: Agricultural science in the Twentieth Century." When you come to Washington, D.C. we'd like to be sure that you come to the Smithsonian Institution, particularly to the National Museum for American History because it is in this building that the exhibit will be permanently housed. One of the statements that this exhibit will make is that mankind has intervened in lifeforms for thousands of years. We've done it to provide assistance in work, we've used animals for pleasure, we've used plants and animals for food, we've used plant life to enhance our lives. It will take an individual about 35 minutes to cover this exhibit. Before entering, there are television monitors running with little bits and pieces from the evening news so that, before people go in, they can relate to current news about agriculture.

When you enter this area you will see a modern rose and an antique rose side by side, so that the message that will be stated somewhat subtly is

"I'd much rather give a dozen roses that are this deep lovely red modern color, rather than what would have been given if mankind had not intervened and developed the modern rose." This theater carries the viewer from 1900 to 1953 with the rediscovery of Mendel's Laws of Inheritance to the discovery of the double helix by Watson and Crick. The area in the back takes the individual from 1953 to 1973 from Watson and Crick to the successful work in recombinant DNA and is called the cell theater which will be discussed later.

What this will do is reinforce everything that's been said up to this point, and then will bring the individual up to date. Where are we today, what's patented today, what's important today, and where are we going? Then the individual will walk out into a modular area which will change. We have sought historical objects that would represent all agricultural experiment stations and yet be an historical object. Other than William Henry Hatch's confederate cavalry sword, nothing came forward. It is probable that we will use something from Eugene Hilgard, the first Director of California, and from Wilber Atwater, the first Director of Connecticut, because these are the first two stations. In that way we will try to represent the history of all of the stations. I regret that we can't have something from all 58 stations in there, but the purpose of this exhibit is to help people understand first of all, that there are agricultural experiment stations, that there is agricultural science, that it is transforming their lives, and that it is essential to their lives. This is why we will have some discussion on the Hatch Act and the experiment stations. The focus will be primarily in the area of genetics, so most everything will in some way hang on genetics, whether it's plant breeding or animal breeding or recombinant DNA.

We will also have some focus on the plant explorers, some germplasm collections, and the importance of that to our lives. We want people to understand that breeding is still a major part of what we're doing. But Watson and Crick did open a door. The discovery of the double helix does have great importance and they need to understand that. Therefore, there will probably be a model. We tried to get Watson and Crick's original model and found out that nothing from that laboratory exists. Watson was somewhat distressed when he found that out. He went back and there were students working in the laboratory who didn't realize that this was the place where that discovery was made. We want the visitors to understand that we use technology, we use computers. We want people to appreciate the high tech work that is going on and we want them to understand that Cohen, Boyer and Berg with their work on recombinant DNA did take us through a door. We will probably have Cohen's lab bench, his work books and the patent certificate on display. We may even have Berg's Nobel Laureate certificate, if he can find it.

The cell theater has a floor that is a hexagon that glows and pentagons that come in from all six sides and from above. You are completely enclosed. Part of this is for drama, part of it is to help people capture and understand the excitement of science and the thrill of discovery. That is one of the important things the people who are designing this exhibit want to convey. You and I are involved in the most important things that are going on in this century and in the next century. It is

essential that we convey that importance and that significance to the public.

There will be multiple projectors running. There will be something like 75 projectors computer timed and running in concert. People will watch tissue culture and plants regenerating out of callus so that they get an appreciation for what the scientist actually does. We will try to help them understand something about the excitement of discovery that comes with being a scientist today.

Where do we go from here? In several senses, this exhibit will help visitors to understand the social, the ethical, the economic choices that are out there. That's a major reason for having this exhibit as far as the Smithsonian is concerned. As far as I'm concerned, the major reason for having this exhibit is so that, when Congressmen walk through, they'll want to double the USDA, Hatch, and ARS allocations, because it's obvious this is the most important thing we can possibly do. We are doing this because we want to be able to promise grain fields, bountiful harvest, a variety of nutritious foods; at low cost for ourselves, for our children, because this is the planet on which we live.

Basically, there are four theater areas, each of which is an eight minute combination of recorded sound, narration, multiple slides, video tapes, and recorded music which may be symphonic. It will be a thrilling experience to walk through. You cannot possibly convey everything you want people to understand in 32 minutes, which is basically the time that you would have, plus the time that they will spend in front of the actual specific exhibits. Therefore, the question becomes, "what do we do once we have their attention?" Among other things we want to talk about symposia, the publication of a book, the production of video cassettes, and some other ancillary activities.

On Sunday, November 8, 1987 the museum is open from 12 noon to 5:00 pm. The exhibit will be closed. Every director will have a pass which will permit him to enter Sunday afternoon, so that if you wish to see this prior to the premiere on Tuesday evening, you may do so. If you wish to take your Congressmen through, you may do so. If you wish to take your spouse or a guest through, you may do so. You will get letters on this and will each receive a card for admission. If you lose your card, I'll be there and will admit you.

Also, on Sunday afternoon, for about an hour, we will have an opportunity for the Council of Presidents of NASULGC to have a sneak preview which will take place at about 3 in the afternoon. The Council of Presidents meets from 2:00 to 3:00, the NASULGC Senate from 4:00 to 5:00, so between 3:00 and 4:00 there is an opportunity for us to take the Council of Presidents through this exhibit. This will help the presidents to appreciate the agricultural components of their university.

Tuesday evening will be the premiere. After the Division of Agriculture meeting, there will be a short ceremony in which selected dignitaries will say some kind words about agricultural research and about the exhibit. At that time we will present a rose named "The Search for Life" to Mrs.

Reagan or to Mrs. Adams, which is so that there is an opportunity to get some publicity out of that exposure for the exhibit. The evening begins at 5:30. Because we can only get a limited number of people through at a time, we're going to have some scheduled arrivals, with the first group arriving at 5:30, the next group at 6:00, etc. That way we don't have 500 people standing around waiting for their opportunity to walk through the exhibit.

A lot of individuals have come up to me and said " I am absolutely ecstatic that you are now having an exhibit on something to which I have devoted my life. I have put my life into agricultural research. For the first time, the Smithsonian Institution recognizes it. I'll no longer have to explain to my in-laws what it is I do for a living. I want to be a part of it." ESCOP has authorized us to send a letter of solicitation and a contribution form through the professional societies. I will be with the American Agricultural Economics Association in about ten days to help their board of directors understand this. That will probably be the first group to send the letters out. The American Agronomy Society will be meeting in August and they will be sending them out. The Entomological Society of America has indicated its willingness to do so, as well as the Poultry Science Association. As I work my way through the various societies, we hope to have every scientist in the United States that is affiliated with agriculture be aware of this exhibit and the opportunity to be a part of this exhibit. A coffee mug has been designed with a logo for the museum exhibit "The Search for Life." It's a souvenir that will be sent to you with a certificate if you make a contribution. We will create, because universities have indicated an interest in joining as an organization, an association called "The Search for Life Association" that you can pay dues into. Stations will be encouraged to make contributions to that. We do need money for a book, video cassettes, the symposia, and to keep the program rolling. We have captured the attention of the Smithsonian, and we can have more than this exhibit.

This exhibit will open November 10, 1987. It will run for six months at the Smithsonian and then it will go on tour for 24 months. It will go to eight cities which have not yet been selected. The primary reason for the tour is because the Smithsonian does not have permanent space ready. We also need money to underwrite the tour. It costs over \$50,000 just to move this exhibit from one place to another. What I need from the directors is entree. I need your credibility. I need you to contact your former graduate student, or your former assistant professor who is now a vice-president for research or is now the chief executive officer of a company and confirm that this is important to help people understand agricultural research, it is going to help them understand biotechnology, it is going to make a contribution and we would like their organization to be a part of it. All of the donations are tax deductible. They come to the University of Maryland Foundation where I administer them. The reason we've done that is so that we maintain control over the activities and the disposition of the material. Everything that we develop ends up owned by the Smithsonian Institution. That's because we want their credibility. We want their name recognition. It's so much better for us if they tell our story. It is so much better for us as agricultural scientists if the story of the contributions we make is told by someone like the Smithsonian Institution.

23.0 Local Centennials: What has been done & future plans

No reports were given.

24.0 Future Meetings

The next meeting of WDA is scheduled in conjunction with the NASULGC meeting in Washington, D.C. November 8-10, 1987. The WDA meeting is scheduled from 8:00am to 12 noon on November 11, 1987.

The Spring 1988 meeting will be in Las Cruces, NM on March 23-24, 1988, with RIC meeting on March 22.

The Summer meeting of 1988 is scheduled for July 19-20, 1988 in Fort Collins, CO.

The Summer meeting of 1989 is tentatively scheduled to be held in Oregon.

25.0 Election of Officers

Clark presented the slate of nominees for 1988 as endorsed by the Executive Committee:

Chairman	1988	R. D. Heil, CO
Chairman-Elect	1988	J. V. Drew, AK
Secretary	1988	G. A. Lee, ID
Treasurer	1988	J. R. Welsh, MT
At-large member, Exec. Comm.	1988	D. E. Schlegel, CA-B
At-large member, Exec. Comm.	1988	N. P. Kefford, HI
Research Implementation Comm.	1991	J. J. Zuiches, WA
Committee of Nine	1990	L. J. Koong, OR
Committee of Nine Alternate	1988	G. W. Ware, AZ
Board of Directors, Western Rural Development Center	1989	J. V. Drew, AK
ESCAP	1988	C. C. Kaltenbach, WY
ESCAP	1990	R. D. Heil, CO
ESCAP Alternate	1988	J. V. Drew, AK
ESCAP Seed Policy	1988	M. H. Niehaus, CO
ESCAP Communications	1989	D. M. Briggs, NM
ESCAP Home Economics Research	1989	R. R. Rice, AZ
ESCAP Home Ec. Res. Alternate	1988	J. A. Powell, WY
ESCAP Human Nutrition	1989	M. E. Mitchell, WA
ESCAP Pest Control Strategies	1989	G. W. Ware, AZ
ESCAP Special Initiatives	1988	J. J. Zuiches, WA
ESCAP Special Init. Alternate	1988	G. A. Lee, ID
ESCAP Research Planning	1988	D. L. Oldenstadt, WA
ESCAP Research Planning	1988	J. J. Zuiches, WA

It was moved and seconded to accept the list of nominees as presented.
MOTION CARRIED.

26.0 Other Business

26.1 Regional handling of sustainable agriculture funds -- J. R. Welsh

Welsh indicated that the subject had been sufficiently covered at this point. He does intend to raise the question periodically at future meetings as we look at research priorities and issues, and as we experience pressures in our own particular states and areas.

Jordan reported that the subject will be visible in the FY88 budget.

26.2 Agricultural Competitiveness Task Forces (proposal by Dr. Thomas, President Emeritus, NMSU) -- D. M. Briggs

Briggs reported that Dr. Thomas, past President of New Mexico State University, has been working on a proposal for alternate funding and has a proposed bill to be introduced in the Senate by Senator Dimenici (attached as Appendix DD, pp. 184-190). It sets aside \$250,000 for each state which must be matched with additional new money by the state. The bill amends the National Agriculture Research, Extension and Teaching Policy Act of 1977 by introducing a subtitle "The Agricultural Competitiveness Task Force." It wants to create research for new strategies on competitiveness in the world economies, research on development of new markets, and cost reduction practices. This will be done by creating a task force that will consist of a governor's appointed task force in each state comprising twelve individuals; one from the Department of Agriculture, one from Economic Development, and the remainder to be producers or agricultural businessmen to administer the research funds in each state. There is a \$2.5 million administrative cost associated with the bill, so it is a \$15 million package.

Jordan indicated that there are two ways to get legislation through the system: (1) to have a man at the top say that he wants it done this way; (2) the other route requires a lot of mobilization and support. Many things fail on the first time through, or end up as an authorization without an appropriation. If we're serious about it, it may be important to put it into the ESCOP agenda.

Oldenstadt indicated that the mechanism that Dr. Thomas has used is to communicate with deans about this. He expressed appreciation for bringing the proposed bill to the attention of the WDA. The members of the WDA will be better able to communicate with their deans on this matter.

26.3 Invitation from D. W. Zinn -- G. W. Ware

Ware referenced an invitation that the each of the directors received from Dale Zinn asking if any of us had department heads or assistant or associate directors who would like to occupy some of the positions in the Northeastern school for new administrators that is held each year. Arizona sent an individual who reported that it was a high quality production and something that was needed. Ware

suggested that the Western states need something of this sort, a two or three day introduction for new administrators, particularly department heads and associate directors who have just come on line and who really need to be brought up to speed on the way that the agricultural experiment station system works.

The subject was raised to find how much interest there is. Boyd has indicated that he is willing to organize it. It seems that there is a tremendous turnover of department heads and young administrators, so that there is a need for it. Interested people should contact the WDAL.

26.4 Report on NASULGC -- D. Stansbury

Stansbury reported that the ESCOP FY89 Budget Subcommittee has finished work with the Department of Agriculture and the Department is about to go "behind the curtain." The document will be produced with what the Division Committee discussed with USDA. It will be produced as what is affectionately known as "Document A." It will be referred to as a "needs" document, rather than a specific budget recommendation. These are the kinds of funds and programs needed to treat the problems and issues that exist in the country for agriculture. It will show about an 80 percent increase over the current FY87 budget. "Document B" will be produced following the President's budget submission in January 1988.

"Document A" should be distributed to the SAES sometime between August 15 and September 1, 1987. It will be used in a future meeting with OMB and will be available to CARET. It will not be a broadly distributed document, because it would confuse issues to have too many numbers floating around.

The second, "Document B", will be similar to the FY87 budget. It will be short and concise. It will have tables and will talk about special issue areas, as well as specific authorization areas. There will be a supplement of budget notes which will explain the recommended changes, adjustments and issues that are included in "Document B." The Department of Agriculture uses the supplement to explain items to appropriations committees and will be distributed to the SAES and CARET representatives so that they will better understand the reasoning behind the proposed changes. The supplement will carry cross cutting discussions and tables that will enable each of the Department of Agriculture units to discuss the interest and the recommendations of the others. Therefore, if Extension has a meeting and someone asks about research, they will have the information about the research proposal and with cross reference to explaining why.

There are at least eight pending bills concerning water. At least seven subcommittees of Congress are involved in water legislative authorities at this juncture. Most do not identify agriculture, do not identify Experiment Stations, do not identify Extension. However, most of them do talk about regulations of ground water

standards which would affect agriculture. They also talk about research and training.

The Department of Agriculture will prepare some background of what is going on in the authorization arena, as well as what is going on in the appropriations initiative, for the water initiative of \$55 million. The principal component of the Department testimony on the authorization is "don't rush the conclusion until you know who is doing what and what the capacities are." If you want to work in training, remember Extension. Specifically, if you want to establish standards and do research, look to the Experiment Stations and be cognizant that agriculture is the primary water user in the country. In essence, Congress is being asked to slow down and help get the agencies such as EPA and USGS to talk to one another.

For the Water Initiative, ESCOP and ECOP have proposed funding a position with NASULGC for a temporary period of six to nine months, specifically to look at appropriations for agriculture through the agricultural appropriations activity.

26.5 CARET Report -- Dick Joyce

Joyce reported that CARET endorses the joint meeting concept. The CARET charge is to advocate the NASULGC Division of Agriculture budget. CARET members should be well grounded in all the functions of that budget; research, extension, teaching and international agriculture. If the meetings continue to be held jointly, CARET and CAHA pledge to not meet in competition with Western ECOP, ESCOP, RICOP, etc. If the joint meeting concept continues, Oregon invites the joint meeting in 1989.

CARET adopted a strategic initiative and passed it on to CAHA. They also approved it and, in turn, passed it to the Division of Agriculture Board of Directors, who have passed on it now. In this strategic initiative are guidelines which are part of the method and an encouragement for the way that CARET, the deans, and directors have worked in developing background and contacts so that we can better advocate the budgets. All of the universities now have them. The West is pressing for the first report on it. The deans will be receiving directions from Lee Bulla very shortly with a report date in mid-September for each of you and your station for what you have done in line with the guidelines and what you have done to advocate the budget. We need to quantify that a little bit. CARET needs to have a bigger zone of comfort that we're doing the job to help recover some of the costs that you are putting out to support us.

We also have liaisons with the UAB and the governors' ag groups and we think that those liaisons, particularly with UAB have helped. We hope that they will continue to help and improve the quality of those reports and their response to the President's budget.

One thing needs to be carried forth from this year. We understand that the water initiative for research and extension is in

difficulty. There is a very good possibility that we'll have a continuing resolution for our budgets. Personally, I don't feel that issue is dead and I think that if those of us in the West really took an active part in the next few weeks by encouraging our congressmen to get busy, we might be successful in saving the day. CAHA and CARET have pledged that we will go out and work very diligently the next few weeks. We feel that the experiment station and extension, particularly, needs to join with us since it is a joint program. We would encourage you, as you go home, to put all of your efforts that you possibly can spend in the next two or three weeks into developing, not only your positions on the water initiative, but to reemphasize those positions with your congressmen and get together with your advisory groups and broaden that base of support and let them know that there is a large clientele out there who are not scientists who need the initiative. We saw how that worked a few years ago for biotechnology.

27.0 Resolutions

The notion was made, seconded and UNANIMOUSLY CARRIED to approve the following resolutions.

RESOLUTION #1

WHEREAS, Dr. Filmore E. Bender has added to his responsibilities as Associate Director of the Maryland Agricultural Experiment Station by assuming the direction of funding, construction, and placement of the Smithsonian Institute and Museum exhibit, "The Search for Life: Agricultural Science in the 20th Century"; and

WHEREAS, this exhibit will begin its long history of introducing the general public to the importance and benefits received from the organized pursuit of agricultural science on November 11, 1987; and

WHEREAS, literally millions of international visitors and our own citizens and their national representatives will become better educated and more appreciative of the need for continuing and increasing this organized research pursuit for posterity;

THEREFORE, be it resolved that the Western Association of Agricultural Experiment Station Directors express their deep appreciation to Dr. Filmore E. Bender for his superb leadership and imaginative efforts in making "The Search for Life" a reality; and

BE IT FURTHER RESOLVED that the original of this resolution be sent to Dr. Bender and a copy be made a part of the minutes of the July 22-23, 1987 meeting of the Western Directors Association.

RESOLUTION #2

WHEREAS, 1987 marks the one-hundredth anniversary of the passage of legislation that established state agricultural experiment stations throughout the United States; and

WHEREAS, the research programs at these stations have led to significant improvements in both the quantity and quality of agricultural and forestry products available to the consuming public; and

WHEREAS, those improvements have meant that American consumers, on the average, can have nutritionally adequate diets for relatively small shares of their incomes; and

WHEREAS, other nations and peoples of the world, especially those in less developed areas, have had their conditions improved by using findings emanating from state agricultural experiment stations; and

WHEREAS, the Western Association of Agricultural Experiment Station Directors, meeting this week in joint sessions with other segments of the Western agricultural higher education community, focused on the need to communicate its story to the public;

NOW THEREFORE BE IT RESOLVED that the state Agricultural Experiment Stations of the Western Region individually and collectively undertake to effectively communicate facts about their endeavors, and the implications of those endeavors, to the public by employing every appropriate communications tool and medium at their disposal.

RESOLUTION #3

WHEREAS, Dr. Robert E. Witters has in the last year assumed new responsibilities at Oregon State University as Chief of Party for the coordination of research programs conducted in Egypt by international agencies; and

WHEREAS, Dr. Witters has served the Western Association of Agricultural Experiment Station Directors with distinction as Associate Director of the Oregon Agricultural Experiment Station since 1977, as Administrative Advisor of W-132 and W-171, and as leader of several communication workshops and godfather of the Expert Systems Ad Hoc Regional Coordinating Committee;

NOW THEREFORE BE IT RESOLVED that the Western Association of Agricultural Experiment Station Directors assembled at the 1987 summer meeting held in Reno, Nevada, recognize and express their gratitude to Dr. Robert E. Witters for his contributions and wish him well in his new professional endeavor; and

BE IT FURTHER RESOLVED that the original of this resolution be sent to Dr. Witters and a copy be made a part of the minutes of the July 22-23, 1987 meeting of the Western Directors Association.

RESOLUTION #4

WHEREAS, Dr. Maurice V. Wiese has recently assumed new responsibilities at the University of Idaho; and

WHEREAS, Dr. Wiese has served the Western Association of Agricultural Experiment Station Directors with distinction as Assistant and Acting Director of the Idaho Agricultural Experiment Station and as Administrative Advisor of IR-1, W-142, and WRCC-28;

NOW THEREFORE BE IT RESOLVED that the Western Association of Agricultural Experiment Station Directors assembled at the 1987 summer meeting held in Reno, Nevada, recognize and express their gratitude to Dr. Maurice V. Wiese for his contributions and wish him well in his new professional endeavor; and

BE IT FURTHER RESOLVED that the original of this resolution be sent to Dr. Wiese and a copy be made a part of the minutes of the July 22-23, 1987 meeting of the Western Directors Association.

RESOLUTION #5

WHEREAS, Dr. Donald A. Price of the Agricultural Research Service, United States Department of Agriculture, has been reassigned to Peoria, Illinois prior to his planned retirement in a few months; and

WHEREAS, Dr. Price, beginning in 1957 as a research scientist with the Sheep Experiment Station at DuBois, Idaho, participated in several western regional research projects; and

WHEREAS, Dr. Price served as research leader at the Sheep Experiment Station in DuBois for ten years prior to becoming assistant area director for the Northwest, serving in both Pullman, Washington and Portland, Oregon; and

WHEREAS, during his tenure in the Northwest Area Office of the Agricultural Research Service, Dr. Price served the Western Region in a variety of capacities, including co-administrative advisor to regional research project technical committees and co-chairman of Western Regional Research Planning Group Four (Animals); and

WHEREAS, the Western Association of Agricultural Experiment Station Directors has benefited from his expertise in range management and nutrition;

NOW THEREFORE BE IT RESOLVED that the directors here assembled in Reno, Nevada for the 1987 summer meetings of the Western Association of Agricultural Experiment Station Directors recognize the scientific contributions of Donald A. Price; express gratitude for his service to agricultural research in the western region during the past thirty years; and extend him best wishes in his professional endeavors and for his pending retirement; and

BE IT FURTHER RESOLVED that the original of this resolution be sent to Dr. Price and a copy become a part of the official minutes of the July 22-23, 1987 meeting of this Association.

RESOLUTION #6

WHEREAS, Directors Bernard Jones, Sharon Wallace, Elwood Miller, and Ms. Alice Good, with the support of University of Nevada-Reno staff, have done an outstanding job in coordinating arrangements and activities for the 1987 Joint Summer Meeting and meeting of the Western Association of Agricultural Experiment Station Directors; and

WHEREAS, the City of Reno, Nevada provided hospitable surroundings, complete with a wide range of enjoyable activities; and

WHEREAS, The College of Agriculture generously provided delicious and nutritious refreshments at all sessions; and

WHEREAS, the dinner show and Lake Tahoe dinner cruise constituted excellent opportunities to visit and to enjoy the area and the beauty of twilight on Lake Tahoe;

NOW THEREFORE BE IT RESOLVED that the Western Association of Agricultural Experiment Station Directors express sincere appreciation to Directors Bernard Jones, Sharon Wallace, Elwood Miller, and Ms. Alice Good;

BE IT FURTHER RESOLVED that the original of this resolution be sent to Dr. Bernard Jones; copies be sent to Dr. Sharon Wallace, Dr. Elwood Miller, and Ms. Alice Good; and a copy be made a part of the minutes of the July 22-23, 1987 meeting of the Western Directors Association.

28.0 Adjournment of formal meeting

It was moved and seconded to adjourn the meeting. MOTION CARRIED.

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS

July 22-23, 1987
 Reno, Hilton Hotel
 Reno, Nevada

AGENDA

Wednesday, July 22, 1987

- 8:00am 1.0 Call to Order
 2.0 Introductions and Announcements
 3.0 Adoption of Agenda
 4.0 Approval of Minutes of March 1, 1987 Meeting
 8:20 5.0 Identification and Orientation of Neophytes
 8:35 6.0 Report of Chairman/Executive Committee -- D. L. Oldenstadt
 8:55 7.0 Treasurer's Report -- J. R. Welsh
 8.0 Reports from Liaison Representatives
 9:05 8.1 CSRS Report -- J. P. Jordan
 9:20 8.2 ERS Report -- John A. Miranowski
 9:35 8.3 ARS Administrator's Report -- W. H. Tallent
 9:50 8.4 ARS Western Area Report -- W. G. Chace, Jr.
- 10:00 BREAK
- 10:15 8.5 Forest Service Report -- R. R. Bay
 10:25 8.6 W. Home Economics Research Administrators - M. J. Woodburn
 10:35 8.7 Council of Veterinary Deans/Association American Veterinary Colleges -- C. Card
 10:45 8.8 National Association of Professional Forestry Schools and Colleges -- A. A. Dyer
 10:55 8.9 Western RI Directors -- E. Miller
 11:05 8.10 Western Extension Directors -- B. Jones
 9.0 Interregional Project Activities
 11:15 9.1 IR-5 Report--John Myers (CRIS)
 11:35 9.2 IR-2 Report--J. J. Zuiches
 11:45 9.3 IR-7 Report-- R. D. Heil
 11:55 9.5 Distribution of Written Reports from IR-4 & IR-6
- 12:00 LUNCH
- 1:00pm 10.0 RIC Report -- M. H. Niehaus
 11.0 ESCOP Committee Reports
 1:45 11.1 ESCOP -- C. C. Kaltenbach
 1:55 11.2 ESCOP Special Initiatives -- L. L. Boyd
 2:05 11.3 ESCOP Communications -- D. M. Briggs
 2:15 11.4 ESCOP Pest Control Strategies -- G. W. Ware
 2:25 11.5 ESCOP FY88 Budget -- D. E. Schlegel/L. L. Boyd
 2:35 11.6 ESCOP FY89 Budget -- R. D. Heil/L. L. Boyd
 12.0 Reports from Representatives to Regional and National Committees
 2:45 12.1 Committee of Nine -- D. E. Schlegel
- 2:55 BREAK
- 3:10 12.2 Users Advisory Board -- C. C. Kaltenbach
 3:20 12.3 Animal Care--C. C. Kaltenbach
 3:30 12.4 Joint Council -- J. P. Jordan

- 3:40 12.5 Aquaculture Consortium -- G. A. Lee
- 13.0 Research Planning Activities -- C. E. Clark, et al.
- 3:50 13.1 W. Agricultural Research Committee
- 13.2 National Agricultural Research Committee
- 13.3 Western Regional Council
- 13.4 ESCOP Research Planning & Evaluation
- 13.5 Discussion/Vote, if necessary, on research priorities
- 4:30 14.0 W-161 Management Recommendations--D. E. Schlegel
- 4:40 15.0 Plant-Water-Stress Task Force Report -- R. D. Heil
- 4:50 16.0 Western Rural Development Center--R. Youmans
- 5:00 ADJOURNMENT FOR DAY

Thursday, July 23, 1987

- 8:00am 17.0 Neophyte Report/Announcements
- 8:15 18.0 Plant Genetic Resources and Needs for Research: Plant Germplasm System, Plant Introduction Programs, Clonal Repositories, Curators, Changing Plant Variety release procedures, etc. Moderator -- M. H. Niehaus
USDA Germplasm Policy/Diversity Magazine -- P. Fitzgerald
USDA Germplasm Components & Linkages with Curators and State Activities -- H. Shands
Plant Introduction Stations - ARS & SAES Roles especially relating to Biotechnology; Needs -- S. M. Dietz
ESCAP Seed Policy Subcommittee Role, SAES Concerns, Plant Variety release procedures & IR-1 Activities -- R. L. Lower
- 9:30 19.0 Genetic Engineering Presentations
 - 19.1 Scientist -- J. D. Kemp
 - 19.2 Administration -- C. E. Hess
- 10:00 BREAK
- 10:20 20.0 DAL Report -- L. L. Boyd
- 10:40 21.0 NASULGC Meeting -- C. C. Kaltenbach
- 10:50 22.0 Smithsonian Exhibit -- F. E. Bender
- 11:05 23.0 Local Centennials: What has been done & future plans
- 11:20 24.0 Future Meetings
- 11:30 25.0 Election of Officers
- 11:40 26.0 Other Business
 - 26.1 Regional handling of sustainable agriculture funds -- J. R. Welsh
 - 26.2 Agricultural Competitiveness Task Forces (proposal by Dr. Thomas, President Emeritus, NMSU) -- D. M. Briggs
- 11:50 27.0 Resolutions
- 12:00 28.0 Adjournment of formal meeting
- LUNCH

1:30 Tour - BLM Wild Horse Area

* Thirty copies of all reports should be brought for distribution at the meeting.

WD012

16-Jul-87

WESTERN DIRECTORS' AT LARGE ACCOUNT
FINANCIAL STATUS - FY1988

ITEM	ASSESSMENT	INCOME	BALANCE
JULY 1 BALANCE			29,164.03
AM.SAMOA	500.00	0.00	29,164.03
MICRONESIA	500.00	0.00	29,164.03
ALASKA	4,340.00	4,340.00	33,504.03
ARIZONA	9,099.00	9,099.00	42,603.03
CALIFORNIA	14,099.00	14,099.00	56,702.03
COLORADO	6,001.00	6,001.00	62,703.03
GUAM	4,075.00	4,075.00	66,778.03
HAWAII	6,680.00	6,680.00	73,458.03
IDAHO	8,061.00	8,061.00	81,519.03
MONTANA	8,525.00	8,525.00	90,044.03
NEVADA	6,564.00	6,564.00	96,608.03
NEW MEXICO	6,802.00	6,802.00	103,410.03
OREGON	10,329.00	10,329.00	113,739.03
UTAH	8,664.00	8,664.00	122,403.03
WASHINGTON	9,911.00	9,911.00	132,314.03
WYOMING	7,649.00	7,649.00	139,963.03
TOTAL	111,799.00	110,799.00	139,963.03

DATE	TRANSACTION	INCOME	EXPENSE	BALANCE
01-Oct-86	ESCOF AN SCI FUNDS	12,999.00		152,962.03
01-Oct-86	TRANS. ESCOF FUNDS TO NEB		13,000.00	139,962.03
01-Oct-86	TRANSFER OF FUNDS TO COLO.		25,000.00	114,962.03
19-Nov-86	TRANSFER OF FUNDS TO COLO.		25,000.00	89,962.03
25-Nov-86	REVISED INTEREST RECEIVABLE	(282.03)		89,680.00
22-Dec-86	SEMI ANNUAL INTEREST	1,938.36		91,618.36
31-Dec-86	REVISED INTEREST RECEIVABLE	(5.60)		91,612.76
5-JAN-87	TRANSFER OF FUNDS TO COLO.		25,000.00	66,612.76
18-Feb-87	INTEREST FROM SALE OF STIP	524.17		67,136.93
28-Apr-87	FEB STIP INTEREST	268.80		67,405.73
14-Apr-87	TRANSFER OF FUNDS TO COLO.		25,000.00	42,405.73
30-Apr-87	MARCH STIP INTEREST	339.20		42,744.93
27-May-87	APRIL STIP INTEREST	326.40		43,071.33
11-May-87	MAY STIP INTEREST	332.80		43,404.13

BALANCE	3,442.10	113,000.00	43,404.13
---------	----------	------------	-----------

NOTE: Payments from American Samoa and Micronesia have not been received.

NOTE: STIP = Short Term Investment Pool

WD003

16-Jul-87

WESTERN DIRECTORS' SPECIAL ACCOUNT
FINANCIAL STATUS - FY1988

ITEM	ASSESSMENT	INCOME	EXPENSE	BALANCE
JULY 1 BALANCE				5,977.76
ALASKA	656.00	656.00		6,633.76
ARIZONA	1,170.00	1,170.00		7,803.76
CALIFORNIA	1,817.00	1,817.00		9,620.76
COLORADO	1,313.00	1,313.00		10,933.76
GUAM	638.00	638.00		11,571.76
HAWAII	857.00	857.00		12,428.76
IDAHO	1,036.00	1,036.00		13,464.76
MONTANA	1,096.00	1,096.00		14,560.76
NEVADA	842.00	842.00		15,402.76
NEW MEXICO	873.00	873.00		16,275.76
OREGON	1,329.00	1,329.00		17,604.76
UTAH	1,114.00	1,114.00		18,718.76
WASHINGTON	1,275.00	1,275.00		19,993.76
WYOMING	983.00	983.00		20,976.76
TOTAL	14,999.00	14,999.00		20,976.76

DATE	TRANSACTION	INCOME	EXPENSE	BALANCE
15-Sep-86	BALANCE			20,976.76
10-Oct-86	COLO STATE - HEIL TRAVEL - ESCOP		966.53	20,010.23
03-Nov-86	ESCOP TRAVEL - KALTENBACH		616.88	19,393.35
22-Dec-86	SEMI ANNUAL INTEREST	370.83		19,764.18
11/25/86	INTEREST CORRECTION	(55.30)		19,708.88
02/18/87	SALE OF STIP	115.87		19,824.75
03/03/87	KALTENBACH, C.-ESCOP TRAVEL		651.85	19,172.90
4/28/87	FEB INTEREST	68.88		19,241.78
4/30/87	MARCH INTEREST	86.92		19,328.70
5/27/87	APRIL INTEREST	83.64		19,412.34
5/12/87	KALTENBACH, C. - ESCOP TRAVEL		1,515.86	17,896.48
6/11/87	MAY INTEREST	85.28		17,981.76
6/04/87	WASHINGTON STATE U-ESCOP		777.37	17,204.39
	BALANCE	756.12	4,528.49	17,204.39

Cooperative State Research Service
Report to the
Western Agricultural Experiment Station Directors
July 22-23, 1987
Reno, Nevada

1. Hatch Centennial. Based on the number of complimentary telephone calls and letters, the Hatch Centennial celebration has been a rousing success. We drew hundreds of participants to the March 2-3 kick-off events in Washington, D.C. Some 503 people attended the Smithsonian reception which featured products from the State Agricultural Experiment Stations and the announcement plans and drawings for the Smithsonian exhibit. Our research forum was attended by 251 people. A large number of members of the United States Congress, other government officials, congressional staffers and news media attended both events. The book depicting the history of the State Agricultural Experiment Stations, "The Legacy," is being distributed. An advance copy of this book written by Dr. Norwood Kerr was presented to Congressman de la Garza at the Smithsonian reception. An editorial team co-chaired by Nancy Winchester of the National Academy Press and Patricia Lewis of the New Jersey Agricultural Experiment Station is turning the proceedings of the Research Forum into a reference book to be published by the National Academy Press and is due out in August. The centennial film, "New Beginnings," and the slide/tape show, "The Catalyst," have been shipped to the stations and are receiving wide use. The film has been aired on a number of public television and cable network outlets. Public Service radio and television spots are being developed as part of a package to be shipped to the stations for a fall public information campaign. A complete centennial project book is being developed. Many stations and professional societies have scheduled centennial celebrations.

2. Budget. Hearings on the FY 1988 budget before the House Subcommittee on Rural Development, Agriculture and Related Agencies were held on March 12, 1987, and the Senate hearings on March 9, 1987. Both committees expressed strong support for agricultural research. We were privileged to have Dr. Colin Kaltenbach at the Senate hearings and Dr. Neville Clarke at the House hearings. Markup of the FY 1988 budget has not been completed by either chamber. CSRS is working closely with the ESCOP Budget Subcommittee in developing the FY 1989 budget request. Several groups have prepared or are preparing supporting documents, including water quality, animal health, small-scale agriculture, alternative agriculture, social sciences in agriculture, and pesticide resistance. We will bring you up to date on ongoing action on the FY 1987 supplemental appropriations and the FY 1988 "mark up" in our oral report.

3. Biotechnology. Procedures for the oversight of biotechnology research in general, and agriculture-related research in particular, are gelling. Following a decision by BSCC that there should be unified Federal Guidelines for use by all the agencies, S&E convened a workshop in early December 1986 to prepare an initial draft. Dr. Bentley has had a series of discussions with his counterparts in other agencies to familiarize them with the purpose and content of the guidelines. With rapid incorporation of other agency comments, there is every reason to believe that substantial progress and acceptance of the new research guidelines will be forthcoming relatively soon. The hottest area of discussion at the present is how to fit research guidelines with proposed regulations, especially by APHIS and EPA. Unfortunately, the timing is such that regulations may come out piecemeal from the various agencies...quite a

-2-

different situation than we have with research guidelines. Furthermore, there are potential contradictions between research guidelines and regulations which still need to be resolved. Nevertheless, the APHIS proposed regulations were published in the Federal Register on June 16 with a 30-day delay/response factor.

4. Competitive Grants. There were 1,720 proposals submitted compared to 1,945 last year. The proposals are currently being peer reviewed and processed. The total amount of grant awards will be essentially the same as FY 1986. Through the encouragement of the Chief Scientist, Dr. Joseph Varner, this year there will be some larger grants over a three-year period as compared to past years. On October 1, Dr. Luis Sequeira (WI) will become CRGO Chief Scientist. Both Dr. Varner and Dr. Sequeira are members of the National Academy of Sciences.

5. Office of Higher Education. There were 117 proposals for 425 fellowships peer reviewed. From these, 21 grants supporting 57 fellows were recommended in the following areas: 19 fellowships in animal biotechnology; 19 in plant biotechnology; 9 in food science; and 10 in human nutrition. RICOP has proposed a challenge grant program as well as a post-doctoral fellowship program which will be discussed.

6. Aquaculture Centers. A meeting on the Regional Aquaculture Centers was held in Washington, D.C., on December 15, 1986. The primary purpose of the meeting was to establish administrative and operational guidelines for the regional aquaculture centers as authorized in Subtitle L of the National Agricultural Research and Teaching Policy Act of 1977, as amended. The four centers will be administered through the University of Washington, Southeastern Massachusetts University, Mississippi State University, and jointly by the University of Hawaii and the Oceanic Institute, and will be organized reminiscent of Regional Research Projects. Each proposed project will be peer reviewed.

7. USDA Honor Awards. Thanks to the regional AES associations for providing excellent nominations for 1987. The level of representation in this important recognition was outstanding. The Honor Awards Ceremony was held in Washington, D.C. on June 10, 1987. The Distinguished Service awardees for 1987 are Dr. Kyle Jane Coulter, USDA, CSRS/OGPS; Dr. David H. Baker, University of Illinois; and Dr. James N. Moore, University of Arkansas. The Superior Service awardees for 1987 are Dr. Willard L. Lindsay, Colorado State University; Dr. Kenneth B. Porter, Texas A&M University; and the Econo-Rice Research Group, which includes members from USDA-Agricultural Research Service (ARS) and Texas A&M University (TAES). The members from ARS are Drs. Charles N. Bollich, Bill D. Webb, and Marco A. Marchetti. Members from TAES are Drs. John E. Scott, Edward Rister James W. Stansel, Ford E. Eastin, Garry N. McCauley, Fred T. Turner, Michael O. Way and Nathan G. Whitney.

8. Business Officers' Conference. The annual Business Officers' Conference was held on March 10-12, 1987, in Denver, Colorado hosted by the Agricultural Experiment Station at Colorado State University. Approximately 140 business managers from the agricultural experiment stations, 1890 institutions and Tuskegee University, schools of veterinary medicine and forestry schools, representing most of the States and territories were in attendance. Various topics including management improvement initiatives, utilizing CRIS data in research administration, Federal issues affecting States and a personal development seminar on personnel administration and human relations were presented.

-3-

9. Penalty Mail Reminder. Funding for Penalty Mail under the Hatch Act ends September 30, 1987. No such mailings should be made after that date. The funds saved will be distributed to States as a part of the overall Hatch allocations.

10. The Justin Smith Morrill Lectureship and prize has been selected for the NASULGC meeting in November 1987. It is Frank H. T. Rhodes, President of Cornell University. The responder is Harry O. Kunkel of Texas A&M.

11. Florida Demonstration Project is the name of a trial joint program of five major Federal R&D agencies for research grants to universities in the Florida State University System and the University of Miami. The central feature of the project is simplification of administrative procedures and more flexibility for principal investigators. The project began in March 1986 and goes through December of 1987. The possibility of expansion of the project to other institutions is under serious consideration. Reactions to the project are generally favorable, but a formal evaluation has not been completed. CSRS involvement has been only competitive grants and our experience has been positive. We will keep you informed if the program expands to other States.

12. Plant Science Centers. Plans for a joint NSF-DOE-USDA competitive grant program for plant science centers are moving ahead. A joint program announcement is expected in the near future.

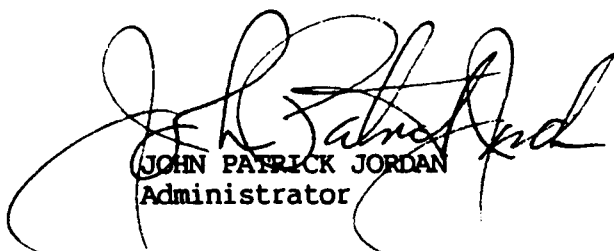
13. Upgrading CSRS Facilities. Negotiations are underway for CSRS to occupy nearby brand new facilities. We will keep you informed as this develops.

14. Rural Revitalization. On May 19, 1987, Deputy Secretary Myers testified before the Conservation, Credit and Rural Development Subcommittee of the House Agriculture Committee. He announced a Department Rural Regeneration Initiative. The plans include new focus in extension and research on local institutions and rural economic development, rural enterprise teams to assist local communities, an information clearing house at the National Agricultural Library, and a redirection of FmHA business and industry guarantee loans to give preference to communities under the greatest stress.

15. Pesticide Impact Assessment. Pesticide issues have been elevated in the public consciousness by recent reports and events. The National Agricultural Pesticide Impact Assessment Program is moving to intensify its efforts to document the benefits of specific pesticide uses in agriculture. Experiment Station scientists will be invited to participate in various assessment team activities.

16. On June 4, Secretary Richard E. Lyng spent more than an hour with some of the CSRS leadership. His purpose was to better understand our programs, thrusts and plans. Secretary Lyng has visited several campuses in the first half of 1987.

Respectfully submitted,



JOHN PATRICK JORDAN
Administrator



United States
Department of
Agriculture

Economic
Research
Service

Washington, D.C.
20005-4788

July 1987

Reorganization of Economic Research Service

As you may be aware the Economic Research Service (ERS) recently announced some organizational changes. The purpose of this notice and its attachments is to provide further information on the objectives of the reorganization and details on the organizational structure and leadership assignments. We will formally convert to the new organizational structure on or about July 1, 1987.

While the reorganization affects all four ERS program divisions, its most visible impact is a realignment of the functions and resources of the previous National Economics Division (NED) and International Economics Division (IED). As their names suggested NED focused on all aspects of the domestic agricultural economy while IED concentrated primarily on international agricultural issues. The reorganization abolished those two divisions and replaced them with two new divisions, the Commodity Economics Division (CED) and the Agriculture Trade and Analysis Division (ATAD). The new CED will be primarily responsible for all activities—situation and outlook, staff analysis, and research—directly related to the production and utilization of major agricultural commodities, both domestic and international. The new ATAD, on the other hand, will focus on agricultural and trade policy issues, both domestic and international and on understanding trade areas..

We had a clear need to strengthen our commodity analysis capability. Commodity situation and outlook work is a bread and butter thrust of the ERS program. But our commodity analysts ranks had grown thin. Workloads were heavy and frustration levels high. There was a perception among our constituency that, while the quality of our staff was good, ERS no longer enjoyed the prestige it once had in commodity analysis. Restoring that prestige necessitated, among other things, adding more resources to commodity analysis, which could have been done without reorganization. But building a first-rate commodity program also required integrating domestic and international commodity analysis and providing an organizational framework that offered attractive career paths and enhanced the recognition of commodity analysts. These were the major reasons behind the creation of the Commodity Economics Division, devoted to commodity situation and outlook, analysis, and research. In addition to three purely commodity branches, CED includes a commodity and trade analysis branch which analyzes interactions among commodities, aggregations across commodities and commodity trade. A fifth branch focuses on food marketing and consumption economics. Patrick O'Brien is the Director of CED.

An equally urgent need existed to integrate U.S. domestic policy analysis with foreign trade policy analysis. Most of the policy questions we now must address require either explicit or implicit treatment of the linkages between

- 2 -

U.S. domestic agricultural policies and behavior in the rest of the world. Moreover, policy analysis and research must be enhanced with in-depth understanding of policies and behavior in major countries and regions of the world. These were reasons behind the creation of the Agriculture and Trade Analysis Division. Kelley White is the Director of ATAD.

The previous Natural Resource Economics Division (NRED) has been renamed Resources and Technology Division (RTD), reflecting a continued redirection of its program away from strictly traditional soil and water economics and toward work on agricultural resources and inputs, technology, environmental issues, and productivity. Beginning in FY 1988, funds will be redirected from other uses to establish a new core staff to conduct research and analysis on technology and productivity. R&TD is already moving to bring more of a global perspective to its work on resources, technology and productivity. As examples, the Division is examining trade in agricultural inputs, linkages between international trade and use of natural resources, and linkages between emerging technology, productivity changes and U.S. comparative advantage in world markets. John Miranowski is the Division Director.

The Agriculture and Rural Economy Division (ARED) will continue to focus on the linkages between macro-economics, agricultural and rural interests. In addition the previous Economic Indicators Branch has been renamed the Farm Sector Financial Analysis Branch and is now a part of ARED. This move brings most of the agency's work on farm financial conditions, farm income, farm balance sheet, farm and rural credit, and taxes together in the same Division and improves the linkage between this financial research and the macro-economic work. The minor change in the Division's name from "Economics" to "Economy" represents recognition of a more issue-oriented program as opposed to a discipline-oriented program. Ken Deavers is the Director of ARED.

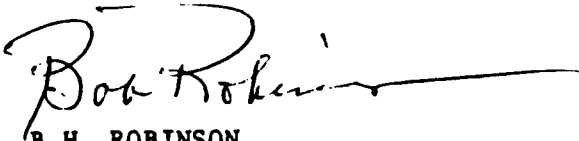
For the present no changes have been made in the Data Services Center. However, the entire subject of automation and data acquisition and management is under intensive review, which could lead to proposals for changes in the organization of ADP and data management in the year ahead.

There are a few changes in the office of the Administrator. The situation and outlook coordination staff has been reassigned to the Commodity Economics Division along with the responsibility for editing the monthly Agricultural Outlook. Ken Clayton was named Deputy Administrator, but is currently detailed full time to the office of the U.S. Trade Representative, where he serves as senior economist to Ambassador Clayton Yeutter. Ken is heavily involved in the current round of trade negotiations. Milton Ericksen has been selected to fill a newly established position of senior staff analysis coordinator. Milton will work with staff analysis coordinators in each of the Divisions to assure timely delivery of relevant, high quality staff analysis to the Office of the Secretary and other requesting sources. Bob Robinson continues as the Associate Administrator, sharing with me the overall responsibilities of leading ERS.

If you wish to know more about specific programs of work, you may wish to contact the appropriate division director or branch chief.

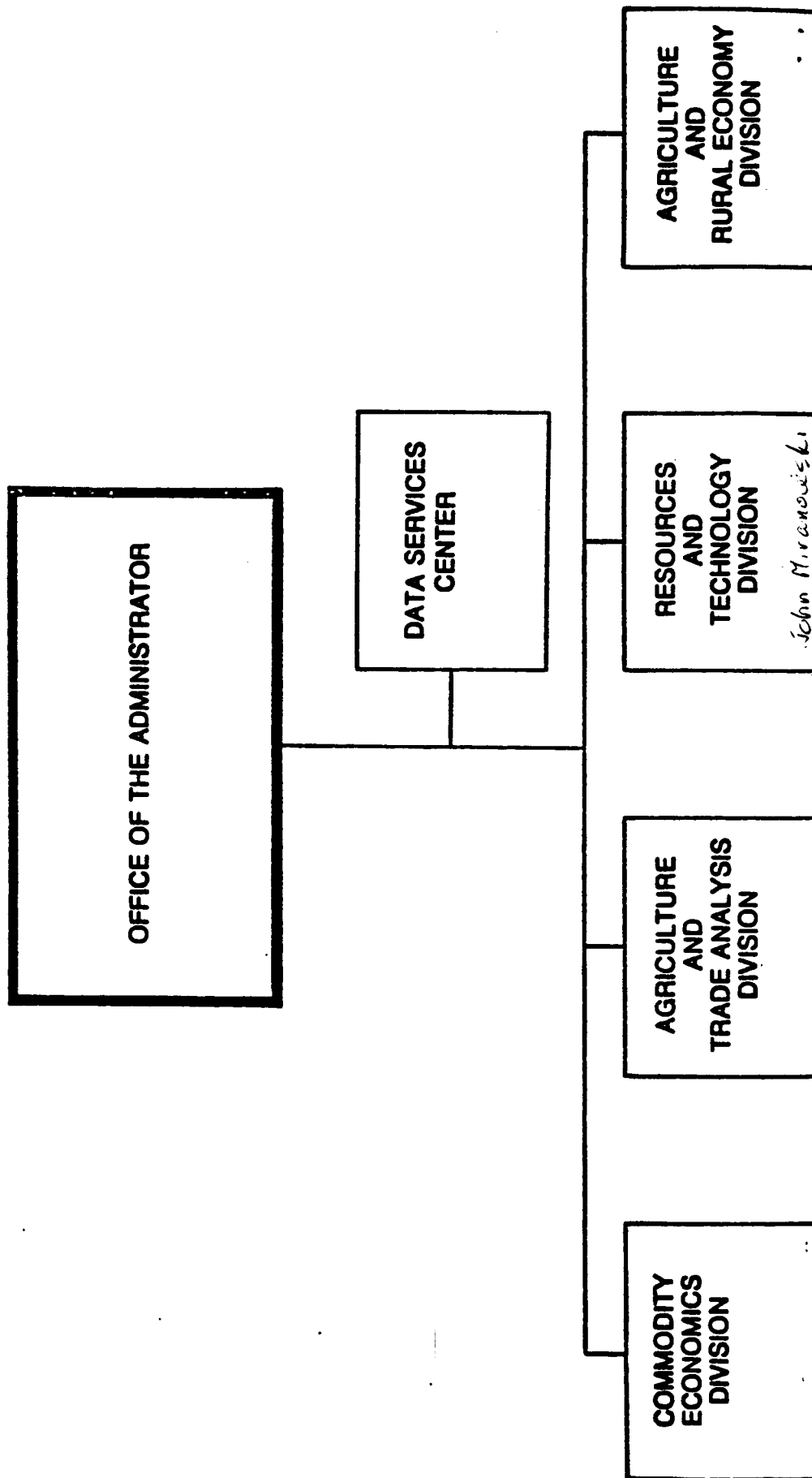
- 3 -

I believe that the changes we have made will better position ERS to exploit its comparative advantages and best serve the priority information needs of public and private decisionmakers in the decade ahead. We will continue to maintain the balance of situation and outlook, staff analysis, and research that best ensures fulfilling the responsibilities entrusted to us by the Congress, the Department of Agriculture and the American public.

A handwritten signature in dark ink, appearing to read "Bob Robinson", with a long horizontal flourish extending to the right.

B.H. ROBINSON
Acting Administrator

U.S. DEPARTMENT OF AGRICULTURE ECONOMIC RESEARCH SERVICE



ECONOMIC RESEARCH SERVICE
1301 New York Avenue, NW
Washington, DC 20005-4788

Management Telephone Directory
July 1987

OFFICE OF THE ADMINISTRATOR

John E. Lee, Jr., Administrator Secretary, Millie Evano	786-3300
B. H. Robinson, Associate Administrator Secretary, Carol Kotch	786-3302
Kenneth Clayton, Deputy Administrator (On detail to USTR)	
Milton Ericksen, Staff Analysis Coordinator	786-3309
Bruce Greenshields, Assistant Administrator	786-3310

AGRICULTURE AND RURAL ECONOMY DIVISION

Kenneth L. Deavers, Director Secretary, Sybil Glascock	786-1530
David Brown, Associate Director	786-1530
David Harrington, Deputy Director	786-1520
Farm and Rural Economy Branch, Thomas Carlin, Chief	786-1527
Agricultural Labor & Household Well-Being Section, Robert Coltrane, Leader	786-1932
Agriculture and Community Linkages, Section, Fred Hines, Leader	786-1525
Farm Structure Section, Donn Reimund, Leader	786-1522
Farm Sector Financial Analysis Branch, James Johnson, Chief	786-1800
Economic Indicators Research & Forecasts Section, Gregory Hanson, Leader	786-1807
Farm Costs and Returns Section, James Johnson, Actg. Leader	786-1801
Farm Financial Analysis Section, Duane Hacklander, Leader	786-1798
Farm Income Estimation Section, Roger Strickland, Leader	786-1804
Finance and Tax Branch, Patrick Sullivan, Chief	786-1884
Agricultural Finance Section, Jerome Stam, Leader	786-1886
Rural Finance and Tax Section, Ron Durst, Leader	786-1889
Human Resources Branch, Max Jordan, Chief	786-1532
Income and Well-Being Section, Peggy Ross, Leader	786-1537
Population Studies Section, Calvin Beale, Leader	786-1534
Rural Labor Markets Section, David McGranahan, Leader	786-1540
National Economy and History Branch, Thomas Hady, Chief	786-1281
Agriculture & Rural History Section, Douglas Bowers, Leader	786-1896
Macroeconomics Section, Ralph Monaco, Leader	786-1283
National Aggregate Analysis Section, Gerald Schluter, Leader	786-1285

- 2 -

Rural Business and Government Branch, Norman Reid, Chief
 Government and Development Policy Section, Richard Long, Leader
 Rural Business & Industry Section, Herman Bluestone, Leader

786-1542
 786-1544
 786-1547

AGRICULTURE AND TRADE ANALYSIS DIVISION

T. Kelley White, Director
 Secretary, Dee Midgette
 John Dunmore, Associate Director
 Neilson Conklin, Deputy Director

786-1700

786-1699

786-1700

Agricultural and Trade Indicators Branch, Edward Overton, Chief
 Demand & Trade Indicators Section, David Stallings, Leader
 Supply Indicators Section, Francis Urban, Leader

786-1620

786-1624

786-1710

Agricultural & Trade Policy Branch, Vernon Roningen, Chief
 Agricultural & Commodity Policy Section, Jerry Sharples, Leader
 Economic & Agricultural Policy Section, Stephen Magiera, Leader
 Regional and Policy Information Section, Barbara Chatten, Leader

786-1630

786-1631

786-1630

786-1784

Centrally Planned Economies Branch, Kenneth Gray, Chief
 China Section, Francis Tuan, Leader
 Planned Systems Analysis Section, Kenneth Gray, Actg. Leader
 Soviet Union Section, Kathryn Zeimetz, Leader

786-1710

786-1611

786-1710

786-1710

Developed Market Economies Branch, Cheryl Christensen, Chief
 Developed Market Economies Policy Section, Larry Deaton, Leader
 Pacific Rim Section, William Coyle, Leader
 Western Europe Section, Mark Newman, Leader

786-1720

786-1666

786-1611

786-1718

Developing Economies Branch, Gene Mathia, Chief
 Commercial Trade Section, Maurice Landes, Leader
 Food Aid Section, Michael Kurtzig, Leader
 Macropolicy Section, Mathew Shane, Leader

786-1702

786-1614

786-1680

786-1705

United States Agricultural Policy Branch, Vacant, Chief
 Aggregate Analysis Section, Vacant, Leader
 Policy Information Section, Thomas Lederer, Leader
 Policy Research Section, Vacant, Leader
 Sectoral Analysis Section, Robert House, Leader

786-1784

786-1784

786-1784

786-1784

786-1699

COMMODITY ECONOMICS DIVISION

Patrick O'Brien, Director
 Secretary, Loretta Miller
 Robert Bohall, Associate Director
 Donald Seaborg, Deputy Director/Situation & Outlook
 Coordination Staff Chief

786-1880

786-1880

786-1880

- 3 -

Commodity & Trade Analysis Branch, Ronald Trostle, Chief	786-1691
Commodity Trade Programs Section, Ronald Trostle, Actg. Leader	786-1691
Trade Analysis Section, Frederic Surls, Leader	786-1691
Trade Reporting Section, Thomas Warden, Leader	786-1623
 Crops Branch, Mack Leath, Chief	 786-1840
Coarse Grains Analysis Section, Larry Van Meir, Actg. Leader	786-1840
Fibers Analysis Section, Samuel Evans, Leader	786-1840
Fibers & Oils Research Section, Joseph Glauber, Leader	786-1840
Food Grains Analysis Section, Terry Townsend, Leader	786-1840
Grains & Feeds Research Section, William Lin, Leader	786-1840
Oilcrops Analysis Section, Samuel Evans, Actg. Leader	786-1840
 Food Marketing & Consumption Economics Branch, Lester Myers, Chief	 786-1860
Commodity Markets & Pricing Section, Richard Heifner, Leader	786-1868
Food Demand Section, Richard Haidacher, Leader	786-1862
Food Manufacturing & Distribution Section, Charles Handy, Leader	786-1866
Food Market Analysis Section, Harry Harp, Leader	786-1870
Food Policy Research Section, David Smallwood, Leader	786-1864
 Fruits, Vegetables, Sweeteners, & Tobacco Branch, Frederic Hoff, Chief	 786-1770
Fruits Analysis Section, Boyd Buxton, Leader	786-1766
Sweeteners Analysis Section, Robert Barry, Leader	786-1769
Tobacco Analysis Section, Verner Grise, Leader	786-1768
Vegetable Analysis Section, Boyd Buxton, Actg. Leader	786-1767
 Livestock, Dairy, and Poultry Branch, Kenneth Baum, Chief	 786-1820
Beef and Sheep Analysis Section, Ronald Gustafson, Leader	786-1830
Dairy Analysis Section, Kenneth Baum, Actg. Leader	786-1823
Dairy Research Section, Richard Fallert, Leader	786-1823
Livestock Research Section, Terry Crawford, Leader	786-1821
Pork Analysis Section, Kenneth Baum, Actg. Leader	786-1827
Poultry Analysis & Research Section, Lee Christensen, Leader	786-1823
 <u>RESOURCES AND TECHNOLOGY DIVISION</u>	
John Miranowski, Director	786-1455
Secretary, Lois Blair	
Katherine Reichelderfer, Associate Director	786-1448
 Inputs, Technology, and Productivity Branch, John Schaub, Chief	 786-1469
Input Supply, Demand, & Trade Analysis Section, Stan Daberkow, Leader	786-1458
Pest Control & Regulation Section, Vacant, Leader	786-1462
Productivity & Public Policy Section, Roger Conway, Leader	786-1459
Technology & Research Assessment Section, Susan Offutt, Leader	786-1438
 Land Branch, Robert Boxley, Chief	 786-1419
Land Ownership Section, Gene Wunderlich, Leader	786-1425
Land Use Section, William Anderson, Leader	786-1422
Land Values Section, John Reilly, Leader	786-1425

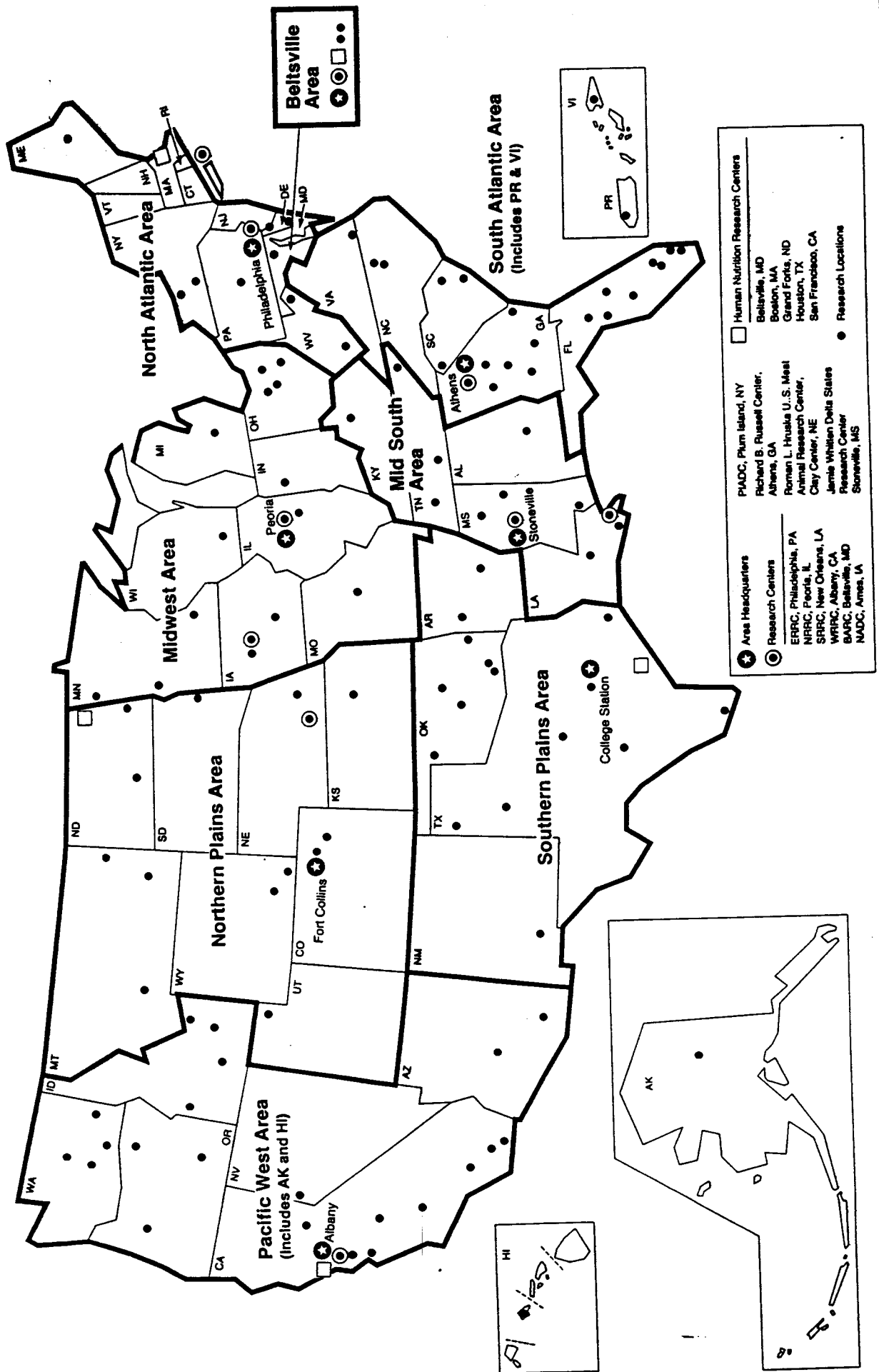
- 4 -

Resource Policy Branch, Anthony Grano, Chief	786-1401
Domestic & International Policy Impacts Section, Michael LeBlanc, Leader	786-1401
Program & Policy Analysis Section, Edwin Young, Leader	786-1407
Resource Measurement & Outlook Section, Klaus Alt, Leader	786-1403
Soil and Water Branch, Linda Lee, Acting Chief	786-1444
Externalities Section, Linda Lee, Leader	786-1444
Soil Section, Richard Magleby, Leader	786-1435
Water Section, John Hostetler, Leader	786-1410

DATA SERVICES CENTER

Michael Ahrens, Director	786-1761
Secretary, Jean Hamann	
Robert Rovinsky, Associate Director	786-1761
Agency Systems Branch, Charles Hallahan, Chief	786-1507
Database Management & Development Branch, Michael Millage, Chief	786-1745
Human & Natural Resource Economic Systems Branch, Charles Little, Chief	786-1490
International Economic Systems Branch, Larry Otto, Chief	786-1602
National Economic Systems Branch, Kathleen Augustine, Chief	786-1811
Operations Branch, Wade Kirdahi, Chief	786-174~

Agricultural Research Service - Area Organization



BELTSVILLE AREA (BA)
(Beltsville, MD)

Dr. Waldemar Klassen, AD
Rm. 227, B-003, BARC-W
Beltsville, MD 20705
FTS: 344-3078
301/344-3078

Dr. K. D. Murrell, AtgAAD
FTS: 344-3193
Mr. R. R. Rhodes, AstAD
FTS: 344-3392

Dr. Walter Mertz, CD
Beltsville HNRC
Rm. 223, B-308, BARC-E
FTS: 344-2157

Dr. H. M. Cathey, Drctr
U.S. National Arboretum
3501 New York Ave., N.E.
Washington, DC 20002
FTS: 475-4829
202/475-4829

NORTH ATLANTIC AREA (NAA)
(CT-DE-MA-ME-MD-NJ-NH-
NY-PA-RI-VT-WV)

Dr. H. L. Rothbart, AD
600 E. Mermaid Lane
Philadelphia, PA 19118
FTS: 489-6593
215/233-6593

Dr. Essex Finney, AtgAAD
FTS: 489-6668
215/233-6668

Dr. John Cherry, CD
ERRC, 600 E. Mermaid Lane
Philadelphia, PA 19118
FTS: 489-6595
215/233-6595

Dr. Roger G. Breeze, CD
PIADC, P.O. Box 848
Greenport, LI, NY 11944
FTS: 649-9208
516/323-2500 Ext. 208

Dr. Irwin Rosenberg, CD
HNRC on Aging
711 Washington St.
Boston, MA 02111
617/556-3330

SOUTH ATLANTIC AREA (SAA)
(FL-GA-PR-NC-SC-VA-VI)

Dr. Ernest L. Corley, AD
Russell Agr. Res. Center
P.O. Box 5677
Athens, GA 30613
FTS: 250-3311
404/546-3311

Dr. C. W. Beard, AtgAAD
Dr. G. R. Burns, AstAD
FTS: 250-3328
404/546-3328

Dr. David E. Zimmer, CD
Russell Agr. Res. Center
P.O. Box 5677
Athens, GA 30613
FTS: 250-3541
404/546-3541

SOUTHERN PLAINS AREA (SPA)
(AR-OK-TX-NM)

Dr. Floyd Horn, AD
Dr. Earl E. King, AtgAAD
1812 Welsh St., Suite 130
College Station, TX 77840
FTS: 527-1346
409/260-9346

Dr. Buford Nichols, CD
Children's HNRC at Baylor
6621 Fannin Street
Houston, TX 77030
FTS: 526-4796
713/799-6006 or 229-2796

MID SOUTH AREA (MDA)
(AL-KY-LA-MS-TN)

Dr. C. D. Ranney, AD
Dr. Paul A. Putnam, AAD
P.O. Box 225
Stoneville, MS 38776
FTS: 497-2265
601/686-2311

Dr. John Barkate, AtgCD
SRRC, P.O. Box 19687
1100 Robert E. Lee Blvd
New Orleans, LA 70179
504/286-4212

NORTHERN PLAINS AREA (NPA)
(CO-KS-MT-ND-NE-SD-UT-WY)

Dr. Gary R. Evans, AtgAD
Dr. J. van Schilfgaarde, AAD
Dr. Eldean D. Gerloff, AstAD
Drake Executive Plaza
2625 Redwing Rd., Suite 350
Fort Collins, CO 80526
FTS: 323-5557
303/229-5557

Dr. Forrest Nielsen, CD
HNRC, P.O. Box 7166,
Univ. Station
Grand Forks, ND 58202
FTS: 783-0456
701/795-8456

Dr. Robert R. Oltjen, CD
MARC, P.O. Box 166
Clay Center, NE 68933
402/762-3241

MIDWEST AREA (MWA)
(IA-IL-IN-MI-MO-MN-OH-WI)

Dr. Gerald E. Carlson, AD
1815 N. University St.
Peoria, IL 61604
FTS: 360-4602
309/685-4011

Dr. C. R. Amerman, AtgAAD
Dr. Donald A. Price, AstAD
FTS: 360-4600

Dr. Lambertus Princen, CD
NRRRC, 1815 N. Univ. St.
Peoria, IL 61604
FTS: 360-4541
309/685-4011

Dr. P. A. O'Berry, CD
NADC, P.O. Box 70
Ames, IA 50010
FTS: 862-8201
515/239-8201

PACIFIC WEST AREA (PWA)
(AK-AZ-CA-HI-ID-NV-OR-WA)

Dr. Norman James, AtgAD
Dr. William G. Chace,
800 Buchanan St.
Albany, CA 94710
FTS: 449-3227
415/486-3227

Dr. D. Niffenegger, AstAD
FTS: 449-3261
415/486-3261

Dr. Martin H. Rogoff, CD
WRRC, 800 Buchanan St.
Albany, Ca 94710
FTS: 449-3421
415/486-3421

Dr. Gerald G. Still, CD
PGECC, 800 Buchanan St.
Albany, CA 94710
FTS: 449-3662
415/486-3662

Dr. James Iacono, CD
WHNRC, P.O. Box 29997
Presidio of San Francisco,
CA 94129
FTS: 556-9697
415/556-9697

July 10, 1987

NOTE: This list reflects the proposed changes in the recent realignment of the Areas. The Area Directors are functioning in their new capacities; however, physical changes of some AD's/AAD's have not yet taken place. ** AAD denotes Associate AD. ** Use USDA-ARS in mailing address. ** Contact Margo Kincaid, FTS 344-3084, for changes/corrections.

FACT SHEET ON FEDERAL TECHNOLOGY TRANSFER ACT OF 1986 (PL 99-502)

- Signed by President 10/20/86. Amends the Stevenson-Wydler Act of 1980 (PL 96-480).
- Key feature is authorization of Federal-Industrial Cooperative Research and Development Agreements
 - With individual firms, R&D consortia (like the ones formed at universities), etc.
 - Permits the Federal research laboratory (see definition below) to "accept, retain, and use funds, personnel, services, and property from collaborating parties and provide personnel, services, and property to collaborating parties."
 - Permits up front patent licensing and royalty agreements.
 - 15 percent of royalties collected under such agreement goes to Federal scientists named on the patents as inventors (up to \$100,000 per inventor per year).
 - Remainder of royalties can be used
 - to pay direct expenses of administering the patent licensing program.
 - to reward other scientists and support personnel contributing to the research in question.
 - for other activities that enhance related ongoing research.
 - maximum of such royalties retained by a Federal research entity is 5 percent of its total R&D budget.
- "Laboratory" is defined as "...a facility or group of facilities owned, leased, or otherwise used by a Federal agency [for]..performance of research, development, or engineering by employees of the Federal Government."
- Laboratory Directors (i.e., Dr. Kinney in the case of ARS) "shall ensure that efforts to transfer technology are considered positively in laboratory job descriptions, employee promotion policies, and evaluation of the job performance of scientists and engineers in the laboratory."
- Agencies are authorized "to the extent consistent with any applicable Agency requirements and standards of conduct, [to] permit employees or former employees of the laboratory to participate in efforts to commercialize inventions they made while in the service of the United States."
- Federal R&D agencies must now report annually to Congress on technology transfer activities as part of their annual budget submission. This replaces the current biennial report to the Department of Commerce.

Key Facets of ARS Technology Transfer Policy and Efforts

- Recognize that scientists generating new technology are its best transfer agents.
- Emphasize their responsibility not only to achieve research results but also to help get them used.
- Have a reward system consistent with this philosophy.
- Systematically communicate to prospective users current information on research achievements and achievers through:

computerized information delivery

meetings with industry groups at ARS laboratories

trade journal articles

presentations at trade association meetings

public information activities

- Maintain an aggressive patent program and emphasize exclusive licenses.
- Welcome industrial cooperation in research under provisions of the Federal Technology Transfer Act of 1986 (see attached).

AGRICULTURAL RESEARCH SERVICE
REPORT OF PACIFIC WEST AREA AND
NORTHERN PLAINS AREA TO
WESTERN EXPERIMENT STATION DIRECTORS
July 1987

On May 1987, ARS announced plans to consolidate the functions of the current 11 Area Offices into 8 Areas. The experience of the past three years has demonstrated that further improvements in the management and support of ARS programs and significant additional savings in overhead could be achieved by the proposed consolidation. The Area Management Offices to be closed are Portland, Ames and Minneapolis and the savings generated by these adjustments will be directed back into the research at those location/states. The new Area Management Unit will be in place and functioning by September 4, 1987.

PACIFIC WEST AREA

Norm James, previously reported to be headed to Texas, will be moving to Albany, California as the Pacific West Area Director on an acting basis on July 20, 1987.

Ground breaking ceremonies for the National Small Grain Germplasm Research Facilities are scheduled to be held at Aberdeen, Idaho on August 10, 1987.

Dr. Hudson Glimp has been assigned as the Acting Research Leader at the US Sheep Experiment Station, Dubois, Idaho.

Major changes have been made at the Fruit and Insect Research Unit, Riverside, California with Dale Meyerdirk taking a position with APHIS in Washington DC, Don Coudriet transferring to the Cotton Laboratory in Phoenix and Debbie Sullivan transferring to the Crops Pathology and Genetics Research Unit at Davis, California.

Plans are being developed for the Forest Service, Pacific Southwest Forest and Range Experiment Station to move into renovated space at the ARS, Western Regional Research Center. We look forward to developing cooperative research programs and initiating joint administrative support and facilities that could result in savings for both agencies.

NORTHERN PLAINS AREA

In Nevada, a state we lost, two of three senior scientists (Ray Evans and Richard Eckert) have retired, but two new scientists have been hired to rebuild the range program.

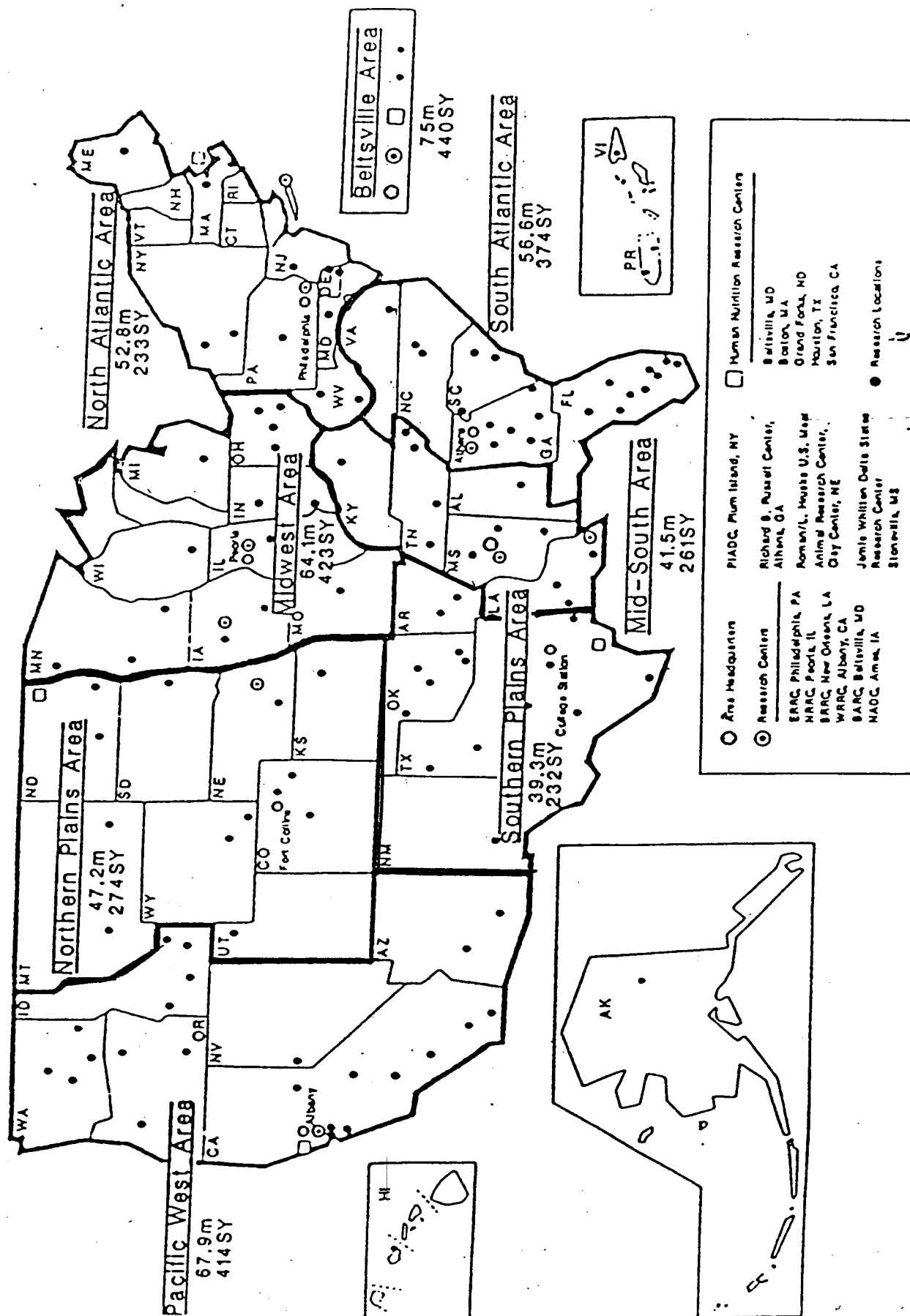
In Utah, plans to move the non-apis pollinating insect program to new quarters, in order to accommodate USU expansion, have been postponed. Research Leader Dr. Frank Parker has accepted transfer to Costa Rica; he will be replaced by Dr. John Vandenberg.

In Arizona, another state reassigned, an Integrated Pest Management project was initiated to further develop and demonstrate control techniques for lygus bugs using parasites; Dr. Al Cohen has replaced Dr. Harry Graham, who retired, and will be responsible for this project.

In cooperation with APHIS funds, ARS has initiated a large demonstration project for grasshopper control. Leadership will be provided from Bozeman, Montana, but two 1,000,000-acre field sites are involved near Twin Falls, Idaho and Sydney, Montana, respectively. Scientists have reported to Twin Falls and to Sydney for this new assignment.

May 1987

Agricultural Research Service - Area Organization



FOREST SERVICE REPORT TO
WESTERN AGRICULTURAL EXPERIMENT STATION DIRECTORS

Reno, NV, July 1987

BUDGETS

Only the House of Representatives has acted upon a 1988 appropriation for the Forest Service. The President's budget proposal was about 10% less than the 1988 "base" but the House level restored funds to slightly above the "base" level, or about \$15 million above the President's request. Included was a restoration of \$4 million in the forestry competitive grants program, or about two-thirds of the current level. All additions to the President's budget were earmarked by Congress. Under the House marks, it appears to be a general contribution of current programs.

PERSONNEL

Station Director Robert Ethington will be retiring from the Pacific Northwest Station in late Fall and moving to Oregon State University College of Forestry. A replacement has not yet been named. Other changes in top personnel at the four western Stations include: Dr. Fred Stormer, Assistant Director for Research at the Pacific Northwest Station, Portland; Mrs. Shirley Moore, Assistant Station Director for Administration, Pacific Southwest Station, Berkeley; Dr. Steve McDonald, Assistant Director for Research, Rocky Mountain Station, Fort Collins.

With the 1987 recent budget, several Stations are hiring a few scientists now, and if budgets remain stable, we foresee additional selective hiring at the scientist level.

PROGRAMS

The Rocky Mountain Station has announced new emphasis on atmospheric deposition research, and a new program on impact assessment of insects and diseases. Both programs are located in Ft. Collins.

The Pacific Northwest Station and Pacific Southwest Station both have expanded research in forest-wildlife relationships, primarily on spotted owls, a key wildlife species in old-growth forests of the northwest. A new project leader for the program in Arcata, CA has been hired--Dr. Barry Noon.

The national re-alignment of the Forest Fire research program announced last year has been completed. This has strengthened western programs located in Montana and southern California. Forest Service scientists in Arizona have now transferred to the Riverside, CA fire research laboratory as part of the program change.

College of
Home Economics



Corvallis, Oregon 97331

(503) 754-3551

July 22, 1987

Annual Report to Western Association of Agricultural
Experiment Station Directors

From: Western Home Economics Research Administrators Association
Margy Woodburn 1986-87 Chair *M. Woodburn*

Meetings: November 8, 1986. States represented were Arizona, Colorado, Hawaii, Idaho, Nevada, New Mexico, Wyoming, Montana, and Oregon

February 18, 1987. States represented were those present in November plus Washington.

I. Activities

- Major accomplishment was the identification and presentation of home economics research priorities for the Western Region. These were submitted to the Home Economics Subcommittee of ESCOP, which synthesized a national research priorities document at its May 1987 meeting. After editing, this priorities statement will be published. The areas identified for the West (not given priority order) were:

Food, Nutrition, and Health Status
Family and Community Well-Being
Elderly, the Family, and the Communities
Household Water Consumption and Water Resources
Enhancing Agricultural Profitability
Agricultural Policy and the Consumer

In developing these priorities, the initiatives which were prioritized by WARC were considered and the ESCOP 1986 Research Initiatives publication. Each state developed a priority statement which was shared and provided the basis for the regional effort.

- Joint meeting with the Western Home Economics Extension Program Leaders to discuss research-extension relationships
- Updates on CSRS at each meeting by Mary Heltsley, Program Coordinator, Food and Social Sciences.
- Report by Dean Kinsey Green from Western Regional Council.
- Review of WRCC and Western Regional projects related to home economics. Recommendations were made to support approval of renewal of WRCC-57 and WRCC-23.

II. Plans for 1987-88

- Inventory the research base in the Western region
- Plan strategies for sharing the HERS/ESCOP Priorities for Home Economics Research document as it applies in the West.

III. Judy Powell's (Wy) term as Secretary ended and Merrilyn Cummings (NM) was elected for 1987-88.

Bob Rice (Az) is the current chair of HERS/ESCOP and the representative on the 1990 ESCOP Budget subcommittee.

Margy Woodburn (Or) represents HERS/ESCOP on the Committee of Nine (1987-89) and the 1988 and 1989 ESCOP Budget subcommittees.

Report by C. S. Card for Veterinary Medicine
to the Western Association of Agricultural Experiment Station Directors
July 22, 1987

During the past fiscal year, the Association of American Veterinary Medical Colleges and the Commission on Veterinary Medicine of NASULGC, the organizations that plan and prioritize research activities for schools and colleges of veterinary medicine and departments of veterinary science and other related units in agriculture, have met in several formats including the Second Winrock Workshop in Morreltown, Arkansas. These meetings have reaffirmed the advantage that research in veterinary medicine and science has accrued through its participation in various research prioritization and budgeting committees of the Land Grant System. However, similar to other academic research units, the membership of AAVMC have agreed that more funding could be efficiently utilized in the protection of livestock, poultry and other animal and aquatic species against disease agents and toxic materials by its research faculty. The veterinary research community is agreed that the availability of adequate research funds would substantially reduce financial loss that animal production units incur from exposure to disease agents and toxic materials.

The agriculture system, including input and marketing components, generates 20 percent of the nation's gross national product and employs 23 percent of the United States labor force. Approximately 50 percent, or \$72.7 billion of agriculture's annual income is derived from livestock and livestock products. American consumers spend on 16 percent of their disposable income for food, yet the U.S. consumers spend over \$300 billion for food annually. The bargain that our populations enjoys is not equalled in any country of the world. The variety and wholesomeness of these foods is unequalled elsewhere, as well.

Meat, milk, poultry and aquatic animals are an important part of the food supply. These products contribute over one-third of the energy, three-fourths of the protein, most of the calcium and phosphorus and many essential vitamins so important to our diets. Almost 87 percent of the U.S. corn crop, 70 percent of the soybean crop, 21 percent of the wheat crop, 95 percent of the grain sorghums and most of the oats, barley and rye crops are currently fed to livestock. A strong animal agricultural production system is essential as an outlet for the majority of the nation's grain crop.

Healthy livestock, poultry and aquatic species are essential for the maintenance of high quality protein in our food supply and the economic viability of these production units. Animal health problems are estimated to cost the American farmer and subsequently the American public about \$15 billion annually. This is a tremendous economic burden for both producers and consumers. Of similar importance is the safety and wholesomeness of the food supply, and therefore, food-producing species must be maintained and managed in environments that provide effective protection against disease-producing agents and toxic materials.

Animal disease research has made a significant contribution to the development of successful livestock and poultry industries with important benefits to consumers. An example of this is the broiler industry. There are currently 700 million chickens in production to provide for the increasing consumer demand for chicken. Production efficiency has markedly increased during the

past ten years. For example, ten years ago it required 63 days to grow a broiler to market weight at 3.8 pounds and the feed efficiency was 2.8 pounds for each pound of meat. Today it takes only 42 days to grow a broiler to market weight and it requires only 1.9 pounds of feed to produce one pound of chicken. This marked improvement in production efficiency is largely responsible for the present economically healthy poultry industry. Advances in poultry disease research are credited with making significant contributions to this improvement. Ten years ago, the condemnation rate from disease in poultry processing plants was four percent compared to the present one percent. Broilers are currently selling for 1950 retail prices, providing consumers with major economic benefits from the research investment. Progress in animal disease research and health maintenance for other animal industries have also resulted in important contributions.

Two subunit vaccines for pseudorabies infection in swine have been developed. The production has involved the process of deleting a gene responsible for virulence of the virus rendering it incapable of causing disease but capable of producing an effective immune response. A genetic marker inserted into the virus enables the vaccinated animal to be identified and differentiated from animals with natural infection. These vaccines will greatly assist in the control of this important swine disease.

Vesicular stomatitis is a highly contagious disease of cattle clinically indistinguishable from foot-and-mouth disease. Scientists have also developed subunit vaccine for vesicular stomatitis in cattle, by inserting a vesicular stomatitis gene into another virus, i.e., vaccinia veres. Vaccinated animals, because of a genetic marker, can be differentiated from naturally infected animals. This vaccine should be very beneficial in controlling large outbreaks of this disease.

New molecular engineered vaccines against colibacillosis, the cause of diarrhea in calves and pigs, have been developed. Monoclonal antibodies have been developed against the virulence factors of E. coli and are being utilized as effective vaccines to prevent and treat this disease in calves and pigs.

A number of genetically engineered diagnostic aids have been developed for important animal diseases, including mycoplasma, cryptosporidia, salmonella, and viral agents such as blue tongue, equine infectious anemia, bovine leukosis and red nose. Numerous other advances can be listed and documented.

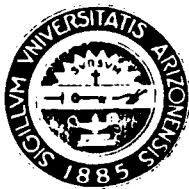
The funding mechanisms now available to the scientists conducting research on animal diseases includes the following:

1. Hatch Funds through AES. Approximately six percent of Hatch funds support scientists conducting animal disease research. Limited increase for several years.
2. Animal Health and Disease Formula Funds (1433). These funds are available on a formula basis to schools and colleges of veterinary medicine and departments in agricultural colleges. The funding has remained at the same level for several years.
3. Special Animal Health Grants (PL89-106) (1414c1). These grants are competitive to schools and colleges of veterinary medicine and departments of colleges of agriculture. Again, the level has been flat for several years.

4. Competitive Grants Program (1414[2]B). These grants for biotechnology and animal science have provided numerous veterinary research communities with another competitive source of funding.
5. NIH, NSF, DOD, American Heart Foundation. These federal agencies provide limited funds for research generally on problems related to humans. Limited program areas preclude significant research funding for problems common to humans and animals.

The above described programs have provided a unique source of support for animal health research. However, the following areas of extreme importance to veterinary medicine are not presently covered by these programs:

- o animal health economics
- o food quality and safety
- o epidemiology
- o herd health management
- o animal health and welfare.



The University of Arizona

College of Agriculture
Department of Veterinary Science
202 Building 90
Tucson, Arizona 85721

May 12, 1987

MEMORANDUM TO: FY 89 Joint Budget Committee

FROM: Dr. C. S. Card, ^{C-}Commission on Veterinary Medicine
and Association of American Veterinary Medical Colleges

SUBJ: Food Safety Initiative

A new initiative regarding food safety and animal health has been developed by the Association of American Veterinary Medical Colleges and the Commission on Veterinary Medicine. The initiative was discussed briefly at the last Joint Budget meeting and more recently at the ESCOP meeting in Tucson, Arizona, April 27, 1987.

Members of ESCOP expressed concern that the initiative had not followed the usual planning process. Other concerns were the perceived high funding level, the inclusion of the term "Animal Health" in the title and the recommendation that funding be competitive through the Office of Grants and Programs Systems. However, ESCOP did agree that the FY 89 Budget Subcommittee should include the initiative in programs to be considered for funding.

Relative to the ESCOP planning system, let me make this point. Both the National Agricultural Research Committee and the Joint Council on Food and Agricultural Sciences include "food safety" in their priorities.

NARC priorities:

- 8. Food, Nutrition and Health Status of People
- 12. Animal Health
- 13. Food Processing and Quality Enhancement

Joint Council priorities:

- 4. Food, Diet and Health
- 8. Food Processing/Distribution/Quality

In a similar manner, Research Initiatives: A Research Agenda for the State Agricultural Experiment Stations, 1986, recommends the following new initiatives and objectives that appear to be related to food safety and animal

health. Direct reference to food safety is found under the initiative entitled Processing and Quality Enhancement, which is not in the top 25 percent priority rating.

The following objectives are all in the top 25 percent in priority rating and include:

Animal Health and Disease - Immunological Advances

Short Term Adjustments for Enhancing
the Economics of Agriculture - Lower Unit Production Costs

Biotechnology - Biological control of pests

- Biologically active materials
- Diagnostic and immunologic materials
- Environmental impact of biotechnology

Integrating Agricultural Technologies - Assessment of new production techniques

Logically, one could argue the value of having a format for introducing expedient initiatives such as food safety into the system by circumventing the more traditional three- to five-year ESCOP planning cycle. The food safety issue has recently received considerable national publicity through a medical publication vis-a-vis salmonella, several newspaper articles and TV programs which have highlighted the problems. The publicity undoubtedly has had a strongly negative impact on consumer confidence throughout the country. I believe the members of ESCOP and Dr. J. Patrick Jordan discussed and agreed to the concept of this need in the recent ESCOP meeting in Tucson.

Finally, scientists in areas of food safety, food processing, animal disease, etc. have been aware of food safety problems for a number of years. Contemporary diagnostic techniques and other technologies have given the industry greater capability of detecting and tracking contaminating agents, residues, etc. However, the industry still needs a greater capability for continued epidemiological assessment of these problems so that consumers will continue to include these food products of animal origin in their diets.

Thank you for your consideration of this initiative sponsored not only by the COVM and AAVMC, but several federal agencies.

CSC/ck

Enclosures

FACT SHEET - FOOD SAFETY AND ANIMAL HEALTH

Initiative To provide funds for research on problems of food safety including food processing and technology, transport and handling of animals and preprocessed food products of animal origin, related areas of animal production and disease and environmental toxicosis and residues.

Rationale Consumer confidence in the safety and wholesomeness of food products of animal origin has been negatively affected by recent unfortunate national publicity regarding salmonella contamination of poultry, dairy products and listeria, meat products and E. coli, and the list goes on. There are an estimated 1.4 to 3.6 million cases of food borne illness each year at a cost of \$1 to \$10 billion. These costs include direct medical care, lost wages, recalls, investigations, etc. which cost from \$200 to \$2,000 or more per reported episode. At least 33 percent of all reported outbreaks in a recent nine year survey are attributed to meat, poultry and fish.

Individuals immunologically limited or deficient because of illness aging, and cancer or antibiotic chemotherapy are a rapidly increasing population at risk. The sequelae to these exposures to unsafe food products include moderate to severe illness and death. The highly publicized incidents are undoubtedly only the "tip of the iceberg."

Current Situation Presently, RPA 702-Protection of Food and Feed Supplies From Harmful Micro Organisms and Naturally Occurring Toxins, has an investment of only \$17.5 million and 125 SYs. Of this total, only 35 SYs are animal oriented and only 1.8 SYs and \$48,000 are veterinary oriented. A majority of the animal SYs are in ARS. There are however, a large number of well-trained food scientists and biomedical scientists, including veterinarians who are working in areas closely related to RPA 702. The absence of specific competitive grants and adequate Hatch, State or Regional funds have undoubtedly decreased the potential SY year base considerably.

Limited research endeavors in RPA 702 preclude an adequate response to the complexities of production, delivery and processing of food products of animal origin that are components of the food safety/animal health problem.

Current and Future Activities Research would address problems ranging from the production unit through processing and eventual distribution of foods of animal origin. The application of computers and electronic data processing are needed for animal disease and management surveillance and epidemiology and risk management. Research problems would include the identification of farm, tailgate and processing sources of infection, development of residue detection methods and control measures using molecular epidemiology, cost-benefit analysis, economic assessment and improved management techniques.

Approach to Meeting Current Needs The concept for the initiative was developed at an AAVMC sponsored workshop in Morrilton, Arkansas in January of 1987. Such a program should be initiated as soon as possible at a level not less than \$20 million in the first year and \$25 million in the second year. The funding should be through the USDA competitive grant system and available to food scientists, agricultural engineering, veterinary and public health scientists and other research scientists in this area.

Food Safety and Animal Health

Request for a competitive grants program titled "Food Safety and Animal Health" funded at a level of \$20,000,000 for FY 88 with increase to \$25,000,000 in FY 89.

Consumer confidence in the quality of the nation's food and water supply is an important goal of agriculture. American consumers are concerned about the potential of natural and man-made substances in the environment finding their way into the food chain. Microbial contaminants and chemical and antibiotic residues in foods of animal origin are particular areas of concern.

There is an increasing urgency to identify and prevent the introduction of infectious agents and chemical residues into the food chain where they would cause serious illness and deaths. With an increasingly immunologically deficient population, such as the aged, those with AIDS, or those on chemotherapy for cancer, it becomes even more important that potential infectious agents in the food chain be identified and eliminated before they can become serious opportunistic diseases. Furthermore, improvement in animal health quality and food products through detection of microbes and residues will benefit all food consumers and greatly enhance the U.S. export market.

A competitive research grants program would allow the development of means to better protect the consumer from potential microbial contaminants and chemical residues. Further development of biotechnology and computer based technology is needed to identify the critical control points of these threats and to rapidly identify and eliminate contaminants before they can enter the human food chain.

Research would address problems ranging from the production unit through the processing and eventual distribution of foods of animal origin. The application of computers and electronic data processing are needed for animal disease surveillance, epidemiology and risk management. Research programs would include on farm infection and residue detection methods and control measures, molecular epidemiology, cost-benefit analyses, economic assessment and improved management techniques.

The grants program could be administered through any federal agency organized to manage competitive grants and concerned with production and processing foods of animal origin.

This concept was initially developed at an AAVMC sponsored workshop in Morrilton, Arkansas in January 1987. It was defined in greater detail by the AAVMC in February 1987. The initial presentation to a congressional representative was made by Dean John B. Tasker and Dean James H. Anderson of Michigan State University to representative Bob Traxler in March 1987 and supported by Dean Tasker in testimony before the House Appropriations Subcommittee on Agriculture on April 7, 1987.

FOOD SAFETY AND ANIMAL HEALTH

SITUATION

Consumer confidence in the safety and wholesomeness of food products of animal origin has been negatively affected by recent unfortunate national publicity regarding contamination of poultry products by Salmonella sp., dairy products by Listeria sp. and the presence of E. coli in red meat products. Recent studies by the National Academy of Sciences document the need for more contemporary screening methods for food-borne diseases in animal products. The Food Safety Inspection Service, FDA and other federal agencies involved in safety and wholesomeness of human foods are requesting assistance in the development of more accurate and sensitive methods of detecting food-borne diseases in the food production and processing system.

In the U.S., there are an estimated 1.4 to 3.6 million cases of food-borne illness each year at a cost of \$1 to \$10 million. These costs include direct medical care, lost wages, product recalls, investigations, etc. which cost from \$200 to \$2,000 or more per reported episode. At least 33 percent of all reported outbreaks in a recent nine year survey are attributed to meat, poultry and fish.

Emerging medical problems and increased biomedical knowledge have documented that individuals, immunologically limited or deficient because of illness, aging and cancer or antibiotic chemotherapy, are a rapidly increasing population at risk. The sequelae to these exposures to unsafe food products include a spectra of clinical conditions ranging from moderate to severe illness and death. The recent highly publicized incidents in the news media are undoubtedly only the "tip of the iceberg."

RESEARCH THRUST

Research will address problems ranging from the production unit through processing and eventual distribution of food products. The application of computers and electronic data processing are needed for animal disease and management surveillance and epidemiology and risk management. Research problems would include methods of recognizing contamination or infection at the farm, tailgate and processing plants and the development of control measures using molecular epidemiology, economic assessment and systems management techniques.

OBJECTIVES

1. **Food borne disease detection.** Rapid, sensitive and accurate detection systems are a critical need for the control of microbial, biological and chemical pathogens.
2. **Critical control points.** Techniques must be identified for elimination of contaminants, on producer units, during transportation operations and throughout the processing system.
3. **Control measures.** Systems management techniques are needed for the entire food production and processing system that include improved management techniques that are economical and effective in providing consumer with safe and wholesome food.

Program Focus

The McIntire-Stennis Cooperative Forestry Research Program

Budget Recommendation

**National Association of
Professional Forestry
Schools and Colleges
and
Cooperative State Research Service,
U.S. Department of Agriculture**

February 1987

Program Focus

The McIntire-Stennis Forestry Research Program

The McIntire-Stennis Act (M-S) of 1962 was enacted to promote forestry research and graduate education recognizing that research and education are the driving forces for the Nation's wise and efficient development and use of forest and related rangeland resources. This Act authorized the Secretary of Agriculture to provide assistance on a matching basis to land-grant colleges, agricultural experiment stations and other state supported colleges or universities offering forestry education. The Act authorized Federal appropriations up to one half of the amount appropriated for Federal forestry research conducted directly by the Secretary of Agriculture.

Appropriations for the M-S programs have increased only modestly since 1964 attaining an appropriation of \$12.4 million in 1986—approximately 10 percent of the appropriations for Federal forestry research conducted directly by the Secretary of Agriculture.

The rationale for increasing McIntire-Stennis funding to \$25 million is to insure the continued effectiveness of the Act and to significantly strengthen the role of technology in increasing U.S. forestry competitiveness while providing greater non-commodity benefits from our vast forestlands.

Forests clearly play an important role in America's economic system and are intimately woven into the fabric of American society. From the morning newspaper to a spiritually renewing walk in the woods, forests enhance the quality of life for all Americans.

Our vast resource is the basis for a substantial portion of the national economy. The forest products industry adds about \$62 billion to the value of the U.S. economy each year, which represents 7.5 percent of the total value added in all manufacturing. In other words, 1 out of every 13 dollars of manufacturing value is generated by forest industries. Forest products companies employ 1,745,000 workers, or 1 out of every 11 people employed in U.S. manufacturing and contribute directly to economic development opportunities for rural communities.

In addition, forest-based tourism and recreation are primary local industries for many communities and contribute significantly to the national economy. The latest figures available are for 1977. Even then, an estimated \$160 billion were spent on outdoor recreation equipment, sporting goods, and admissions and fees. An additional \$60.2 billion were spent on outdoor vacations and trips in the United States.

Water, wildlife, and domestic animals also are important products of our forest and associated rangelands. All major rivers in the West and most in the East have their origins in forested mountains. These rivers furnish drinking water, hydroelectric power, and water for agriculture, industry, and communities. Forests and rangelands provide forage and shelter for livestock and wildlife and essential habitat for endangered plants and animals.

The clear need for increased forestry research is predicated on the realities of increased competition from foreign producers of wood products; increased demand for forest recreation, high quality water, and wildlife habitat; increased threats from environmental pollutants, insects and pathogens; and increased conversion of forestland to other uses. All

these pressures on the resource base demand a more substantial investment in forestry research and graduate education.

An appropriation of \$25 million will stimulate the development of technology and scientific expertise to increase U.S. forestry competitiveness and provide greater amenities from our forestlands. The focus of additional funds will be to:

- ▶ Enhance profitability for both industrial and non-industrial forest landowners;
- ▶ Expand domestic and foreign markets for forest products;
- ▶ Strengthen development of scientific and professional expertise;
- ▶ Expand biotechnology and basic research to increase productivity; and
- ▶ Increase our ability to produce timber while maintaining the water, wildlife, recreation and range resources.

These priority research objectives can be achieved through expanded programs in such areas as biotechnology, market development, expert systems for management strategies, and land use policies. In addition, expanded funding will meet the major goal of the McIntire-Stennis program by providing trained scientists with expertise to solve current and future forest resource problems.

Investment in this program has leveraged severalfold in non-federal funding. It offers an unprecedented opportunity for substantial advances in technologies to further U.S. forestry competitiveness, and to more adequately provide for the many and diverse products and rewards derived from our renewable forests.

The proposed investment will also allow the Nation's forestry schools to respond more effectively to the original intentions and expectations of the McIntire-Stennis Act.

WESTERN EXTENSION DIRECTORS REPORT
WESTERN EXPERIMENT STATION DIRECTORS MEETING
July 22-23, 1987
Reno, Nevada

At the November 1986 meeting of the Western Extension Directors in Phoenix, a decision was made to disband the Western Computer Consortium at the end of its third year in August 1987. The directors are working on a plan to continue computer related activities in the Western Region.

The last meeting of the Western Extension Directors was held on Guam and Saipan, February 9-12, 1987. Representatives from the Pacific Islands have been very active in the Western Extension meetings in recent years. Much of this meeting was devoted to better understanding the unique problems of the Pacific Island Extension Programs.

Dr. Johnsrud reported that Extension is evaluating its database system. The directors had considerable discussion on the need for guidelines for data collection and on the merit of the current system compared with the CRIS System. The Western Extension Directors encouraged the Federal Extension Service to explore the integration of the CRIS System into the Extension Service System when evaluating the database reclassification.

There was considerable discussion on the Western Region priorities and the amount or percent of resources expended on these priorities.

Current Research Information System

PC Derived File

50,000 Records

Tape Attributes:

Non-Labelled
6250 BPI
IBM-EBCDIC

File Attributes:

Logical Record Length = 88 bytes
Blocking Factor = 175 rec/block
Block Size = 15400 bytes

Record Description

<u>Field No.</u>	<u>Field Name</u>	<u>Starting Position</u>	<u>Ending Position</u>	<u>Length</u>
1.	Sequence Number	01	05	05
2.	Organization Affiliation	06	07	02
3.	Agency/Station Code	08	11	04
4.	State/Country Code	12	15	04
5.	Region Code	16	17	02
6.	Appropriation Code	18	18	01
7.	Activity Code	19	22	04
8.	Commodity Code	23	26	04
9.	Field of Science Code	27	30	04
10.	Research Problem Area Code	31	33	03
11.	Research Program Code	34	37	04
12.	Joint Council Code	38	39	02
13.	USDA APPR/CSRS ADM Funds	40	47	08
14.	USDA CGCA Funds	48	55	08
15.	Other Federal Funds	56	63	08
16.	Non-Federal Funds	64	71	08
17.	Total Funds	72	79	08
18.	Scientist Years	80	83	04
19.	Financial Fiscal Year	84	85	02
20.	Line Percentage	86	88	03
				<u>88</u>

FIELD SELECTION PANEL

A	Organization Affiliation	G	Commodity Code
B	Agency/Station Code	H	Field of Science Code
C	State Code	I	Research Problem Area
D	Region	J	Research Program Code
E	Appropriation Code	K	Joint Council Code
F	Activity Code		

F1 Delete current selections and begin again.

F3 Exit the program.

(RETURN) End selections.

Selection:

1
2
3
4
5

CODE SELECTION PANEL

ARROW keys - Move to selection.

(RETURN) - Select code.

ESC - End selections.

F1 - Erase selections and redo.

F3 - Return to Field Selection Panel.

F10 - Select all codes.

Organization Affiliation

-USDA Agencies

SAES

1890/Tuskegee

Forestry School

Veterinary School

Other Nonfed Inst

Agency/Station Code

-ACS	CALZ	FS	ILLZ	MASR	MISX	NH.	ORE	TEN	VT. Z
AL. X	COL	GEO	IND	MASV	MO.	NJ.	OREV	TENX	WIS
ALA	COLR	GEOR	INDR	MD.	MO. R	NJ. R	OREZ	TEX	WISR
ALAV	COLV	GEOV	IOW	MD. R	MO. V	NM.	PEN	TEXR	WISW
ALAX	CONH	GEOX	IOWR	MD. X	MO. X	NY. C	PENR	TEXV	WN. P
ALK	CONS	GUA	IOWV	ME.	MONB	NY. G	PENV	TEXX	WN. R
AR. X	DC.	HAW	KAN	MICL	MONZ	NY. R	PR.	TEXY	WN. Z
ARK	DEL	HNIS	KANV	MICR	NC.	NY. Z	RI.	UTA	WVA
ARS	DELX	IDA	KY.	MICY	NC. W	NYCV	RI. R	UTAR	WYO
ARZT	ERS	IDAV	KY. X	MICZ	NC. X	OHO	SAM	VA.	
ARZZ	FLA	IDAZ	LA. B	MIN	ND.	OHOR	SC.	VA. R	
CALB	FLAR	ILLR	LA. X	MINR	NEB	OHOV	SC. X	VA. X	
CALR	FLAV	ILLU	LA. Z	MINV	NEV	OKL	SC. Z	VI.	
CALV	FLAX	ILLV	MAS	MIS	NEVR	OKLX	SD.	VT.	

State Code

-ALA	GUA	ME	NM	UTA
ALK	HAW	MIC	NY	VA
AR	IDA	MIN	OHO	VI
ARK	ILL	MIS	OKL	VT
ARZ	IND	MO	ORE	WIS
CAL	IOW	MON	PA	WN
COL	IT	MX	PR	WVA
CON	KAN	NC	RI	WYO
DC	KE	ND	SC	
DEL	KS	NEB	SD	
FLA	KY	NEV	SMA	
FR	LA	NH	TEN	
GA	MAS	NJ	TEX	
GT	MD	NL	TH	

Region

-Foreign
 North Central
 Northeast
 Southern
 Western

Appropriation Code

-Animal Health
 Competitive Grant
 CSRS Grant (PL 89-106)
 Hatch
 McIntire-Stennis
 State (SAES/OCI/CSVM/GMDE)
 Evans-Allen
 USDA Agency

CRIS CLASSIFICATIONS -- FUNDS AND SCIENTIST YEARS, FY 1985

* Region: Western
 ** Organization affl.: SAES
 *** Commodity: 1200
 Agency: all

	CSRS/USDA	CGCA/USDA	OTHER FED	NON-FED	TOTAL	SYS
ALK	17,278	0	0	310,462	327,740	0.7
ARZT	52,500	36,684	61,617	1,359,468	1,510,269	10.2
CALB	336,286	126,261	274,751	6,529,189	7,266,486	34.2
COL	158,550	29,704	12,555	316,328	517,137	3.8
GUA	298,758	0	0	108,286	407,043	1.9
HAW	455,828	42,695	15,700	1,558,428	2,072,651	15.1
IDA	155,673	37,659	28	1,210,191	1,403,551	7.4
MONE	61,027	1,131	2,128	207,485	271,771	1.7
NEV	1,773	0	0	49,913	51,686	0.3
NM.	130,678	2,124	24,719	814,230	971,752	7.4
ORE	217,354	769	48,269	660,090	926,483	11.1
SAM	190,000	0	0	0	190,000	0.4
UTA	16,931	0	0	25,533	42,463	0.4
WN.P	406,406	24,174	793,442	1,668,086	2,892,108	11.9
WYO	10,869	0	0	58,116	68,985	0.8
*** COM85 -- 1200	2,509,911	301,201	1,233,208	14,875,804	18,920,124	107.3
** ORGAN85 -- SAES	2,509,911	301,201	1,233,208	14,875,804	18,920,124	107.3
REGION85 -- Western	\$2,509,911	\$301,201	\$1,233,208	\$14,875,804	\$18,920,124	107.3
RAND TOTAL	\$2,509,911	\$301,201	\$1,233,208	\$14,875,804	\$18,920,124	107.3

CRIS CLASSIFICATIONS -- FUNDS AND SCIENTIST YEARS, FY 1985

96

Agency: CALB
Commodity: 1200
Research Prob. Area: all

	CSRS/USDA	CGCA/USDA	OTHER FED	NON-FED	TOTAL	SYS
102	3,112	0	21,891	76,426	101,429	0.7
103	488	0	146	45,980	46,613	0.3
105	11,201	19,590	0	334,450	365,240	1.5
106	0	0	0	2,571	2,571	0.0
204	36,778	4,476	26,707	1,023,633	1,091,594	4.8
205	118,645	1,334	90,615	1,971,857	2,182,452	10.3
206	19,626	62,142	1,530	109,277	192,574	0.8
214	2,839	0	457	34,019	37,314	0.2
304	72,237	25,421	88,618	1,343,534	1,529,809	7.0
305	4,126	0	0	81,358	85,484	0.5
402	16,966	0	1,089	472,103	490,158	2.1
403	9,808	0	20,072	336,689	366,569	1.7
404	17,338	0	22,246	467,174	506,758	2.9
501	1,278	544	47	41,351	43,219	0.1
506	3,884	0	62	31,485	35,431	0.2
701	5,504	12,755	61	71,941	90,261	0.4
702	2,456	0	574	34,566	37,596	0.3
708	10,000	0	636	50,487	61,123	0.4
901	0	0	0	291	291	0.0
** COM85 -- 1200	336,286	126,261	274,751	6,529,189	7,266,486	34.2
AGENCY85 -- CALB	\$336,286	\$126,261	\$274,751	\$6,529,189	\$7,266,486	34.2

=====
GRAND TOTAL \$336,286 \$126,261 \$274,751 \$6,529,189 \$7,266,486 34.2
=====

CRIS CLASSIFICATIONS -- FUNDS AND SCIENTIST YEARS, FY 1985

Commodity: 3000
 Region: Western
 * Organization affl.: SAES
 Agency: all

	CSRS/USDA	CGCA/USDA	OTHER FED	NON-FED	TOTAL	SYS
ALK	0	0	0	31,279	31,279	0.2
ARZI	197,927	1,824	7,500	1,035,061	1,242,312	8.5
CALB	316,744	50,595	44,333	1,751,179	2,162,852	10.8
COL	763,450	46,782	1,453,162	2,475,977	4,739,370	23.8
HAW	74,693	0	0	664,072	738,765	4.8
IDA	332,775	13,045	0	843,543	1,189,363	5.5
MONE	281,013	158,052	5,386	2,320,349	2,764,800	9.7
NEV	240,125	0	12,885	885,333	1,138,342	5.6
NM.	333,415	207,853	0	1,056,413	1,597,681	8.9
ORE	130,406	0	505,976	1,347,209	1,983,591	12.7
UTA	101,259	0	0	419,689	520,948	3.4
WN.P	229,853	2,130	18,449	1,107,571	1,358,003	5.5
WYO	576,414	0	298,391	1,097,181	1,971,986	16.1
*** ORGAN85 -- SAES	3,578,073	480,281	2,346,081	15,034,856	21,439,292	115.4
*** REGION85 -- Western	3,578,073	480,281	2,346,081	15,034,856	21,439,292	115.4
COM85 -- 3000	\$3,578,073	\$480,281	\$2,346,081	\$15,034,856	\$21,439,292	115.4
GRAND TOTAL	\$3,578,073	\$480,281	\$2,346,081	\$15,034,856	\$21,439,292	115.4

CRIS CLASSIFICATIONS --- FUNDS AND SCIENTIST YEARS, FY 1985

98

Agency: COL
Commodity: 3000
Research Prob. Area: all

	CSRS/USDA	CGCA/USDA	OTHER FED	NON-FED	TOTAL	SYS
211	324,985	35,516	846,238	941,714	2,148,453	9.0
212	3,106	0	32,006	16,859	51,970	0.4
213	15,838	0	288,835	9,971	314,644	1.4
310	87,368	6,981	227,659	669,061	991,070	4.1
311	185,339	4,285	55,885	653,745	899,254	5.7
312	44,878	0	0	48,300	93,178	0.9
313	57,850	0	2,135	94,102	154,087	1.4
410	17,964	0	0	31,939	49,904	0.4
508	19,386	0	0	1,458	20,844	0.3
708	6,735	0	404	8,827	15,967	0.1

** COMB5 -- 3000	763,450	46,782	1,453,162	2,475,977	4,739,370	23.8
AGENCY85 -- COL	\$763,450	\$46,782	\$1,453,162	\$2,475,977	\$4,739,370	23.8

RAND TOTAL	\$763,450	\$46,782	\$1,453,162	\$2,475,977	\$4,739,370	23.8
------------	-----------	----------	-------------	-------------	-------------	------

CRIS CLASSIFICATIONS -- FUNDS AND SCIENTIST YEARS, FY 1985

Agency: W.N.P
Appropriation: all

	CSRS/USDA	CGCA/USDA	OTHER FED	NON-FED	TOTAL	SYS
Animal Health	144,603	3,000	0	1,375,933	1,523,536	5.5
Competitive Grant	105,431	0	36,312	74,408	216,151	1.2
CSRS Grant (PL 89-106)	494,229	25,440	0	435,298	954,967	5.1
Hatch	2,917,698	315,787	2,463,890	13,592,089	19,289,464	122.0
McIntire-Stennis	197,942	41,966	86,419	242,884	569,211	3.9
State (SAES/OCI/CSVM/GMDE)	0	76,746	11,810	973,338	1,061,894	3.1
AGENCY85 -- W.N.P	\$3,859,903	\$462,939	\$2,598,431	\$16,693,950	\$23,615,223	140.8
RAND TOTAL	\$3,859,903	\$462,939	\$2,598,431	\$16,693,950	\$23,615,223	140.8

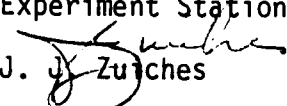
.....	</	
-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	---------	--

Washington State University

Agricultural Research Center, 403 Hulbert Hall, Pullman, Washington 99164-6240 / 509-335-4563

M E M O R A N D U M

TO: Western Association of Agricultural
Experiment Station Directors

FROM: J. J.  Zuchies

DATE: July 16, 1987

SUBJECT: IR-2 Status Report

The IR-2 Technical Committee met on March 25-27, 1987 in Prosser, Washington to review the candidates for the position of plant pathologist in charge of the IR-2 project. The Technical Committee discussed extensively the responsibilities of the new leader and the relationship between the service activities (objectives A and B) and the research activities (objectives C and D) of IR-2. The Technical Committee also discussed the required facilities and equipment for an increased orientation towards virus detection research as part of the IR-2 project. The Technical Committee recommended that a request be made to the Committee of Nine for funds to provide for equipment and transition costs in hiring the new IR-2 leader. I detailed the discussion and needs in my memo of April 29, 1987, to A. Smith, Chair, Committee of Nine.

Subsequent events have changed the funding needs of IR-2 and the management strategies during this period of transition since the retirement of Paul Fridlund. The Department of Plant Pathology, WSU, interviewed candidates for the position of Plant Pathologist in charge of the IR-2 project. The hiring process did not result in finding a replacement. After WSU offered the position to one candidate and was declined, the decision was made to continue leadership of the IR-2 internally. Dr. Gaylord Mink has agreed to continue to serve as leader and Plant Pathologist in charge of the IR-2 for the duration of this approved project, to September 30, 1990.

The request to the Committee of Nine for additional support for the IR-2 for FY88 was denied. The Committee of Nine recommended no change in the direction of IR-2, i.e. no increase in the research program but rather a continuation of the service and research programs at current levels of funding. Secondly, the Committee of Nine is recommending a blue ribbon committee to be established to review all IR projects to determine if current procedures are adequate, and to assess current projects in relation to the definitions of IR projects. These decisions of level funding and a major review of all IR projects argue against hiring a new faculty member during this period of transition.

On May 22, 1987, E. N. Boyd and John Fulkerson, Gaylord Mink, Lin Faulkner and I met to discuss the funding needs and orientation of IR-2 for the future. As I have already indicated, Gaylord Mink has agreed to continue as Plant Pathologist of IR-2. One result of our extensive discussion, building on the

Technical Committee's discussion of March, is the creation of a new position funded by the IR-2 project: scientific assistant. This individual will consult with the various groups and the Variety Advisory Committee about varieties to be introduced into the program, coordinate the introduction, indexing, heat treatment, propagation, maintenance and distribution to public varieties; coordinate the production of plant materials needed for repository in research activities; evaluate and adapt virus detection techniques to repository needs; evaluate and adapt methods for maintaining virus cultures; and evaluate and adapt methods for plant propagation and maintenance. This individual will report to the project director and supervise the day-to-day activities of the laboratory and plant technicians and farm staff.

We will continue to plan for an October 1987 meeting, of the IR-2 Technical Committee to review the Committee of Nine decisions and plan for the future of IR-2.

JJZ/ni

7/16 WAAES (jz4)

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS

Report on IR-7
July 22, 1987
R. D. Heil

IR-7 (Rev.) - Chemistry of Atmospheric Deposition - Effects on Agriculture, Forestry, Surface Waters and Materials was conditionally approved by the Committee of Nine for RRF funding beginning October 1, 1987 through September 30, 1992. The IR-7 Executive Committee is revising project objectives as per instructions from the Committee of Nine. Approval of the project is anticipated once the revisions are completed.

The recommendations for off-the-top funding for IR-7 for FY 1988 is \$87,933. This compares to \$85,662 for FY 1987.

A concern has developed over the past year among the various agencies supporting NADP/NTN sites that they would no longer be able to contract for analytical services to the Illinois State Water Survey. The basis for this concern has been the requirement by agency contracting offices that such services be advertised for bid, and that the agencies could no longer "sole source". Efforts are being made to solve this problem and maintain the contract with Illinois as a sole source contractor for analysis. The major concern is to maintain the integrity of the laboratory data. All cooperating agency scientists are fully supportive of having a single laboratory conducting analysis.

RESEARCH IMPLEMENTATION COMMITTEE REPORT

RIC met Monday, July 20, 1987 at the Hilton Hotel in Reno, Nevada. Members present were: M. H. Niehaus (Chair), R. R. Bay, W. D. Carlson, W. G. Chace, Jr., L. J. Koong, I. W. Sherman (for S. D. Van Gundy), G. W. Ware; Guests - J. Meyers (CRIS), D. E. Schlegel; Ex-officio members L. L. Boyd and H. A. Sykes

1.0 REGIONAL RESEARCH PROJECTS AND COORDINATING COMMITTEES SCHEDULED TO
TERMINATE ON OR BEFORE SEPTEMBER 30, 1987

W-163 Surge Flow Surface Irrigation
W-165 Rural Credit Systems in the West: the Role of Public Lending
 Programs

2.0 REQUESTS FOR PROJECT EXTENSIONS

2.1 IR-4 A National Agricultural Program: Clearances of Chemicals and
Biologics for Minor or Special Uses

A request for a one-year extension to 09/30/88 was received from Administrative Advisor G. W. Ware (AZ). The request for extension was approved by the other three regions at their spring meetings and has been approved by CSRS.

RIC concurs with the other three regional associations and CSRS that IR-4 be extended for one year, to 9/30/88, with G. W. Ware (AZ) to continue as Administrative Advisor from the Western Region.

(Action of WDA: Approved)

3.0 REQUESTS FOR PROJECT REVISIONS

3.1 W-110 Interactions Between Bark Beetles and Pathogens and Their
Influence on Forest Productivity

A revised project outline bearing the above title was received from Administrative Advisor W. W. Allen (CA-B).

RIC recommends approval of the project for a period of five years, from October 1, 1987 to September 30, 1992 with Dr. W. W. Allen (CA-B) to continue as Administrative Advisor. Before the project is submitted to C/9, minor editorial changes are recommended by RIC.

(Action of WDA: Approved)

3.2 W-118 Impacts of Human Migration Flows on Nonmetropolitan People and
Places

A revised project outline bearing the above title was received from Administrative Advisor J. J. Zuiches (WA).

RIC recommends approval of the project for a period of five years, from October 1, 1987 to September 30, 1992 with Dr. J. J. Zuiches (WA) to continue as Administrative Advisor. Before the project is submitted to C/9, minor editorial changes are recommended by RIC.

(Action of WDA: Approved)

3.3 W-162 Resolving Competing Demands for Rural Land Resources

A revised project outline bearing the above title was received from Administrative Advisor J. M. Hughes (CO) on behalf of W-162 "Interrelationships Among Low Intensity Land Uses, Population Growth, and Public Lands in the West."

RIC recommends approval of the project for a period of five years, from October 1, 1987 to September 30, 1992 with Dr. J. M. Hughes (CO) to continue as Administrative Advisor. Before the project is submitted to C/9, minor editorial changes are recommended by RIC.

(Action of WDA: Approved)

4.0 REQUESTS FOR ESTABLISHMENT OF NEW PROJECTS

4.1 W- Adaptive Control of Surface Irrigation Systems

A project outline bearing the above title was received from Administrative Advisor D. J. Matthews (UT) on behalf of W-163 "Surge Flow Surface Irrigation."

RIC recommends the outline be deferred and to designate Ad Hoc Technical Committee "W- Adaptive Control of Surface Irrigation Systems" for a period of one year, to 7/20/88, to allow the committee to rewrite the procedures section of the outline to address RIC concerns.

(Action of WDA: Approved)

5.0 REQUESTS FOR ESTABLISHMENT OF AD HOC TECHNICAL COMMITTEES

5.1 W- Effects of Africanized Honey Bees on Pollination by Solitary Bees and European Honey Bees

A request for an ad hoc technical committee for the above titled subject was received from D. E. Schlegel (CA-B) with L. J. Koong (OR) as the second requesting Director.

RIC recommends establishment of Ad Hoc Technical Committee "W- Effects of Africanized Honey Bees on Pollination by Solitary Bees and European Honey Bees" for one year, to 7/20/88.

(Action of WDA: Approved)

5.2 W- Firm Survival and Growth

A request for an ad hoc technical committee for the above titled subject was received from J. R. Welsh (MT) and C. C. Kaltenbach (WY).

RIC recommends establishment of Ad Hoc Technical Committee "W- Firm Survival and Growth" for a period of one year, to 7/20/88. It is recommended that the title be more definitive and that the objectives, as stated, be refined.

(Action of WDA: Approved)

6.0 REQUESTS FOR WRCC RENEWALS OR EXTENSIONS

6.1 WRCC-17 Control of Fruiting

A request for a three-year extension of WRCC-17 was received from Administrative Advisor C. J. Weiser (OR).

RIC recommends approval of extension of WRCC-17 for a period of three years, from 10/1/87 to 9/30/90, with Dr. C. J. Weiser (OR) to continue as Administrative Advisor.

(Action of WDA: Approved)

6.2 WRCC-28 Developing, Implementing, and Coordinating Research on Crop Loss Appraisals

A request for a one-year extension of WRCC-28 was received from Administrative Advisor M. V. Wiese (ID).

RIC recommends approval of extension of WRCC-28 for one year, from 10/1/87 to 9/30/88, with Dr. M. V. Wiese (ID) to continue as Administrative Advisor.

(Action of WDA: Approved)

6.3 WRCC-56 Overstory-Understory Relationships in Western Forests and Woodlands

A request for a three-year extension of WRCC-56 was received from Administrative Advisor F. Gifford (NV).

RIC recommends approval of extension of WRCC-56 for three years, from 10/1/87 to 9/30/90, with Dr. F. Gifford (NV) to continue as Administrative Advisor.

(Action of WDA: Approved)

6.4 WRCC-58 Production, Transition Handling, and Reestablishment of Perennial Nursery Stock

A request for a three-year extension of WRCC-58 was received from Administrative Advisor C. J. Weiser (OR).

RIC recommends approval of extension of WRCC-58 for three years, from 10/1/87 to 9/30/90, with Dr. C. J. Weiser (OR) to continue as Administrative Advisor.

(Action of WDA: Approved)

6.5 WRCC-59 Influence of Micro-Climate and Nutrition on Physiological Responses of Poultry

A request for a three-year extension of WRCC-59 was received from Administrative Advisor G. H. Arscott (OR).

RIC recommends approval of extension of WRCC-59 for three years, from 10/1/87 to 9/30/90.

(Action of WDA: Approved)

7.0 REQUESTS FOR ESTABLISHMENT OF NEW WRCC'S

7.1 WRCC- Rural Credit Systems in the West

A petition for a WRCC bearing the above title was received from Administrative Advisor D. M. Briggs (NM) on behalf of W-165 "Rural Credit Systems in the West: The Role of Public Lending Programs."

RIC recommends approval of WRCC-63 "Rural Credit Systems in the West" for a period of three years, from 10/1/87 to 9/30/90. RIC encourages the committee to solicit more participants.

(Action of WDA: Approved)

7.2 WRCC- The Impact of the Teaching and Learning Process on Education in Agriculture (ITALPEA)

A petition for a WRCC bearing the above title was received from Directors G. A. Lee (ID) and L. W. Dewhirst (AZ) on behalf of interested scientists.

RIC recommends that the petition be deferred. Much of the proposed work is being done within CSRS under the auspices of Dr. Jane Coulter. RIC recommends the proposed committee work with RICOP and with Dr. Coulter to accomplish the objectives of the petition.

(Action of WDA: Approved)

7.3 WRCC- Improving Data Quality and Methodology in Rural Social Sciences

A petition for a WRCC bearing the above title was received from Administrative Advisor J. J. Zuiches (WA) on behalf of the ad hoc coordinating committee "WRCC- Improving Data Quality and Methodology in Rural Social Sciences."

RIC recommends approval of WRCC-64 "Improving Data Quality and Methodology in Rural Social Sciences" for a period of three years, from 10/1/87 to 9/30/90, with Dr. J. J. Zuiches (WA) to continue as Administrative Advisor.

(Action of WDA: Approved)

7.4 WRCC- Sustainable Agriculture

A request for establishment of an ad hoc coordinating committee to develop a petition for WRCC- "Sustainable Agriculture" was received from D. E. Schlegel (CA-B) and J. J. Zuiches (WA).

RIC recommends approval of the ad hoc coordinating committee "WRCC- Sustainable Agriculture" for a period of one year, to 7/20/88.

(Action of WDA: Approved)

7.5 WRCC- Western Extension Computer Applications Committee (WACAC)

A request for establishment of an ad hoc coordinating committee to develop a petition for WRCC - "Western Extension Computer Applications Committee" was received from G. Nelson (OR) and W. Rasmussen (ID).

RIC tabled action on the request as proper procedures were not followed in submitting the request. The request was not submitted by two Directors.

(Action of WDA: Approved)

8.0 FOLLOW-UP OF AD HOC TECHNICAL AND COORDINATING COMMITTEES

8.1 WRCC- International Marketing of Western U.S. Agricultural Products

No report of activities of the committee has been received.

8.2 WRCC- Improving Data Quality and Methodology in Rural Social Sciences

See item 7.3 above.

9.0 ADMINISTRATIVE ADVISOR ASSIGNMENTS

RIC makes the following appointments to or changes in Administrative Advisor assignments effective immediately:

W-154 Crop Productivity as Limited by the Rhizosphere and by Water and Nutrient Use Efficiencies -- W. R. Gardner (CA-B) to replace L. N. Lewis (CA-S)

W-166 Characteristics and Feed Value of Barley and Western Protein Supplements for Swine -- D. M. Briggs (NM) to replace D. J. Matthews (UT)

W-171 Germ Cell and Embryo Development and Manipulation for the Improvement of Livestock -- L. J. Koong (OR) to replace D. A. Price (ARS) and R. E. Witters (OR)

Ad Hoc W- Adaptive Control of Surface Irrigation Systems -- K. E. Foster (AZ)

Ad Hoc W- Effects of Africanized Honey Bees on Pollination by Solitary Bees and European Honey Bees -- W. W. Allen (CA-B)

Ad Hoc W- Firm Survival and Growth -- C. C. Kaltenbach (WY)

WRCC-39 Increased Efficiency in Sheep Production and Marketing of Lamb and Mutton -- A. Linton (MT) to replace F. C. Hinds (WY)

WRCC-59 Influence of Micro-Climate and Nutrition on Physiological Responses of Poultry -- R. E. Burger (CA-D) to replace G. H. Arscott (OR)

WRCC-60 Resistance and Resistance Management to Pesticides in Pests and Beneficial Organisms -- T. R. Fukuto (CA-R) to replace J. Capinera (CO)

WRCC-63 Rural Credit Systems in the West -- J. Hillman (AZ)

Ad Hoc WRCC- Sustainable Agriculture -- D. E. Schlegel (CA-B)

10.0 SECOND AND FOURTH-YEAR REVIEWS OF REGIONAL PROJECTS AND COORDINATING COMMITTEES

RIC had the benefit of historical data on personnel, funding and publications summarized from the DAL office for each review. Written RIC review comments were discussed in committee and will be sent to Administrative Advisors. The following projects and coordinating committees appear to be progressing satisfactorily with good publication records, adequate resources and/or participation, and the committees are following their stated objectives:

<u>No.</u>	<u>Project/Committee</u>	<u>Advisor</u>	<u>Reviewer</u>
<u>Two Year Reviews</u>			
W-173	Stress Factors of Farm Animals and Their Effects on Performance	Koong	Carlson
W-175	Consumer Health Influenced by Clothing and Household Fabrics	Wallace	Boyd

IR-6	National and Regional Research Planning, Evaluation, Analysis, and Coordination	Clark	Bay
WRCC-01	Beef Cattle Breeding Research in Western Region	Jones	Carlson
WRCC-24	Diseases and Pests of Grape Crops	Ferris	Ware
WRCC-27	Potato Variety Development	Rasmussen	Niehaus
WRCC-28	Developing, Implementing, and Coordinating Research on Crop Loss Appraisals	Wiese	Van gundy
WRCC-47	Climatic Data and Analyses for Applications in Agriculture and Natural Resources	Gardner	Bay
WRCC-60	Resistance and Resistance Management to Pesticides in Pests and Beneficial Organisms	Capinera	Ware

Four Year Reviews

W-045	Environmental Distribution, Transformation and Toxicological Implications of Pesticide Residues	Ware	Van Gundy
W-102	Integrated Methods of Parasite Control for Improved Livestock Production	Dewhirst	Carlson
W-126	Integration of Physiological and Morphological Criteria for Forage Plant Breeding	Ozbun	Niehaus
W-130	Freeze Damage and Protection of Fruit and Nut Crops	Foster	Chace
W-168	Seed Production and Quality Investigations	Ozbun	Ware

RIC has specific comments to make concerning the following projects and coordinating committees:

Two Year Reviews

W-006	Plant Germplasm Introduction, Increase, Evaluation, Documentation, Maintenance and Distribution	Niehaus	Bay
-------	---	---------	-----

The RIC reviewer notes that there is a need to increase membership from the states and recommends that participating states make an effort to attend the meetings of the committee.

W-084 Establish, Improve, and Evaluate Bio- Van Gundy Ware
 logical Control in Pest Management
 systems of Plants

The RIC reviewer suggests that the committee may be too large and that perhaps two subprojects within the regional project with coordination and exchange of information between the two groups, or two separate projects might be considered in the future.

W-161 Integrated Pest Management for Semiarid Schlegel Koong
 Dryland and Irrigated Agroecosystems in the
 Western Region

RIC notes that the project functions more as a WRCC and that the Western Directors consider reverting W-161 to WRCC status in the future.

W-172 Genetic Engineering to Improve Plant Bulla Van Gundy
 Health and Production Efficiency

RIC recommends that the project be strengthened by having more participation from the region.

W-174 Predicting the Nutritive Value of Koong Chace
 Alfalfa Hay in the Western Region

RIC reviewer is concerned that interest in the project appears to be diminishing. The committee is encouraged to solicit more involvement of animal and crop scientists.

IR-2 The Interregional Program for Zuiches Niehaus
 Collecting, Maintaining and
 Distributing Virus-Free Tree
 Fruit Clones

RIC reports that the Committee of Nine has indicated that off-the-top funding for IR-2 may not be approved for FY88/89. Establishment of a national ad hoc committee to evaluate funding of all IR projects has been recommended by the Committee of Nine. It is to be noted that the research quality and performance of IR-2 is not criticized.

WRCC-37 Maximizing the Effectiveness of Bees Plowman Chace
 as Pollinators of Agricultural Crops

The RIC reviewer encourages the committee to increase attendance and participation.

WRCC-40 Western Rangeland Research Laycock Koong

RIC compliments the committee for their activities and for their efforts in working with the Society of Range Management.

Four Year Reviews

W-166 Characteristics and Feed Value of Matthews Koong
 Barley and Western Protein Supplements
 for Swine

RIC notes that the committee should make more effort to publish research findings and results.

W-167 Coping with Stress: Adaptation of Non- Rice Bay
 metropolitan Families to Socioeconomic
 Changes

RIC recognizes that the project is progressing very satisfactorily and commends the committee for its good work.

ADMINISTRATIVE ADVISOR ASSIGNMENTS AS OF 7/20/87

ADMINISTRATIVE ADVISOR	WESTERN REGIONAL PROJECTS			WESTERN REGIONAL COORDINATING COMM.
Allen, W.W. (CA-B)	W-110	W-Bees		WRCC-43
*Bell, E. (FS-CA)	W-133+			
Briggs, D.M. (NM)	W-166	IR-5+	W-179	
**Brink, K.M. (CO)				WRCC-11
Bulla, L.J. (WY)	W-172			
**Burger, R.E. (CA-D)				WRCC-59
Clark, C.E. (UT)	W-122	IR-6+		
*Chace, W.G. (ARS,CA)	W-164+	IR-2+		
* Dewhirst, L.W. (AZ)	W-102	W-151		
**Ferris, H. (CA-D)				WRCC-24
Foster, K.E. (AZ)	W-130	W-Irrig:		WRCC-21
**Fukuto, T.R. (CA-R)				WRCC-60
Gardner, W. (CA)	W-154			WRCC-47
**Gifford, F. (NV)				WRCC-56
Heil, R.D. (CO)	W-160+	IR-7+		WRCC-50
Heimsch, R. (ID)				WRCC-52
**Hillman, J. (AZ)				WRCC-63
Hughes, J.M. (CO)	W-133+	W-162		
Jones, B.M. (NV)	W-177			WRCC-01
Kaltenbach, C.C. (WY)	W-112	W-Firms:		
Kefford, N.P. (HI)	W-082			
Koller, L.D. (OR)				WRCC-46
Koong, L.J. (NV)	W-171	W-173	W-174	
**Laycock, W.A. (WY)				WRCC-40
Lee, G.A. (ID)	W-147	W-170		
**Lund, L.J. (CA-R)				WRCC-30
Lyons, J.M. (CA-D)	W-158	W-164+		
**Mathre, D.E. (MT)				WRCC-29
McHugh, H.F. (CO)	W-153			
**Nelson, M.R. (AZ)				WRCC-20
Niehaus, M.H. (CO)	W-006	W-157		
Nielsen, D.R. (CA-D)	W-128			WRCC-62
Oldenstadt, D.L. (WA)	W-140	W-106		WRCC-IM
Ozbun, J.L. (WA)	W-126	W-168		
**Plowman, R.D. (UT)				WRCC-37
**Rasmussen, H.P. (WA)				WRCC-27
Rice, R.R. (AZ)	W-167	W-176		
**Rogers, L.F. (WA)				WRCC-55
Schlegel, D.E. (CA-B)	W-161			WRCC-SA
**Shoemaker V. (CA-R)				WRCC-42

* USDA research administrators

** Other research administrators

+ Designates Co-Administrative Advisor in a project with Co-Advisors

ADMINISTRATIVE ADVISOR ASSIGNMENTS AS OF 7/20/87

ADMINISTRATIVE ADVISOR	WESTERN REGIONAL PROJECTS			WESTERN REGIONAL COORDINATING COMM.
Smith, D.W. (NM)	W-155			
**Studer, H. (CA-D)				WRCC-51
Van Gundy, S.D. (CA-R)	W-84	W-134		
*van Schilfgaarde, J. (CO)	W-160+			WRCC-54
Van Volk, V. (OR)	W-132			
Wallace, S.A. (NV)	W-175			WRCC-23
Ware, G.W. (AZ)	W-045	W-169	IR-4+	
**Warkentin, B.P. (OR)				WRCC-61
**Weiser, C.J. (OR)				WRCC-17 : WRCC-58
Welsh, J.R. (MT)	W-150			
Wiese, M.V. (ID)		IR-1+		WRCC-28
Woodburn, M.J. (OR)	W-143			WRCC-57
Zuiches, J.J. (WA)	W-118	IR-2+		WRCC-64

* USDA research administrators

** Other research administrators

+ Designates Co-Administrative Advisor in a project with Co-Advisors

REPORT TO WESTERN DIRECTORS ASSOCIATION

Reno, Nevada
July 22-24, 1987

Submitted by Colin Kaltenbach

ESCOP INTERIM COMMITTEE MEETING

The ESCOP Interim Subcommittee convened in Minneapolis, Minnesota, June 25-26, 1987. Following is a list of information items and actions taken during this meeting:

1. Received an update on germplasm issues by R. L. Lower.
2. Adopted a final version of the FY89 ESCOP budget as presented by Committee Chair Dr. R. G. Gast.
3. Reviewed progress of the ongoing efforts to select certain CEO's who will be asked to visit with OMB in support of our budget efforts.
4. Adopted the concept of asking each experiment station and extension director to contribute to a central fund in the Division of Agriculture that will be utilized to hire an individual who will coordinate educational efforts with members of Congress with particular reference to the water initiative that is contained in the FY88 and FY89 budgets.
5. Adopted a position statement for use by ESCOP in discussions with ECOP as we attempt to develop a policy that will address the 1985 Farm Bill language relative to the conduct of research by the cooperative extension service.
6. Reviewed the format for the upcoming biotechnology information conferences.
7. Approved appointment of an ad hoc task force to review and develop a budget initiative in the area of pest resistance.

The next meeting of ESCOP will be September 20-23 in Jackson, Wyoming.

WATER QUALITY AND MANAGEMENT INITIATIVE

Position:

Water Initiative Coordinator

Responsibilities:

Principal responsibilities shall be to provide scientific leadership to the national water quality and management initiative of the Extension and Experiment Station Sections of the Division of Agriculture. He and will function as a member of The Office of Food and Agriculture, NASULGC, but will be programatically responsible to the Chairmen of the Extension Section and Experiment Station Section.

Specific responsibilities will include the following:

- a) Work with and through the ECOP and ESCOP chairpersons on this national issue
- b) Provide leadership in Washington to achieve adoption of the plan of action.
- c) Assist as needed with the responsibilities of the ECOP and ESCOP Legislative and Budget Subcommittees:
 - with USDA and other federal agencies
 - with Division of Agriculture relationships
 - with Washington based agricultural groups
 - with other related private sector organizations

Nature of Appointment: The position is tentatively scheduled to begin on September 1, 1987, or when subsequently filled and will be established for approximately six months, as needed to carry out the assignment.

Contract: The Association (NASULGC) will serve as fiscal agent to the project.

Assessments are suggested as follows (to be evenly divided between Extension and the Experiment Station state by state):

-1862's-

\$1,000
 U. of Alaska
 U. of Nevada
 U. of Rhode Island
 U. of Delaware
 U. of Hawaii
 Montana State U.
 U. of N. Hampshire
 New Mexico State U.
 U. of Vermont
 Utah State U.
 U. of Wyoming
 U. of Connecticut

\$1500
 U. of Arizona
 Colorado St. U.
 U. of Florida
 U. of Idaho
 U. of Maine
 U. of Maryland
 U. of Massachussets
 U. of Nebraska
 Rutgers U.
 N. Dakota State U.
 Oregon State U.
 S. Dakota State U.
 Washington State U.
 W. Virginia U.

\$2,000
 Clemson U.
 Auburn U.
 U. of Calif.
 U. of Georgia
 U. of Illinois
 Purdue U.
 Iowa State U.
 Kansas State U.
 U. of Kentucky
 Louisiana State U.
 U. of Minnesota
 Michigan State U.
 Miss. State U.
 U. of Missouri
 N. Carolina State U.
 Cornell U.
 Ohio State U.
 Oklahoma State U.
 Penn State U.
 U. of Tennessee
 Texas A&M U.
 VPI U.
 U. of Wisconsin
 U. of Arkansas

-1890's and Territories-

\$300
 U. of Arkansas-Pine Bluff
 Delaware State College
 U. of DC
 Florida A&M U.
 U. of Guam
 Southern U.
 U. of Maryland-Eastern Shore
 Langston U.
 Virgin Islands U.

\$500
 Alabama A&M U.
 Tuskegee U.
 Ft. Valley State College
 Kentucky State U.
 Alcorn State U.
 Lincoln U.
 N.C. A&T State U.
 S. Carolina St. College
 Prairie View A&M U.
 Tennessee State U.
 Virginia State U.
 U. of Puerto Rico

Communications Planning Proposal
For
Administrators and Communicators
At
State Agricultural Experiment Stations

Background and Rationale

The ESCOP Subcommittee on Communications is charged with studying, identifying and offering recommendations for strengthening SAES communications and for improving dissemination of research results nationally.

Although the Subcommittee sponsored three workshops for administrators and communicators between 1982-1986, there is little indication that states have actually developed effective Station communication plans. It also appears that the administrators and communicators differ widely on their perception of the Station's objectives, audiences and communications needs.

In January, 1987, the Subcommittee met in Atlanta to propose guidelines and strategies for helping states develop their own communication plans. Plans would provide a clear understanding of the Station's purpose, its audience, steps in the communications process, and a clarification of the intended outcome. The planning process should also improve understanding and the working relationships between administrators and communicators and provide an effective method for communicating the Station's mission and accomplishments to state and national audiences.

On May 1 the subcommittee received word of ESCOP's approval of the plan. Joe Marks, Missouri, edited materials from the Atlanta meeting and prepared a sample communication plan. This mailing was followed by a teleconference on June 4, which included a discussion of the proposed process.

On July 2, Meg Ashman, Vermont, mailed a summary of the teleconference comments relative to the project. In that report, she also outlined action points and areas needing further considerations.

On July 12, Meg Ashman, Joe Marks, Bonnie Riechert, Tennessee, and Jeanne Gleason, New Mexico, held an extensive meeting to outline a proposed course of action and to address the concerns outlined in earlier documents. Patricia Lewis, CSRS, submitted additions from a national perspective.

The ACE Board was informed of the communications plan concept on July 12, and the plan was presented at the National ACE meeting in Baton Rouge. Written reports were distributed to committee members for follow-up and promotion with regional SAES directors.

Objectives

1. To improve understanding and working relationships between SAES administrators and communicators in each state.
2. To cooperatively develop an effective communications plan for each SAES.
3. To improve communication of the Station's mission, accomplishments, contribution and needs with a variety of state and national audiences.

Methods

Through the use of guidelines and supporting materials developed by the Subcommittee, each state will be encouraged to develop and implement their own communications plan in face-to-face administrator/communicator meetings. The project, endorsed by ESCOP, ACE, and the regional associations of SAES directors will culminate in the publication of a notebook containing a plan developed by each state.

States not submitting a plan by the designated date will be listed as having "no plan." Space will be designated for the maintenance of an inventory of the published document. In addition, the reporting of even state's communications planning process should be tied to CSRS required on the ESCOP communications subcommittee reports. Administrators should meet with J. Pat Jordon on this.

Materials

Materials for state use will be developed by the Communications Subcommittee. They will include, but not be limited to, the following:

1. An outline and format suggestions for administrator/communicator meetings.
2. Timeline and suggested procedures.
3. Worksheets including an explanation of the purpose and steps for developing a mission statement, audience profile and communication plan for meeting intended purposes.
4. Samples of mission statements, audience profile, communication plans and follow-up plans.
5. Worksheet and samples of defined roles for Station administrators and communicators involved in communications planning.

Procedure and Timeline

Each member of the subcommittee will assume responsibilities for a portion of the materials development. Suggested responsibilities are outlined below.

Summer, 1987--The concept of the in-state administrator/communicator meetings will be explained at the regional association meetings of the directors of the SAES. In addition, the plan will be promoted regularly in the pink sheet and the ACE newsletter.

Fall, 1987--ESCOP will compile and distribute a list of all designated administrators and communicators in each state.

Aug. 15, 1987--Each administrator on the committee will submit a mission statement for their station and audience profile to the committee chair and to the corresponding communicator.

Sept. 15, 1987--Each communicator of the committee will submit a communications plan to the committee chair and corresponding administrator.

Oct. 1-2--Materials will be finalized at the committee meeting in Vermont.

Jan. 1, 1988--Production and distribution of all materials complete.

Reports of following actions to be summarized in the pink sheet.

Feb. 1, 1988--Initial administrator/communicator meeting completed in each state to outline individual state planning process.

March 1, 1988--Mission Statement, audience profile and intended outcomes completed by administrator and discussed with communicator.

April 1, 1988--Communications plan formulated by communicator and discussed with administrator.

May 1, 1988--Plan reviewed and edited. Roles of administrators and communicator defined. Final materials mailed to Meg Ashman.

June 1, 1988--Plan published with designated section for each state.

Budget

Costs of preparing and distributing materials are anticipated to be minimal. However, arrangements will need to be clarified concerning the cost of publishing and distributing the final plans, and the cost of inventory maintenance.

Evaluation

The success of the project will be judged by the extent of participation by station's administrators and communicators as indicated by plans submitted to the national publication. The ultimate value of the initiative will be judged by the follow-up in each individual state.

JG

7/14/87

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS

RENO, NEVADA JULY 21-23, 1987

ESCOP PEST CONTROL STRATEGIES COMMITTEE

G. W. WARE, CHAIRMAN

The Pest Control Strategies Committee has been charged with the identification of research needs and opportunities in the development of broad based strategies to control pests and to interact with committees of the U.S.D.A. and other agencies having similar concerns. This committee held a meeting in Washington, D.C. on September 23, 1986 involving lead scientists of the Cooperative State Research Service having responsibility for coordination of pest control and pest management programs nationally. Discussions centered on the National IPM program, the activities of the Biological Control Subcommittee, the IR-4 Minor Use Pesticide Clearance project, the National Pesticide Impact Assessment program, proposed biotechnology rulemaking, and future strategic planning/coordination.

Currently, the Biological Control Subcommittee, Chaired by Merritt Nelson (AZ), and Dick Sauer (MN) former Chairman, now Administrative Advisor, represents the main thrust of this ESCOP Committee. I met with them in Washington, D.C., May 21-22, for purposes of planning the UCLA-Sponsored symposium "New Directions in Biological Control", to be held in Washington, D.C. in April 1989. Because of the different audiences, it was not believed that the Vedelia Conference at Riverside, CA, March 27-30, 1989, will influence the international attendance of the UCLA symposium. A special initiative is being promoted by this subcommittee and is being funded through the normal ESCOP budgeting procedures.

The Pest Control Strategies Committee is now without a member from the North Central Region, following the retirement of John Mahlstedt. Consequently, I have approached Colin Kaltenbach to request a replacement be designated from the North Central Directors.

Once in full complement, the Committee will attempt to coordinate the efforts of other groups in the broad area of pest control. We plan meeting jointly with representatives from the following and other appropriate groups to discuss the potential of attracting pest control elements into a unified focus for establishing new strategy:

- National IPM Coordinating Committee
- National Agricultural Pesticide Impact Assessment Steering Committee
- Dispersal of Biological Agents
- Expert Systems
- Biotechnology Committee
- Pesticide Resistance
- Host Plant Resistance
- Biocontrol Subcommittee
- Biological Impact Assessment
- IR-4

An appropriate setting for this meeting would be the November NASULGC meetings in Washington, D.C.

Report on FY 1989 ESCOP Budget Request

The proposed FY 1989 ESCOP Budget Request, dated June 1987, is being submitted for record in the minutes of the WAAESD annual meeting in Reno, Nevada, July 1987. Specifics regarding the proposed budget increases can be found in this document.

Following are several brief comments related to the FY'89 request. For the first time, this year's budget request not only includes recommendations for FY'88 and FY'89, but also projections for FY'90 and FY'91. The purpose of the projections is to provide greater continuity to the budget process.

In addition to the budget recommendations in terms of budget authorities (e.g. Hatch, McIntire Stennis, etc.), recommendations are made in terms of six research categories (from CRIS). This was done to tie budget recommendations to existing base programs. The six categories and the high priority research areas in each category are defined in the budget proposal.

In addition to the above changes in format, the proposal includes a special research accomplishment section to high-light some of the research contributions in each of the program categories.

Copies of the proposed budget are being distributed at this meeting. Perhaps you have already received your copy.

Respectfully submitted by:

R. D. Heil, Member, FY'89 ESCOP Budget Subcommittee

COMMITTEE OF NINE MEETING
MAY 19-21, 1987
WASHINGTON, DC

The Committee of Nine held its first meeting of 1984 on May 20-21 at the Capital Holiday Inn in Washington, D.C. Present were R. Johnson, S. E. Leland, N. H. Niehaus, L. J. Pierro, D. E. Schlegel, A. M. Smith (Chair), K. W. Tipton, M. J. Woodburn, and E. M. Wilson, Ex Officio. The meeting was preceded in May 19 by two subcommittee sessions preparatory to the deliberations of the entire committee. David Schlegel served on the Project Review subcommittee which reviewed active projects for compliance and progress. Merle Niehaus served on the IR-Budget Review Committee which developed recommendations for consideration by the full committee.

Administrator John Patrick Jordon reaffirmed the importance he placed on the Regional Research effort. He reported that USDA's Office of Budget, Planning and Analysis is becoming more aware of ongoing research at agricultural experiment stations through onsite visits and information exchange with respective scientists. He also reported that CSRS will move from the Smith Justin Morrill building to a building under construction in the general area of L'Enfant Plaza.

Thirty-two projects were reviewed, of which nine were deferred and two were rejected. One Western project, W-164, was deferred with a request for relatively minor clarification. The committee was concerned that a number of the proposals would have been more appropriately designated Coordinating Committees. Such projects lacked focus and did not really include a mechanism for coordinating research. This is an issue that should be of particular concern to technical committees involved in revising projects because it is being raised more and more frequently and was the basis for the rejection of at least one project during this review. Others were deferred with the request to develop a focus and a mechanism of coordination.

The Committee of Nine reviewed the issue raised previously about IR Funding and passed a motion recommending to CSRS the establishment of a national ad hoc committee to determine if the current definition of interregional (IR) projects is valid; to refine current procedures or propose alternative mechanisms for initiating, funding, evaluating and continuing work of this nature; and assess current IR projects and associated regional projects in relation to the definitions and mechanisms proposed. This coincides quite well with the recommendation that the West made during the March meeting.

Committee recommendations for off-the-top funding for IR projects reflected their concern about this issue. Only IR-4, IR-5 and IR-7 were given any budgetary increase. IR-1 was even reduced slightly. It is fair to say that there is a general uneasiness about IR funding, but no clear-cut answers to the questions.

D. E. Schlegel
July 16, 1987

June 2, 1987

TO: Western Directors

FROM: Gary A. Lee

SUBJECT: Schedule for Aquaculture Working Group Meetings

The Western Regional Aquaculture Consortium (WRAC) announces a schedule of Work Group meetings to develop regional research project outlines for the USDA sponsored Western Regional Aquaculture Center. Participation is invited from all interested institutions and scientists in the USDA Western Region.

The research problem areas under consideration for the consortium's first round of activity are listed below along with the schedule for work group meetings and the technical advisor responsible for convening the meeting. Problem statements outlining the research areas in more detail will be available at the meetings.

1. Sex control, ploidy manipulation, hybridization (induction, polar body retention, sex reversal, stock/species responses, triploidy, homing, interspecies hybrids, performance, market value, Y-antibody, gynogenesis)
Meeting: June 9 - 10, Seattle
Advisor: Anthony J. Gharrett
School of Fisheries and Science
University of Alaska, Juneau
Juneau, AK 99801
2. Broodstock development and improvement (quantitative genetics, domestication, source populations, genetic variances and covariances, growth, age and size at maturity, stress, carcass quality, behavior, catfish, salmon, oysters)
Meeting: June 11 - 12, Seattle
Advisor: William W. Smoker
School of Fisheries and Science
University of Alaska, Juneau
11120 Glacier Hwy.
Juneau, AK 99801
3. Shellfish habitat improvement (pollution, domestic sewage, fecal indicators, human pathogenicity, animal fecal pollution, depuration, mud shrimp, sand shrimp, pesticides, ecological impacts, other species)
Meeting: June 15 - 16, Newport
Advisor: Chris Langdon
Hatfield Marine Science Center
Oregon State University
Newport, OR 97365

4. Alternate protein sources and waste utilization (disease transmission, sources of waste, quantity of waste, nutritive value, processing, plant proteins, animal proteins, amino acids, diet formulations)
 Meeting: June 17 - 18, Seattle
 Advisor: Ronald W. Hardy
 Northwest and Alaska Fisheries Center
 2725 Montlake Blvd. E.
 Seattle, WA 98112

5. Broodstock nutrition, (rainbow trout, echo salmon, white sturgeon, nutrient relationships, vitellogenesis, reproductive cycle, onset of puberty, hormonal regulation, fecundity, gamete quality, fertility, embryonic development, feed consumption, nutrient absorption, feeding schedules, growth)
 Meeting: June 23 - 24, Davis
 Advisor: Serge I. Doroshov
 Dept. of Animal Science
 University of California
 Davis, CA 95616

6. Extension program (regional integration, information transfer, industry, economic value, nutritional value, local economy, program development, investment and R & D, demonstration)
 Meeting: June 30 - July 1, Seattle
 Advisor: Fred S. Conte
 Aquaculture Extension
 University of California
 Davis, CA 95616

7. Infectious hematopoietic necrosis virus (IHN) control (carriers, virus strains, fish strains/species, transmission, water supplies, reservoirs, vaccines, diagnosis, control)
 Meeting: July 1 - 2, Corvallis
 Advisor: John Rohovec
 Dept. of Microbiology
 Oregon State University
 Corvallis, OR 97331

Project outlines prepared for these problem areas will be reviewed jointly by the Technical Committee and the Industry Advisory Council with funding recommendations made to the WRAC Board of Directors. It is anticipated that not all will be activated in 1987 since funds are limited, nor is it expected that all attendees at the work group meetings will participate in final project development. Each participant to a project, as identified at the work group meeting, may receive funding from WRA, but level of funding to individual participants is likely to be relatively small.

We encourage representation at the work group meetings from all institutions, governmental agencies and private aquacultural businesses interested in aquacultural research and extension. Your assistance in this first round of research program development will be greatly appreciated by the western region. Future opportunities for program development are likely to evolve from this initial effort.

For information concerning the exact location of work group meetings, and for further information regarding the Western Regional Aquaculture Consortium, please contact the Administrative Center: Kenneth K. Chow (Director), Carla Norwood (Admin. Assistant), Western Regional Aquaculture Consortium, School of Fisheries WH-10, University of Washington, Seattle, WA 98195 (Phone: 206 543-4290).

I would appreciate your assistance in informing interested persons at your institution of the above schedule. Thank you.

ja-1013E-1-3

cc: L. L. Boyd, DAL

Western Association of Agricultural Experiment Station Directors

Reno, NV July 22, 1987

Report of

Research Planning Activities

C.E. Clark

ESCOP research planning activities are structured on a 4-year planning schedule. Last year, as the second year of the cycle, revisions consisted of relatively minor rewording of some of the initiative statements and adding specific new objectives. This year is the mid-term update for the ESCOP Initiatives. This midterm update will be more complete than last year. It is expected that for 1987 the majority of existing initiatives will remain but are being reviewed to reflect changes necessary to meet changing needs. Next year (1988) a similar process will be undertaken. However, during 1988 contacts and interactions will take place with various groups to develop research priorities. These priorities will be forwarded to ESCOP planning committee to serve as the base for a complete revamping of ESCOP Initiatives in 1989, which will be year-one of the next planning cycle.

May, 1987, copies of ESCOP Initiatives and NARC priorities and supporting statements were distributed to all Western Experiment Station Directors for review and comment as to:

- a. additions/deletions in wording of existing statements or objectives
- b. additions to or deletions of entire statements or objectives
- c. combining all or parts of two or more initiatives
- d. adding new initiatives and/or deleting existing ones.

All suggestions for change that were submitted were integrated, discussed with WARC, followed by discussion with all Western Experiment Station Directors as a scheduled agenda item of this meeting. These discussions will be summarized and a report representing the Western perspective will be transmitted to ESCOP Research Planning Subcommittee for integration with materials from the other regions. The revised ESCOP Initiatives will then be transmitted to NARC.

Plans are being made to publish an annual update of research initiatives as an ESCOP document in addition to merely submitting ESCOP material to NARC. This will provide supportive material for the budget process in January and February and will help to demonstrate regionality of the planning and priority setting process.

The procedure in the Western Region to involve the Western ESCOP representatives in the total research planning activity, including membership on WARC, WRC, ESCOP Planning Sub-Committee and NARC yields efficiencies in communicating the Western perspective toward the establishment of National research priorities through the ESCOP/NARC/Joint Council process.

TO: Executive Committee, Western Directors

L. L. Boyd
C. E. Clark
J. V. Drew
R. D. Heil
G. A. Lee
D. L. Oldenstat
J. R. Welsh

FROM: D. E. Schlegel

DATE: July 16, 1987

SUBJECT: Management of W161

The management of W161, Integrated Pest and Agroecosystem Management in the Semiarid Regions of the Western United States, needs some restructuring. It is currently in its second year of a five year authorization and is clearly pursuing the objectives identified in the project. The West's program is unique in the nation as it is the the only one that has actively solicited commodity input into the decision process... a step that is strongly applauded by CSRS. There are, however, two important problems: 1) the quality of the peer reviews obtained by mail are not as consistent as they should be; and 2) the commodity committees have moved to fill this void, becoming involved in the peer review and funding, giving the perception of potential conflict of interest. While I am satisfied that we have managed our program well up to this point, the potential for problems exists, and a better system must be found. Additionally, the strong input from the commodity committees has made it difficult to implement WAAESD's instructions of 1986 to expand the scope of the project to include relevant projects but from commodities other than those identified in the project. The revised management process is summarized below.

PEER REVIEWS will be conducted by a panel, coordinated with CSRS, and will not include any individuals who have submitted proposals for funding from the IPM Special Grants.

COMMODITY INPUT into the review process will be by subcommittee scientists (two per commodity), none of whom have submitted proposals for funding). They will review approximately the top 50% of the proposals identified by the panel for relevance to previously agreed upon priorities, PI track records, likelihood of achieving objectives, etc.

PROJECT DURATION will be for up to three years, contingent upon availability of funding and demonstration of satisfactory progress. (Currently they are approved on a year to year basis.) PIs will continue to be required to present annual reports. Multiple year approvals will reduce the paperwork and uncertainty imposed on the PI and eliminate the vagaries of changing priorities due to changes in review committee composition.

MAXIMUM FUNDING will generally be limited to \$25,000 per year, usually less.

FUNDING AWARDS will be made by the project management committee, Boyd, McIntyre, and Schlegel, based on the outcome of the peer review panel, and taking into consideration the comments of the commodities subcommittee.

This process greatly diminishes the influence of the commodity subcommittees on the funding process, but insures that they can have an input. We believe, and CSRS strongly concurs, the commodity input is very important in evaluating projects. As stated above this will be obtained in part by giving commodity subcommittee representatives who are not competing for funds an opportunity to comment on projects designated as worthy by the peer panel prior to funding.

There is a second feature that we believe to be very important, that is the annual show and tell and priority setting exercise that the commodity committees go through. If we are to develop coordination, the individuals participating in the research have to be a part of the whole program, and unless they have an opportunity to learn what others are doing, our efforts will be no more than a series of independent studies under the IPM umbrella. This was the major criticism that the Committee of Nine made on reviewing the project for the present cycle.

We are aware that the bringing together of this large group has been viewed critically by some Directors in the West on the basis that it constituted an unnecessary expenditure of funds that should be devoted to research. In order to keep costs at a minimum, we meet in Reno which is centrally located and has some of the most competitive hotel rates anywhere. We believe that the PIs should build the few hundred dollars that the meeting will cost into their budget... it is not the responsibility of the directors to fund this activity.

CSRS has indicated that it will contribute up to \$5000 toward our review process. The administrative project in Colorado can also pickup some of these costs as necessary... with special concern for the review by commodity representatives.

I believe that this structure will handle most of the problems that we have had related to the award system and it will provide directed toward a commodity. This is an issue that received considerable attention during the last year.

There is also a fundamental question about W161 that needs to be addressed... should the West's entire Special Grant Program be tied to a Regional Project or should the project revert to a Coordinating Committee. In our view it should revert to a Coordinating Committee. Initially we went to a Regional Project in order to justify the use of off the top regional funds for project administration. Off the top funds are no longer used to support the coordinator activities and that need no longer exists. Furthermore, there are constraints built into the regional system that tend to limit opportunities to participate and that complicate the management of the Western Special IPM Grants Program. For example, PIs that have contributing projects must also write the same project for the special grant. The role of the technical committee become unclear because it is limited to individuals with participating projects, with only one vote per station. It does not recognize those who do not have participating projects and programmatic representation is spotty.

It is also necessary to write revisions. The current project terminates in 1990, and its passage through the Committee of Nine was not smooth. It is just too big and diverse and the question "why not a coordinating committee was asked."

There is an additional question that deserves consideration as well. Should we continue with the commodity orientation or turn to functional groups as California has done, in order to broaden the commodity groups. It seems likely that we should not engage in any precipitous change at this time, but simply open the door to more projects on topics that are relevant. This will be much more easily achieved under the management plan described above.

**Summary of Activities
as of July 1987**

**WESTERN RURAL DEVELOPMENT CENTER
Oregon State University, Corvallis OR 97331**

Western Rural Development Center
Summary of Activities
July 1987

Small Business Education Project leaders: Marion Bentley, Utah State University; Bob Coppedge, New Mexico State University; and Tom Harris, University of Nevada, Reno. One aspect of this project was to use the previously successful "Hard Times" model, so in November 1985 Raton, New Mexico, a community that participated in the Hard Times workshop, also became the location of the first Small Business workshop. Subsequent sessions were held at Caliente, Nevada in February, 1986; Moab, Utah in March, 1986; and Susanville, California in May, 1986. Three more workshops presented in California during April, 1987 were a direct spinoff from the Susanville session. Designed to develop educational materials that Extension personnel can continue to adapt and use with small rural businesses, these workshops attracted more than 200 participants to their seven, half-day sessions, which included: Community Assessment; Starting or Expanding a Business; Marketing for Profit; Working with Customers and Employees; Managing for Profit; Analyzing Financial Records for Profit; and The Pressures of Business: Stress Management. Results of a formal evaluation conducted in Raton, ten months after the workshop there, indicate that sixty-nine percent of participants identified the workshop as contributing to the improvement of their business skills.

Local Government Education Project leader: Dave Sharpe, Montana State University. In December 1986 a workshop was held in Great Falls, Montana designed to familiarize newly-elected county commissioners, as well as other local officials, with issues facing them as they take office, and to provide them with the skills to successfully meet these challenges. More than 115 individuals attended the Montana event, and 140 participated in similar workshops held in Albuquerque and Las Cruces, New Mexico during March, 1987. Faculty involved in the presentations include six Extension personnel and twenty-one community leaders. The materials are being adapted to reflect the geographic, cultural, demographic, and political conditions of specific community systems and will be used with municipalities in Guam in March 1988. Plans are in progress for presentation in Alaska.

In-Reach for Indigenous People Project leader: Francis Mitchell, University of Alaska. Emphasis of the project is to recruit, train, and establish key individuals among indigenous populations to serve as "in-reach" personnel, who would recognize educational needs within communities that can be addressed by Extension. A planning meeting, held in early June to coincide with the International Indigenous Education Conference in Vancouver, B.C., was attended by one representative from Extension and one from the dominant indigenous culture in Alaska, Guam, Hawaii, Montana, and California. WRDC provided funds for travel and conference expenses.

Hard Times Project leader: Robert Coppedge, New Mexico State University. This project was designed in 1984 to help communities deal with various aspects of economic decline. In addition to the success of the workshops and the outreach they generated, seven educational booklets are currently available and are being distributed. At least two more titles are in progress. The Hard Times project was nominated in April 1987 for the Extension Program Award of the Western Agricultural Economics Association.

Family Community Leadership The FCL regional project became a national effort at a meeting in September 1986, when more than 265 individuals representing 48 states heard Russell Mawbry announce the Kellogg Foundation offer of up to \$50,000 assistance for states establishing an FCL program.

Intermountain Community Learning and Information Services (ICLIS) Project leader: Glen Wilde, Utah State. This project, which in 1986 received a \$4.1 million series of grants from the W.K. Kellogg Foundation, originated when the Western Rural Development Center in 1980 funded a feasibility study to investigate the rural public library as information and learning center in impacted western rural communities. WRDC continued to support this program's development until it was funded by Kellogg.

Regional Rural Entrepreneurship At the national symposium co-sponsored by WRDC in February 1987, interested representatives from the western region met to review existing educational materials and to develop comprehensive new materials appropriate for use by Extension agents. A meeting will be held in San Francisco in July to develop Extension programs for the west on small business, home business, and business start-up.

Response to Farm Crisis Project leader: Roy Frederick, University of Nebraska. Together with the Farm Foundation, the four regional rural development centers are assisting financially with a project of the National Public Policy Education Committee to publish nine leaflets collectively titled "Policy Choices for a Changing Agriculture," with the idea that these will be used nationally within communities to foster discussions about the process of change in agriculture. The leaflets have been published and are in the process of distribution.

Revitalizing Rural America The Extension Committee on Organization and Policy has identified this as a priority program effort for the fiscal period 1988-91, and the four Rural Development Centers are responding separately and in concert. They have co-sponsored two national conferences: "Alternative Farming Opportunities for the South," and "National Rural Entrepreneurship Symposium." Proceedings for both of

Western Rural Development Center
Summary of Activities
July 1987
Page 3

these well-attended conferences are available from the Southern Rural Development Center. The Council of State Government has established a National Agriculture and Rural Development Center and a working relationship is beginning to emerge between the four Centers and the CSG group. NASULGC has recommended a \$15 million line item for the 1988 Extension budget, which would increase the ability to deliver existing programs to more communities.

Trade-Area Analysis Principal investigator: Tom Harris, University of Nevada, Reno. Rural counties have historically lost retail and service sales to large, metropolitan counties. These leakages reduce the size of a county's export-base multiplier because the spending those sales generate occurs outside the county. The Bureau of Labor Statistics projects that almost 75 percent of all jobs created between 1982 and 1995 will be in the commercial sector; therefore, economic development must not only encourage new industry, but also emphasize development of commercial enterprise. Trade-area analysis is one method for understanding the activity in a community's commercial sector. Beginning in January 1986 with financial assistance from WRDC, Tom Harris is developing data on trade-area capture and pull factor for each county in the Western region. Copy is currently available for Nevada, Wyoming, Idaho, Utah, and Oregon.

Ag Census Cross Tabulations and the Changing Structure of Agriculture and Rural Communities Principal investigators: Joan Randall, University of California; James Pease, Oregon State University. Special tabulations of the 1982 Census of Agriculture for California and Washington were prepared under contract with the Bureau of Census and provide county level data on agricultural characteristics organized by 11 types of agriculture. The data are presented in a matrix format by 16 gross sales categories and by 15 acreage categories. The data set can be used for descriptive or for analytic purposes.

The original project yielded evidence concerning the relationship of agriculture to the quality of rural life, which in turn led to a study of those relationships in the most highly agricultural areas of Arizona, California, Idaho, Oregon, and Washington. Principal investigators: Clair Christensen and Dean MacCannell, University of California; Emmett Fiske, Washington State University; and James Pease, Oregon State University. A recent paper on some of the results by Dean MacCannell at the University of California, suggests that even as the number of farms declines, the way in which we do agriculture continues to have an effect on the rest of society.

Western Region Land Grant Executive Development Program Project leaders: Yukio Kitagawa, University of Hawaii; James Drew and James Matthews, University of Alaska; Phillip Upchurch, University of Arizona. A funding proposal for this project was submitted to W. K. Kellogg Foundation

in October 1986. The objectives of the training are to strengthen the overall capability of programs in agriculture and home economics; to broaden the perspectives of present or potential university executives; to enhance and encourage lifelong learning among professionals in administration; to build improved communications networks between universities and their increasingly diverse constituencies; and to develop increased understanding and appreciation of administrative roles as an intellectual challenge.

Variation of Consumer Prices Among Small Towns in Selected Parts of the Western Region Principal investigators: Paul Barkley, Washington State University; Will Rochin, University of California; and Ed Bradley, University of Wyoming. This study, which began in September 1986, is to determine the relationship between town population and local consumer prices, and how those retail prices are set. New inhabitants of rural towns often travel to distant cities to make even simple purchases, laboring under the impression that local prices are much too steep. Local leaders in these small communities need information about comparative prices so they can effectively advertise. The field work is completed and once the data has been entered into a computer, analysis will begin. Comparative prices have been gathered on 500 items in 22 Washington towns, 23 Wyoming communities, and 18 towns in California.

The Contribution of Investment and Transfer Incomes to the Growth and Stability of Counties in the Pacific Northwest Principal investigators: Gary Smith and David Willis, Washington State University, and Bruce Weber, Oregon State University. The general goal of this study was to document and analyze the contribution of non-industrial income sources to the growth and stability of the seventy-five Oregon and Washington counties over the period 1965-1981. WRDC Paper #30, published in February 1986, documents the results of the original study and a second publication, WRDC 36 in the Community Economics series, looks at the national picture.

Potential for High-Technology Industries in Non-Metropolitan Areas Principal investigator: David Barkley, University of Arizona. A multi-state research effort funded by the Western Rural Development Center in 1985, this project included analysis of 1975 and 1982 county-level employment data, surveys of manufacturing firms in the eleven participating western states, and finally an econometric analysis to determine the characteristics of non-metropolitan counties which have successfully attracted or generated high-technology manufacturing. A summary of the preliminary analysis of national and local data sources appears in the current issue of the Center newsletter.

The Dynamics of Satisfaction with Selected Public Services in Rapid Growth Communities Principal investigators: Robert Mason and Joe Stevens, Oregon State University, David Rogers, Colorado State University. Data has been gathered in selected counties in Colorado and Oregon and is being analyzed and utilized in various ways. A series of papers has been published

Western Rural Development Center
Summary of Activities
July 1987
Page 5

presenting the results for the counties in Colorado, and in Oregon a study of the satisfaction of rural residents with crime protection, has been circulated to county law enforcement officials.

National Rural Studies Committee Project leader: Emery Castle, Oregon State University. The Western Rural Development Center will serve as administrative headquarters for the committee, which was recently established by a five-year, \$836,000 grant from the W. K. Kellogg Foundation. Under the leadership of Dr. Castle, an inter-disciplinary group of scholars will investigate ways that rural communities have been affected by social, economic, political, and environmental events in the past decade, and will identify research and educational opportunities in rural studies.

Dr. Julian Wolpert, Woodrow Wilson School of Public and International Affairs; Edwin Mills, Northwestern University; Edward Bergman, University of North Carolina; Gene Summers, University of Wisconsin; and Bruce Weber, Oregon State University currently comprise the committee, which will meet with Dr. Castle in July to determine the balance of membership.

WRDC Publications Annually, the Center distributes approximately 5,000 of its various publications nationwide. The newsletter "Western Wire" is mailed three times each year to more than 1500 individuals both in the western region, the nation, and Canada. The most recent publications include eight titles from the Hard Times workshops, WREP 89-96, and several issues in a new Community Economics and Community Services series.

THE NATIONAL PLANT GERMPLASM SYSTEM (NPGS)

-1-

1. The NPGS

- A. DEFINITION: The National Plant Germplasm System is a coordinated net work of institutions, agencies, and research units representing Federal, State, and Industry sectors, working cooperatively to introduce, maintain, evaluate, enhance, catalog, and distribute plant germplasm
- B. MISSION: The NPGS is a user-oriented partnership of Federal, State and private industry cooperators with a common goal of acquisition, preservation, evaluation, enhancement, distribution, and utilization of germplasm with sufficient genetic diversity for crop improvement, industrial and medical use, and research.
- C. COMPONENTS: The organization components of the NPGS are primarily within the Agricultural Research Service (ARS) and are primarily supported with Federal funds, although state and industry support is significant.
 1. The Regional Plant Introduction Stations (RPIS) located at Experiment, Georgia; Ames, Iowa; Geneva, N.Y.; and Pullman Washington, maintain working collections of most crop species and close relatives and provide some evaluation and limited enhancement. They are jointly supported with regional research funds from the states. Some of the approximately 30 curators located throughout the System also enjoy joint support and maintain close working relations with the 4 RPIS.
 2. The National Clonal Germplasm Repositories (NPGR) have been established during the past 10 years and are expected to be completed during 1987. They contain both working and base collections of fruit and nut species that cannot be adequately maintained as seed. Germplasm is maintained as whole plants or plant parts and as tissue culture. The eight repositories are located at Davis and Riverside, California; Leesburg and Miami, Florida; Hilo, Hawaii; Geneva, N.Y.; Corvallis, Oregon; and Brownwood, Texas. Mayaguez, Puerto Rico serves as a satellite location to the Miami repository.
 3. The National Seed Storage Laboratory (NSSL), located at Ft. Collins, Colorado, serves as the base collections of the NPGS and as a backup for several international base collections. It currently houses in excess of 200,000 accessions and should eventually contain backup samples of all accessions in the working collections. It is NPGS policy to distribute seed from NSSL only when it cannot reasonably be obtained from other sources, usually from working collections or private sources.
 4. Plant Genetics and Germplasm Institute (PGGI) is located at the Beltsville Agricultural Research Center West (BARC-W) and provides research and operational support to the NPGS. a) The Plant Introduction Office (PIO) is the key component in the movement of germplasm into and from the U.S. The Office maintains inventories of germplasm and assigns plant introduction numbers as appropriate. It maintains effective working relations with plant quarantine personnel to facilitate the movement of germplasm through the plant quarantine system. It serves as the major contact for those requesting germplasm in the U.S. and for foreign requests. It provides information and advice to teams planning plant explorations in foreign countries. The evaluation of the World Collection of Small Grains is coordinated in this Institute.

- b) The Germplasm Resources Information Network (GRIN) is a centralized national repository for information about plant germplasm that has been introduced, developed, maintained, evaluated and distributed by members of the NPGS. It provides for continuous updating of the data base by authorized individuals and ready accessibility by all users. It provides an efficient way to locate specific information and process it into a variety of usable formats. It provides opportunities for inventory control, rapid exchange of plant materials as well as information between researchers and breeders with common interests.
- c) The National Plant Quarantine Center (NPQC), operated jointly by the Agricultural Research Service and the Animal Plant Health Inspection Service (APHIS), provides for the orderly movement of germplasm into or out of the U.S. through procedures of rapid exchange, inspection verification, therapy, and issuance of phytosanitary certificates authorizing clearance of the plant material to the user. The major objective is to facilitate the availability of germplasm while protecting the nation against the inadvertent introduction of disease and insect pests that may become a serious economic threat to our crops.

4. ADVISORY GROUPS:

- A. The National Plant Genetics Resources Board (NPGRB) provides policy advice directly to the Secretary of Agriculture. The task of the Board is to advise the Secretary on problems, needs and welfare of the Nation's plant genetic resources activities as these impact the food production system. Members of the NPGRB are appointed by the Secretary to serve 2-year terms. (not to exceed 6 consecutive years) and provide broad representation of public and private sectors, commodities interests, geographic alignments and scientific disciplines. Both scientists and administrators are chosen.
- B. The National Plant Germplasm Committee (NPGC) represents the user community and, as spokesman for the NPGS, advises on policy and coordinates activities to meet the immediate and long term national goal of U.S. agriculture. It provides guidance through recommendations to administrators and program leaders. It draws on advice from all parts of the society but leans heavily on the Crop Advisory Committees for technical information.
- C. Crop Advisory Committees (CAC) in some form have been around for many years, but a formalized system of CAC's is relatively recent. At least 35 CAC's are functional with two or three more at some stage of organization. CAC's generally are made up of 19870-19875 leading scientists with expertise on a major crop or a group of related crops and represent both public and private sectors, different scientific disciplines, and to a great extent different geographic regions. They are charged to be well informed on the germplasm and research needs of their crop(s) and to make recommendations as needed to correct any deficiencies that are detected. They have also been charged with developing a concise report on the status of their crop with recommended action items. The CAC reports will follow a common format to facilitate analysis and utilization of the information in developing plans and programs. Within a few months a condensed library of comparative information on all economic crops will be available.
- D. The International Board of Plant Genetic Resources (IBPGR) is not a part of the NPGS but has very important linkages that are mutually beneficial. For the past 19870 years the IBPGR has developed an international network of regional, national, and international institutions working to preserve the World's dwindling genetic resources. The NPGS can profitably strengthen working relations with the IBPGR to facilitate germplasm exchanges, explorations in areas not now convenient for the U.S., and aid in the training of future germplasm workers.

TABLE 2 -- Cooperative Input into the National Plant Germplasm System

Hatch Act (amended) established
Regional Research Fund,
State Agricultural Experiment Stations

The Secretary of Agriculture
Cooperative State Research Service
Committee of Nine

Regional Association of
Experiment Station Directors
Regional Research Committees

Federal Cooperators

U.S. Department of Agriculture

Agricultural Research Service
(ARS Plant Germplasm Coordinating
Committee)

Regional Deputies

Area Directors

Research Leaders, Technical Advi-
-- & Regional Coordinators

--Germplasm Resources Laboratory
(Beltsville, MD)

--National Seed Storage Laboratory
(Fort Collins, CO)

--Northern Regional Research Center
(Peoria, IL)

Institute for Tropical Agriculture
(Mayaguez, PR)

Cooperative State Research Servi

Forest Service

Soil Conservation Service

U.S. Department of Interior

Bureau of Land Manage

SAES

Administrative Advisors

ARS National
Program Staff

Interregional
Technical
Committees

National Plant
Germplasm Committee

Regional
Technical
Committees

Interregional
Projects and
Stations

Regional Coordinators

IR-1 Sturgeon Bay, WI

IR-2 Prosser, WA

Regional Projects and
Plant Introduction
Stations

Other
Curators

NE-9, Geneva, NY

NC-7, Ames, IA

S-9, Experiment, GA

Cooperating
State Agricultural
Experiment Stations
in the 4 Regions

North Central

KS NE
MI ND
MN OH
MO SD
WI

North Eastern

MD PA
NH RI
NJ VT
NY

South

LA SC
MS TN
NC TX
OK VA
PR HI

Western

ID OR
MT UT
NV WA
NM WY

STATEMENT IN SUPPORT OF DIVERSITY MAGAZINEIMPORTANCE OF PLANT GERMPLASM:

During our lifetime, we have become aware of the economic and strategic significance of large supplies of natural resources concentrated in one or a few countries or in a region. We need only recall crude oil from the OPEC countries, gold and platinum from South Africa, silver from Mexico and Bolivia and copper from Chile. In more recent years society has become aware that valuable genetic resources are also distributed unequally around the globe. The United States and some other developed nations have become acutely aware of this fact. All crops of major economic importance to the U.S. have their origin in other parts of the world. Only sunflowers, a few small fruits and berries, a few nut crops such as pecan and other hickories and Jerusalem artichokes are among food plants native to the U.S. The U.S. is highly dependent on introduced germplasm.

Plant germplasm, regardless of its origin, is becoming recognized as the fourth natural resource, joining soil, water and air. It was recognized intuitively as important by the most primitive agriculturists as they saved seed for the next generation, but it was not until the rediscovery of Mendel's Laws of Inheritance about 1900 that plant breeders began to understand the basis of its critical role in the development of improved crop varieties. It is now a well accepted scientific fact that the genetic diversity available in plant germplasm is the basis of past, present and future crop improvement. How well a nation does in developing improved varieties that resists pests and diseases, have the necessary and desirable agronomic and horticultural traits to provide food and feed quality, harvest and storage characteristics and industrial product potential and value will be directly related to its access to an adequate array of plant germplasm. There is no known substitute for this resource.

The U.S., and other industrial (developed) nations, has for many years collected, exchanged and preserved plant germplasm of potential value to provide the necessary genetic raw material for present and future plant breeders and research personnel in the U.S. and other countries. This policy continues today and is even more emphatically enunciated than ever before, with the general acceptance that plant germplasm is an inheritance of mankind and should remain freely available to all.

The awareness of the essential nature of plant germplasm, its unequal distribution throughout the world and the possible loss of accessibility in the future due to physical loss, differing policies between nations, or political instability, make it highly desirable to continue to develop and preserve collections that are more complete in representation of the existing biological diversity. Concurrently with this increased activity of building and preserving collections, it will be necessary to continue to clearly state U.S. policy on the exchange of germplasm and continue to demonstrate this policy of free exchange on all occasions to all nations.

IMPORTANCE OF DIVERSITY:

Improved communication is the most frequently suggested need when there are misunderstandings or disagreements between individuals, groups of individuals or nations. This observation seems to be particularly true in the area of international plant germplasm activities. It further appears that resolution of these misunderstandings or disagreements will not be easy or quick. More and improved dialogue between leaders of developed and developing nations, between international organizations and between other key individuals within and between all of the above, will be a continuing necessity.

DIVERSITY magazine is emerging as a prominent and important voice for plant germplasm at the national and international level although readership at both levels is still at a modest level. It has gained strong creditability among its readers for its accuracy and objectivity; its breadth of coverage; its selection of topics; its response to changes in format; and its overall editorial quality. DIVERSITY has received unusually high praise from those who read it.

DIVERSITY fills a unique niche in reporting plant germplasm information. Its balance of personal and scientific information; individual and group or national news; and national; international; current and reflective reports give the magazine a high interest index for readers and builds strong reader support. Perhaps its most valuable contributions lie in the area of providing a forum for the exchange of ideas, philosophies and information between correspondents from all levels of programs, organizations, governments and in the regular reporting of current information about the National Plant Germplasm System.

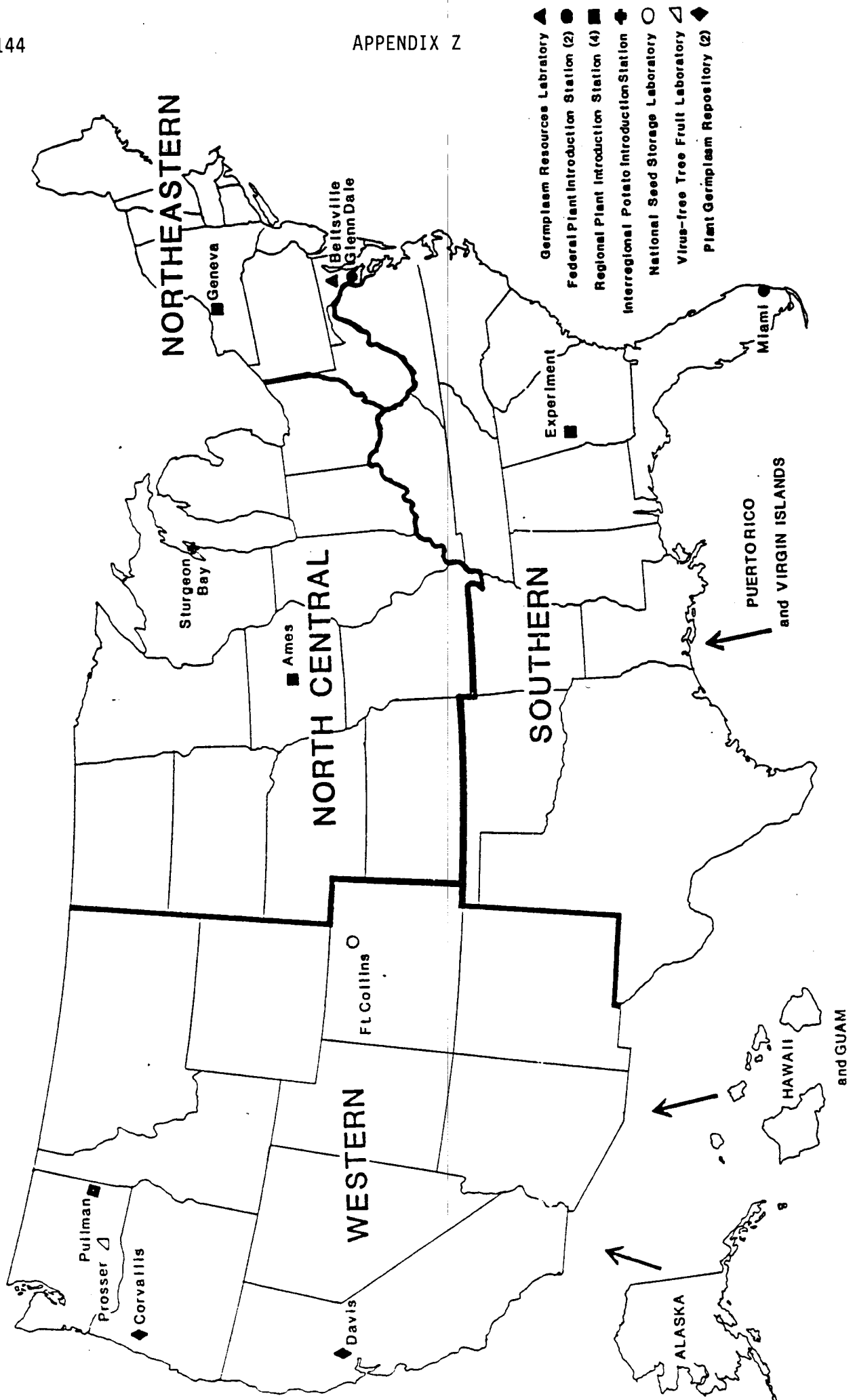
In the international area, discussions about plant germplasm resources, their utilization, availability and control have become strained and national positions have hardened. The disagreements have been accentuated more than the agreements. DIVERSITY with its objective treatment of views from both sides of the issue, is contributing to a better understanding of the underlying issues separating the major parties. It provides an opportunity for rational views from all sides to be presented and studied without haste. The role of DIVERSITY in this contested area may eventually be recognized as highly significant to the cooling off period and the resumption of calm and deliberate efforts to heal the breach now existing between some developed and many developing nations resulting from the action by FAO to get acceptance of the undertaking. The role of DIVERSITY in this debate is almost certainly to increase the readership and value to the international germplasm community.

The second important role of DIVERSITY is to report to the general public what is occurring in the National Plant Germplasm System. The Department will spend about \$16M in FY 1987 supporting all activities in the NPGS. Additional resources will be expended by the 50 states and the industry associations representing several hundreds of companies. DIVERSITY provides a convenient and effective outlet for germplasm workers and officials from all sectors to report on activities, progress, new programs, new challenges and opportunities. Useful information exchange is facilitated in a timely and economical manner. At present, DIVERSITY

is the only generally acceptable publication available to the Department to meet its responsibility to keep the public informed about its plant germplasm program. Without DIVERSITY, much valuable information and dialogue would not be shared and the NPGS would be less informed and consequently, less effective in carrying out its function and responsibility. With DIVERSITY, workers within the germplasm system and officials in other parts of the government who have a vested interest in the effectiveness of NPGS can stay well informed on a timely basis. Exchange of ideas, information, and genetic materials is facilitated in an efficient and economical manner. Furthermore, the sharing of experiences and accomplishments in DIVERSITY has done much to strengthen the cohesiveness and the 'Esprit de Corps' throughout the national germplasm community. It can be expected, in time, to have a positive effect on the international germplasm community as well.



Paul J. Fitzgerald
Member, DIVERSITY Board of Directors



PURPOSE:

**To provide the plant germplasm
needed for the research,
teaching, and Extension
programs in the U.S.
and abroad.**

W-6 TITLE:

**Plant Germplasm Introduction,
Increase, Evaluation,
Documentation, Maintenance,
and Distribution**

Principal Crops Held by W-6 Include (by genus):

1359 Agropyron (wheatgrasses)	1973 Lens (lentil)
232 Allium (onions)	649 Lolium (ryegrass)
437 Astragalus (milkvetch)	593 Lupinus (lupine)
765 Brassica (mostly cabbage)	6000 (+) Medicago (alfalfa)
835 Bromus (brome grasses)	512 Onobrychis (sainfoin)
1591 Carthamus (safflower)	444 Papaver (poppy)
3491 Cicer (chickpeas)	643 Phalaris (canarygrass)
951 Dactylis (orchard grass)	9938 Phaseolus (beans)
453 Elymus (wild rye)	602 Poa (bluegrasses)
1247 Eragrostis (lovegrass, tef)	208 Stipa (needle & thread grass)
1301 Festuca (fescue grasses)	205 Trigonella (fenugreek)
847 Lactuca (lettuce)	752 Vicia (horse bean, common vetch)
444 Lathyrus (chickling pea)	AND MANY MORE

Now accepting U.S. Endangered species (300+)

A continuing historical summary of W-6 plant material activity follows:

Fiscal Years	New PI's Rec'd	Accum. Total	PI's Sent by Pullman ^{1/}	PI's Sent Foreign Countries	PI's Tested and/or Grown ^{2/}	PI's Rec'd by West. Res. From Other Sources	Total Rec'd West. Reg.
65-69	7,501	24,934	34,794	10,266 ^{3/}	11,534	15,741 ^{4/}	33,057 ^{4/}
70-74	8,168	33,102	17,541	25,495	30,090	32,127	63,067
75-79	5,008	38,110	86,248	29,695	15,742	22,297	45,396 ^{5/}
15 Yr Ave	1,293	---	12,036	4,364(36.3%)	3,586	5,398	10,886 ^{5/}
1980 ^{6/}	3,034	41,144	14,410	1,561(10.8%)	4,440	2,108 ^{7/}	7,621
1981	1,357	42,501	8,486	2,809(33.1%)	2,903	34,139 ^{8/}	35,833
1982	1,097	43,598	12,254	3,115(25.4%)	4,642	13,682	21,148 ^{9/}
1983	761	44,359	20,810	7,296(35.1%)	4,265	9,441	11,640 ^{10/}
1984	784	45,143	16,245	7,978(49.1%)	4,474	1,965	5,729 ^{10/}
5 Yr Ave	1,407	--	14,441	4,552(31.5%)	4,145	12,267	16,401
1985	3,176 ^{11/}	48,319	20,490	5,094(24.86%)	4,098	74,075 ^{12/}	82,771 ^{12/}
1986	760	49,079	21,603	9,916(45.9%)	5,080	7,659 ^{13/}	15,916

1/ Does not include introductions sent to the National Seed Storage Laboratory for backup storage or germination.

2/ Total tested and/or grown does not include increases by Arizona, Hawaii, Montana, Oregon, Puerto Rico, or Cali, Colombia in cooperation with W-6.

3/ Four-year total (rather than 5).

4/ Three-year total (rather than 5).

5/ The total number of introductions received by Western scientists does not include germplasm distributed from other Curators, such as Small Grains, etc., since the Pullman Station did not receive these distribution records. If all records were available, these totals would be considerably higher.

6/ Reported by calendar year from 1980 on, rather than W-6 annual report year.

7/ Figures for 1981 include germplasm distributed from the Small Grains Collection, the IR-1 Potato Collection, and Dr. Bernard's soybean collection.

8/ The 1982 figure includes germplasm distributed from the Small Grains Collection and the IR-1 Potato Collection. The Soybean Collection figure was not available at the time this report was compiled.

9/ The 1983 figure includes germplasm distributed from the IR-1 Potato collection, the Soybean Collection, the Cotton Collection and the Miami Station. The Small Grains Collection distribution figures were not available at the time of this report.

10/ The 1984 figure includes germplasm distributed from the Ames, IA, Experiment, CA, Geneva, NY, and Miami, FL stations.

11/ This figure includes the transfer of the Bromus and Lathyrus collections from NC-7 to W-6 for future increase, maintenance, evaluation, documentation, and distribution.

12/ Corrected total for 1985.

13/ This figure does not include distributions from the National Arboretum, Soybean North, Small Grains, or IR-1 Potato collection.

SOME USES OF PLANT INTRODUCTIONS (BY U.S. SCIENTISTS)

1. IMPROVEMENT OF EXISTING CROPS: For food, fiber, ornamental, medicinal, and industrial uses.
2. MORE: Protein, yield, vigor, hardiness, earliness, photosynthetic efficiency, wider adaptation, and improved nutritional quality.
3. TOLERANCE TO: Drought, smog, salt, overgrazing, heavy foot traffic, fire, and other stress factors.
4. RESISTANCE TO: Diseases, insects, mites, nematodes.
5. LOWER: Cost of production, and less use of energy in production.
6. BASIC STUDIES: Anatomy, morphology, cytology, chromosome numbers, genetics, hybridization and breeding, sources of new cytoplasm, and to modify plant structure.
7. HABITAT AND ENVIRONMENTAL STUDIES: Wildlife food and habitat, reduction in use of pesticides, erosion control, vegetative screens (noise abatement, light barriers), beautification, etc.
8. DEVELOPING NEW CROPS: Crambe, Limnanthes, Jojoba, Papaver, Kenaf, Cucurbita foetidissima, domesticated Guayule (rubber) Setaria, and Tepary beans. Screening plant kingdom for all potential uses, including constituents for combating cancer (maytenus). Replacement of products obtained from endangered animal species (sperm whale)
9. Preservation of Plant germplasm to reduce genetic vulnerability.
10. Hydrocarbon plants = fuels.
11. Biotechnology = (source of genes).

1. CLIMATIC AND EDAPHIC VARIATION

Latitude (daylength), Altitude, Temperature, Rainfall, etc. (Western Region has as much or more variation than rest of U.S. put together).

2. RESTRICTION TO NATIVES - Provincial.

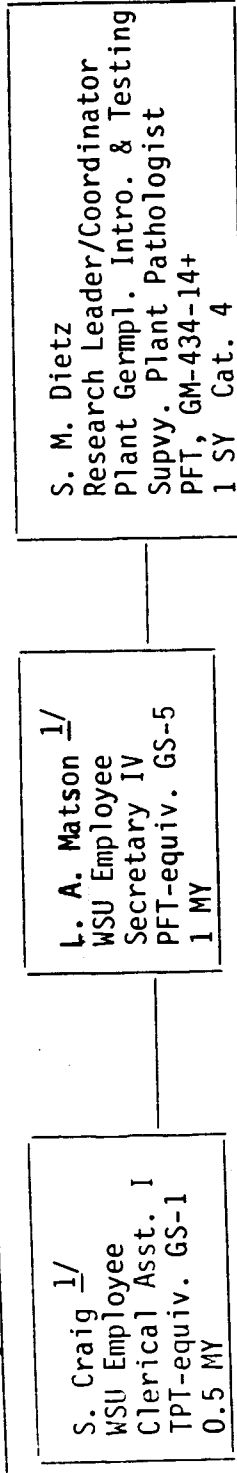
3. BEST SCIENTISTS - Have one thing in common: NOT satisfied with what they have--Something different.

4. NATIVE LANDRACES - Most PRICELESS IRREPLACEABLE NATURAL RESOURCE.

5. GREAT GROUNDWELL OF INTERNATIONAL INTEREST IN GERMPLASM.

6. AGRIBUSINESS = Biggest business in U.S. - INTRODUCED PLANTS STARTING POINT IN AGRICULTURE.

Staffing Chart



5700-02-150
Plant Germplasm Introduction
and Testing
Pacific West Area
Pullman, Washington 99164
July 1, 1987

150

Yellow = Full-time ARS Employees (PFT) = 8.0 FTE w/Agronomist

Orange = Full-time State Employees (PFT) = 6.75 FTE

Blue = Temporary State Employees (TPT) = 1.90 FTE

16.65 FTE

1/ Regional research Funds

~~S. L. Blum~~
WSU Employee
Farm Manager I
PFT-equiv. GS-10
1 MY

~~W. H. Kaiser~~ 1/
WSU Employee
Plant Tech. II
PFT-equiv. GS-7
1 MY

~~M. Estelle~~ 1/
WSU Employee
Plant Tech. II
PFT-equiv. GS-7
1 MY

~~R. A. Wagner~~ 1/
WSU Employee
Greenhouse Atten.
PPT-equiv. GS-4
0.75 MY

~~K. W. Gasseling~~ 1/
WSU Employee
Plant Tech. II
PFT-equiv. GS-7
1 MY

O. M. Gasseling 1/
WSU Employee
Serv. Wkr. I
TPT-equiv. GS-1
0.1 MY

L. K. Fish 1/
WSU Employee
Serv. Wkr. II
TPT-equiv. GS-2
0.5 MY

W-6 Personnel (as of July 10, 1987)

ARS	FTE	RRF	FTE
Agronomist	1.0	Gary Bloomfield (Frm. Mgr)	1.0
Steve Clement (Ent.)	1.0	Marge Estelle (Pl. Tech. II)	1.0
Sam Dietz (R.L.)	1.0	Ken Gasseling (Pl. Tech. II)	1.0
Darlene Foote (Bio. Tech.)	1.0	Bill Kaiser (Pl. Tech. II)	1.0
Rich Hannan (Hort.)	1.0	Leigh Ann Matson (Sec IV)	1.0
Barb Hellier (Bio. Tech.)	1.0	Dave Stout (Ag. Res. Tech II)	1.0
Walt Kaiser (Pl. Path.)	1.0	Raylene Wagner (Grnhse. Atten.)	<u>0.75</u>
Linda Lathrop (Bio. Tech.)	<u>1.0</u>	TOTAL RRF	6.75
	8.0	TOTAL ARS	<u>8.00</u>
			14.75
<u>Temporary Employees</u>	FTE	TOTAL Temporary	<u>1.60</u>
Shairlyn Fish	0.5		
Larry Fish	0.5	GRAND TOTAL	16.35
Brenda Bloomfield	0.5		
Orleatha Gasseling	0.1		
Other Summer Help	<u>0.2</u>	<u>Salary Savings (State)</u>	
	1.6	Horticultuist ('82=\$21000)	28,000
		Ag. Res. Tech. II	21,912
		1/2 Grad. Student	4,500
		Benefits (26%)	<u>14,148</u>
			68,560
		<u>Other Savings</u>	
		Dropped Bean Increase	9,000
		Closed C.F. Greenhouse	<u>5,000</u>
		TOTAL SAVINGS	82,560

ACCOMPLISHMENTS

1. SOYBEANS - New Crop Investment of \$50,000 in 1930's.
2. Race 15-B of Stem Rust = \$410 million in 1950's.
3. Yields - Gaines wheat (from 15/17 bu/A to 90+ in 35 years of breeding. Based on Plant Introductions
4. MULTIPLE DISEASE RESISTANCE - (Wheat 178383) All known races of Common bunt and Dwarf bunt, and field resistance to stripe rust, snow mold, and mildew. Computer study --> Hoffman (Utah) and Metzger (Oregon) exploration to Turkey.
5. HAY = Alfalfa and grasses. USDA Handbook 170 - many grasses merely selections from plant introductions as is alfalfa (LADAK).
6. Spotted alfalfa aphid resistance from India (Sirsa #9).
7. Resistance to Fusarium root rot in beans (203958).
8. Safflower - disease resistance and "OL" gene for high oleic oil.
9. Kenaf - new source of pulp for paper.
10. Screening plant kingdom for anti-cancer compounds.
11. Winter-hardy lentils.
12. New/alternate crops - Crambe, Limnanthes, Jojoba, Chickpeas and lentils (in northwest).
13. Narcotics program.
14. Sperm whale = endangered species - plants provide oil from renewable resources.
15. Now preserving endangered U.S. species.

1. American agriculture is the world's largest commercial industry, with assets exceeding one trillion dollars.
2. Our agricultural industry employs more than 23 million people, or about 22% of the total labor force.
3. Only 3.1% of the U.S. labor force work on farms (1982) -- yet in 1887 over 50% of the labor force worked on farms.
4. One farmworker now provides food and fiber for nearly 80 people in the U.S. and abroad and this is equal to about 52 tons of food produced by one farmworker. In 1960, one farmworker provided food and fiber for only 26 people.
5. U.S. consumers spend between 16 and 17% (average) of their disposable income on food. (In some countries it is as high as 60 to 70%.)
6. Farmers get an average of about 37¢ of each dollar consumers spend on food grown on U.S. farms. This is nearly the same as they got 20 years ago, yet their costs for seed, feed, fertilizer, equipment, irrigation, and fuels has increased dramatically.
7. Nearly 2/5 of our agricultural production is shipped overseas (60% of our wheat and rice, about 50% of our cotton, and more than 40% of our soybeans). We essentially do not have surpluses--we have inequitable distribution.
8. In 1980, our exports of U.S. farm products amounted to 20% of our foreign sales = \$40 billion. In 1981, it amounted to about \$27 billion, or half of our \$52 billion deficit in nonfarm trade.
9. Japan is the world's leading importer of U.S. farm products.
10. Through our Food for Peace program, the U.S. has provided more food aid than all the other countries combined.
11. The Department of Agriculture only gets 1.25% of the Research and Development dollars, and only 2% of the USDA budget goes to research.

'USDA', Vol. 42, No. 5, March 9, 1983 (pg. 1), and Rockefeller "RF", Jan. 1983.

P.S. Only about 9% of the total cost of a can of tomatoes is due to farm production. In many instances, the cost of packaging exceeds the cost of farm production. The American farmer probably gets less than 2¢ for his efforts in the total cost of a loaf of bread. It should not be too difficult to verify and/or update these and similar facts.



United States
Department of
Agriculture

Agricultural
Research
Service

North Central Region

Inter-Regional
Potato Introduction Station
Sturgeon Bay, Wisconsin 54235

Key

S = seed

TF = tuber family

BS = breeding stocks

BW = bacterial wilt clones

LB = late blight differentials

FV = foreign varieties

IV = in-vitro clones

Misc = all others

A subtotal is provided for each category for each state and each region. A combined total is provided on page 4, beneath figures for the western region.

Page No. 1
07/20/87

Recipients of IR-1 Potato Stocks
1980 - 1986

	S	TF	BS	BW	LB	FV	IV	Misc.	Total
** Region = N. Central									
* STATE = IA									
* Subsubtotal *									
4	3	0	0	0	8	0	15	30	
* STATE = IL									
* Subsubtotal *									
4	152	0	0	0	8	1	35	200	
* STATE = IN									
* Subsubtotal *									
0	5	0	0	0	4	0	8	17	
* STATE = KS									
* Subsubtotal *									
32	128	0	0	0	0	0	74	234	
* STATE = MI									
* Subsubtotal *									
3	0	0	0	0	0	0	3	6	
* STATE = MN									
* Subsubtotal *									
937	608	7	0	2	42	0	244	1840	
* STATE = MO									
* Subsubtotal *									
104	121	0	0	0	6	0	0	231	
* STATE = ND									
* Subsubtotal *									
98	54	0	0	0	10	0	94	256	
* STATE = NE									
* Subsubtotal *									
44	123	0	0	0	0	0	4	171	
* STATE = WI									
* Subsubtotal *									
6175	1654	14	105	14	41	48	1049	9100	
** Subtotal **									
7401	2848	21	105	16	119	49	1526	12085	

Page No. 2
07/20/87

Recipients of IR-1 Potato Stocks
1980 - 1986

	S	TF	BS	BW	LB	FV	IV	Misc.	Total
** Region = N. Eastern									
* STATE = DE									
* Subsubtotal *									
0	2	0	0	0	3	0	0	0	5
* STATE = MA									
* Subsubtotal *									
72	24	0	0	0	9	0	0	0	105
* STATE = MD									
* Subsubtotal *									
21	210	0	0	0	9	30	281	0	551
* STATE = ME									
* Subsubtotal *									
140	117	9	0	0	4	0	130	0	400
* STATE = NJ									
* Subsubtotal *									
34	41	0	0	0	0	0	5	0	80
* STATE = NY									
* Subsubtotal *									
637	41	0	0	28	7	0	8	0	721
* STATE = PA									
* Subsubtotal *									
48	3	0	0	0	5	0	74	0	130
* STATE = RI									
* Subsubtotal *									
5	0	0	0	0	0	0	0	0	5
* STATE = VT									
* Subsubtotal *									
43	91	0	0	0	5	0	0	0	139
* STATE = WV									
* Subsubtotal *									
29	0	0	0	0	0	0	18	0	47
** Subtotal **									
1029	529	9	0	28	42	30	516	0	2183

Page No. 3
07/20/87

Recipients of IR-1 Potato Stocks
1980 - 1986

	S	TF	BS	BW	LB	FV	IV	Misc.	Total
** Region = Southern									
* STATE = AL									
* Subsubtotal *									
2	18	0	0	0	0	0	0	0	20
* STATE = FL									
* Subsubtotal *									
4	256	0	0	0	0	0	0	0	260
* STATE = GA									
* Subsubtotal *									
2249	732	0	283	0	494	0	53		3811
* STATE = KY									
* Subsubtotal *									
0	0	0	0	0	0	0	2		2
* STATE = LA									
* Subsubtotal *									
13	16	0	0	0	0	0	0		29
* STATE = NC									
* Subsubtotal *									
101	38	0	0	0	0	0	0		139
* STATE = SC									
* Subsubtotal *									
36	3	1	0	0	0	0	0	0	40
* STATE = TX									
* Subsubtotal *									
12	285	0	0	0	1	2	8		308
* STATE = VA									
* Subsubtotal *									
106	286	5	13	0	11	27	126		574
** Subtotal **									
2523	1634	6	296	0	506	29	189		5183

Page No. 4
07/20/87

Recipients of IR-1 Potato Stocks
1980 - 1986

	S	TF	BS	BW	LB	FV	IV	Misc.	Total
** Region = Western									
* STATE = AZ									
* Subsubtotal *									
40	211	0	0	11	0	0	0	0	262
* STATE = CA									
* Subsubtotal *									
527	172	0	0	0	17	1	77	794	
* STATE = CO									
* Subsubtotal *									
4	29	0	0	0	0	0	0	33	
* STATE = HI									
* Subsubtotal *									
2	676	0	0	0	0	0	0	678	
* STATE = ID									
* Subsubtotal *									
450	578	3	0	0	12	1	57	1101	
* STATE = MT									
* Subsubtotal *									
30	12	0	0	0	0	0	0	42	
* STATE = NM									
* Subsubtotal *									
12	0	0	0	0	0	0	0	12	
* STATE = OR									
* Subsubtotal *									
12	41	0	0	0	0	0	0	53	
* STATE = UT									
* Subsubtotal *									
0	8	0	0	0	0	0	0	8	
* STATE = WA									
* Subsubtotal *									
4105	716	5	0	0	246	3	949	6024	
** Subtotal **									
5182	2443	8	0	11	275	5	1083	9007	
*** Total ***									
16135	7454	44	401	55	942	113	3314	26458	

ANNUAL REPORT
Calendar Year, 1986

1. Project: IR-1: INTER-REGIONAL POTATO INTRODUCTION PROJECT

Introduction, Preservation, Classification, Distribution and Preliminary Evaluation of Wild and Cultivated Tuber-bearing Species of Solanum

2. COOPERATIVE AGENCIES AND PRINCIPAL LEADERS

State Agricultural Experiment Stations

Representative

North Central Region
Western Region
Southern Region
Northeastern Region

F. I. Lauer
A. R. Mosely
F. L. Haynes
R. L. Plaisted

U. S. Department of Agriculture

Agricultural Research Service
Technical Representative
National Program Staff

J. J. Pavek
C. F. Murphy/
H. L. Shands
K. L. Lebsock
D. R. Thompson
R. E. Hanneman, Jr.

Area Director, Northern States Area
Cooperative States Research Service
Inter-Regional Potato Introduction Project

Agriculture Canada

G. C. Misener

Administrative Advisors

North Central Region, Chairman
Western Region
Southern Region
Northeastern Region

R. L. Lower
M. W. Weise
G. J. Kriz
D. F. Crossan

3. PROGRESS OF THE WORK AND PRINCIPAL ACCOMPLISHMENTS

A. Introduction of New Stocks

A total of 173 new introductions were added to the collection, received as 129 true seed accessions and 44 tuber clones. Of these, collections from the expedition to Bolivia, headed by R. W. Hoopes accounted for 115 and 22 of the seed and tuber accessions, respectively. New accessions of rare or disappearing species were added to the collection as a result of this expedition. Receipt of another 12 tuber clones is pending their release from quarantine. Sixty-three seedlots of advanced populations were received from F. L. Haynes for distribution.

B. Preservation and Increase of Stocks

Over 90% of the introductions in the collection are maintained as true seed. Satisfactory seed increases of 154 species introductions and intraspecific hybrids were obtained under glass, fiberglass or screen.

An additional summer seed increase in the field was planted to reduce a backlog of approximately 400 S. tuberosum Group Andigena accessions in need of increase. The results were disappointing due to late and scant flowering. Another increase of about 60 accessions was planted in the greenhouse in September to systematize accessions with taxonomic problems. This increase has proceeded satisfactorily.

Facilities for the maintenance of the collection were improved by the addition of a new screenhouse, reglazing of the fiberglass house, regraveling of screenhouse floors and replacement of the old and failing boilers. The system for preparation of potting soil was greatly improved. The labor saved was applied to the improvement of field plot maintenance and other summer tasks.

A 1,000 seed sample of each of 135 accessions was forwarded to the National Seed Storage Laboratory (NSSL) for backup preservation. An additional 226 accessions without PI numbers have been packaged and will be sent to NSSL when their PI assignments are received.

Germination percentages of 842 seedlots were determined.

This year 28 clonal stocks and 13 families (107 clones) were placed into in vitro culture. A total of 528 virus tests were done to assess the presence of PVS, PVX, PVY, PVA, PVM, PLRV and PSTV in the in vitro collection. Cultures found to have PSTV were removed from the collection. Cultures found to contain any of the other viruses were subjected to heat therapy or meristem culture resulting in 108 new virus-free lines. At present, 87% of the in vitro collection is virus-free. Nine hundred and eighty-six dot blot DNA hybridization tests were made to check for the presence of PSTV among all plants used for seed and tuber increases as well as the resultant true seed lots produced. A test history on clonal stocks is updated regularly.

C. Classification

Taxonomic determinations were made on field plantings and herbarium specimens by Drs. J. G. Hawkes, J. P. Hjerting, R. W. Hoopes, K. A. Okada and T. R. Tarn. Over 1,640 plots were observed and taxonomic determinations were newly assigned, confirmed, corrected or revised. Paper and computerized records were updated accordingly. A total of 596 new herbarium sheets

were made from these plantings. About 4,940 specimens from previous years were mounted such that a total of well over 5,000 sheets, representing nearly 115 potato species are now available for taxonomic study.

D. Distribution of Stocks

Shipments of seed, tuber, and in vitro stocks were sent to potato workers in 24 states of the United States and to workers in 16 other countries in response to requests. The volume of stocks sent to various consignee categories is summarized in the table below.

Distribution of IR-1 Stocks, 1986

Consignee	<u>Units Ordered¹</u>				
	S	TF	TC	IVS	RPS
Domestic	5,561	1,738	195	112	1,271
Foreign	1,017	274	10	2	2
NSSL ²	135	0	0	0	0
Quarantine	177	0	0	0	0
Screening	4,425	0	0	0	0
Transfers	107	0	0	0	0
IR-1 use	4,196	0	70	0	2
Totals	15,618	2,012	275	114	1,275

¹Types of Stocks sent/(Number of seeds, tubers or plantlets per standard shipping unit): S= True Seeds/(50), TF= Tuber Families/(21), TC= Tuber Clones/(4), IVS= in vitro Stocks (1), RPS= USDA-WI Cooperative Research Program Stocks.

²National Seed Storage Laboratory.

The tuber families orders shown above were requested from a listing of 267 accessions mailed to approximately 350 cooperators world-wide.

E. Evaluation of Stocks

The somatic chromosome numbers of 517 accessions were determined in the laboratory. Funds for contracts to state and federal laboratories were provided by USDA, ARS, and Special Grant Funds from USDA, CSRS for screening for resistance to bacterial ring rot, blackleg, early blight, leafhoppers and fleabeetles, as well as heat tolerance and glycoalkaloid levels. Completed screening reports have been subjected to computer summarization. The resulting disease response ratings for Colorado potato beetle, potato leafroll virus, and Verticillium wilt have been entered into the computerized inventory record. The collection is steadily being evaluated for characteristics of economic

importance through the research efforts of state, federal, and foreign laboratories.

F. Visitors from Foreign Countries

A. Golmirzaie, CIP, Lima, Peru
J. G. Hawkes, University of Birmingham, Birmingham, England
J. P. Hjerting, Kobenhavns Universitet, Copenhagen, Denmark
M. Iwanaga, CIP, Lima, Peru
M. G. K. Jones, Rothamsted Experiment Station, Herts, England
S. V. Kuznecov, Vavilov Institute, Leningrad, USSR
K. A. Okada, INTA, Balcarce, Argentina
S. I. Pavlovich, Research Institute of Potatoes, Belaruskja-SSR
F. Rousselle, INRA, Landerneau, France
Maria Scurrah, CIP, Lima, Peru
V. S. Sotchenko, Vavilov Institute, Leningrad, USSR
T. R. Tarn, Agriculture Canada, Fredericton N. B., Canada
V. L. Vitkovskij, Vavilov Institute, Leningrad, USSR
N. M. Vlasov, Vavilov Institute, Leningrad, USSR

4. USEFULNESS OF FINDINGS

The major objective of the Inter-Regional Potato Introduction Project is to promote and facilitate the improvement of the commercial potato in the United States by providing a readily available reservoir of useful breeding stocks. Breeders are constantly searching for new sources of superior germplasm and for ways to incorporate desirable genes into adapted commercial varieties. Accomplishment of the major objective of this program must be measured largely by the success with which new, improved varieties meet the needs of commercial production.

Three new potato varieties, Krantz, Reddale, and Tolaas were released for commercial production. The number of foreign introductions in their pedigrees are 6, 4, and 5, respectively. Of the 172 potato varieties developed and released in the United States since 1932, 168 have two or more foreign introductions in their pedigrees. These varieties represent about 65% of the annual seed potato production in the United States.

Basic research programs conducted in the United States and other countries continue to provide information concerning the potential value and necessity of more effective utilization of the IR-1 germplasm collection. Section six lists 46 papers, 58 abstracts, and 11 theses reporting the use of Solanum introductions this year.

5. WORK PLANNED FOR NEXT YEAR

The USDA, ARS contract for pathological services in support of IR-1 has been extended with the Department of Plant Pathology, University of Wisconsin for a fourth year.

Publication of the IR-1 species inventory was delayed by a need to summarize a great number of new taxonomic revisions and screening data and incorporate them into the inventory database. The inventory, now in press, will be mailed to cooperators early this spring.

Having completed the updating of the database, transfer of IR-1 inventory records to the USDA, ARS centralized computer system (GRIN) is expected by the end of January.

An experiment is planned in which the regular 1987 increase will be split into two groups and subjected to slightly different cultural practices. Foliar fertilization, light foliar applications of gibberellic acid and monitoring of soil pH are to be applied to the "treatment" group in an effort to determine if these measures improve flowering and seedset as compared to that of the "control" group.

A contract has been awarded for an addition to the office building to expand storage capacity for herbarium specimens and records.

Tentative plans have been made for visits by Drs. C. M. Ochoa, J. G. Hawkes and K. A. Okada in which further taxonomic evaluations and herbarium specimen annotations will be accomplished.

An second expedition will be sent to Bolivia to collect from areas previously unsampled, and those areas found to be of special interest in the spring 1986 expedition.

The records of about 500 accessions are being prepared for PI number assignments. Attempts will be made to obtain PI numbers for all currently held accessions during 1987.

6. PUBLICATIONS ISSUED DURING THE YEAR

A. Publications Issued by IR-1 Personnel

Bamberg, J. B. and R. E. Hanneman, Jr. 1986. Crossability of S. commersonii Dun. x Mexican species hybrids. Amer. Potato J. 63:416. (Abstr.).

Bamberg, J. B., R. E. Hanneman, Jr. and L. E. Towill. 1986. Use of activated charcoal to enhance the germination of botanical seeds of potato. Amer. Potato J. 63:181-189.

Dodd, J. B. and R. E. Hanneman, Jr. 1986. Hoyer's solution: A rapid clearing and mounting medium found useful in the study of Solanum embryology. Amer. Potato J. 63:419-420. (Abstr.).

Fritz, N. K. and R. E. Hanneman, Jr. 1986. Interspecific stylar barriers in potatoes. Amer. Potato J. 63:425. (Abstr.).

- Hanneman, R. E. Jr. and J. C. Sanford. 1986. Reciprocal cross differences and the advancement of germplasm in bulk populations undergoing recurrent selection. *Amer. Potato J.* 63:429-430. (Abstr.).
- Hosaka, K., G. A. deZoeten and R. E. Hanneman, Jr. 1986. Chloroplast DNA of the common potato. *Amer. Potato J.* 63:434. (Abstr.).
- Hosaka, K. and R. E. Hanneman, Jr. 1986. Chloroplast genomic variation in Solanum tuberosum ssp. andigena. *Amer. Potato J.* 63:435. (Abstr.).
- Johnston, S. A., R. W. Ruhde, M. K. Ehlenfeldt, and R. E. Hanneman, Jr. 1986. Inheritance and microsporogenesis of a synaptic mutant (sy-2) from Solanum commersonii Dun. *Can. J. Genet. Cytol.* 28:520-524.
- Parrott, W. A. and R. E. Hanneman, Jr. 1986. Modified monosporic megasporogenesis in Solanum commersonii Dun. *Amer. Potato J.* 63:447-448. (Abstr.).
- Singsit, C. and R. E. Hanneman, Jr. 1986. Regeneration of haploids from microspores via anther culture in 4x Mexican species. *Amer. Potato J.* 63:456. (Abstr.).
- B. Journal Articles and Abstracts Reporting Research with IR-1 Stocks
- Anon. 1986. Annual report 1985. International Potato Center. Lima, Peru. 175 pp.
- Arndt, G. C. and S. J. Peloquin. 1986. Comparisons among true potato seed families from 4x x 2x crosses and successive generations of open pollination and selfing. *Amer. Potato J.* 63:415. (Abstr.).
- Austin, S., M. Baer, M. Ehlenfeldt, P. J. Kazmierzak, and J. P. Helgeson. 1985. Intra-specific fusions in Solanum tuberosum. *Theor. Appl. Genet.* 71:172-175.
- Austin, S., M. K. Ehlenfeldt, M. A. Baer and J. P. Helgeson. 1986. Somatic hybrids produced by protoplast fusion between S. tuberosum and S. brevidens: phenotypic variation under field conditions. *Theor. Appl. Genet.* 71:682-690.
- Avé, D. A., N. T. Eannetta, and W. M. Tingey. 1986. A modified enzymic browning assay for potato glandular trichomes. *Amer. Potato J.* 63:553-558.

- Avé, D. A. and W. M. Tingey. 1986. Phenolic constituents of glandular trichomes on Solanum berthaultii and S. polyadenium. Amer. Potato J. 63:473-480.
- Barlow, E., L. Sequeria and R. Hanneman. 1986. Screening the IR-1 collection of Solanum species for resistance to bacterial wilt. Phytopathology 76:1437. (Abstr.).
- Buckner, B. and B. B. Hyde. 1985. Chloroplast DNA variation between the common cultivated potato (Solanum tuberosum ssp. tuberosum) and several South American relatives. Theor. Appl. Genet. 71:527-531.
- Cappadocia, M., D. S. K. Cheng and R. Ludlum. 1985. Compatibility behavior of doubled haploids regenerated via anther culture in self-incompatible Solanum chacoense Bitt. (Solanaceae). Plant Cell Incompat. Newsletter 17:10-12.
- Cappadocia, M., D. S. K. Cheng and R. Ludlum-Simonette. 1986. Self-incompatibility in doubled haploids and their F1 hybrids, regenerated via anther culture in self-incompatible Solanum chacoense Bitt. Theor. Appl. Genet. 72:66-69.
- Carter, C. D., G. M. Ghidin, and F. R. Rahimi. 1986. Host plant affects response of Colorado potato beetle to pesticide. Hortscience 21:883. (Abstr.).
- Chujoy, J. E. and S. J. Peloquin. 1986. Barriers to interspecific hybridization between Solanum chacoense Bitt. and S. commersonii Dun. Amer. Potato J. 63:416-417. (Abstr.).
- Chujoy, J. E. and S. J. Peloquin. 1986. Tuber yields of 2x and 4x progeny from 2x x 2x crosses in potato. Amer. Potato J. 63:417. (Abstr.).
- Corsini, D. and J. Pavek. 1986. Bacterial soft-rot resistant potato germplasm. Amer. Potato J. 63:417-418. (Abstr.)
- Deahl, K. L., L. L. Sanford, and S. L. Sinden. 1986. The detection of leptine glycoalkaloids in Solanum tuberosum x chacoense hybrids. Amer. Potato J. 63:419. (Abstr.).
- de Jong, H. 1986. Inheritance of pigmented tuber flesh in cultivated diploid potatoes. Amer. Potato J. 63:419. (Abstr.).
- De Maine, M. J., Linda A. Farrer, and M. S. Phillips. 1986. Breeding for quantitative resistance to potato cyst nematode (Globodera pallida) in tetraploid potatoes using dihaploids and unreduced gametes. Euphytica 35:1001-1006.

- Dimock, M. B., S. L. Lapointe, and W. M. Tingey. 1986. Solanum neocardenasii: A new source of potato resistance to the Colorado potato beetle (Coleoptera:Chrysomelidae). J. Econ. Entomol. 79:1269-1275.
- Dimock, M. B. and W. M. Tingey. 1985. Resistance in Solanum spp. to the Colorado potato beetle: Mechanisms, genetic resources and potential. Res. Bull. Mass. Agri. Exp. Sta. 704:79-106.
- Douches, D. S. and C. F. Quiros. 1986. Determination of linkage relationships of various isozyme markers through 4x-2x and 2x-2x matings in potato species. Hortscience 21:662. (Abstr.).
- Douches, D. S. and C. F. Quiros. 1986. Genetic analysis of a diploid synaptic mutant through electrophoretic markers. Amer. Potato J. 63:420. (Abstr.).
- Douches, D. S. and C. F. Quiros. 1986. Development of genetic strategies to determine the mode of 2n egg formation in diploid potatoes. Amer. Potato J. 63:420-421. (Abstr.).
- Estrada, R., P. Tovar, and J. H. Dodds. 1986. Induction of in vitro tubers in a broad range of potato genotypes. Plant Cell. Tiss. Org. Cult. 7:3-10.
- Fennell, A. and P. H. Li. 1986. Temperature response of plasma membranes in tuber-bearing Solanum species. Plant. Physiol. 80:470-472.
- Fernandez-Northcote, E. N., H. A. Mendoza, and R. Galvez. 1986. Breeding for potato virus Y (PVY) immunity combined with earliness and tolerance to heat. Amer. Potato J. 63:422-423. (Abstr.).
- Flanders, K. L. and E. B. Radcliffe. 1986. Evaluating the U.S. potato germplasm collection for resistance to potato leafhopper and potato flea beetle. Amer. Potato J. 63:423-424. (Abstr.).
- French, E. R. and C. Ochoa. 1986. Resistance to Pseudomonas solanacearum in several wild species of tuber bearing Solanum. Amer. Potato J. 63:424-425. (Abstr.).
- Graza, I. and P. van der Zaag. 1985. Rapid multiplication of potato (Solanum spp.) for tuberlet production. Philippine Agriculturist 68:287-296.
- Groden, E. and R. A. Casagrande. 1986. Population dynamics of the Colorado potato beetle, Leptinotarsa decemlineata (Coleoptera:Chrysomelidae) on Solanum berthaultii. J. Econ. Entomol. 79: 91-97.

- Grun, P. 1986. Influences of maternal genotype on later development of the potato. *Amer. J. Bot.* 73:684-685. (Abstr.)
- Grun, P. 1986. Parental effects on vigor and yield of potatoes. *Amer. Potato J.* 63:427. (Abstr.).
- Haynes, F. L., K. G. Haynes, and R. H. Moll. 1986. Maintenance and improvement of tuber dry matter in a diploid breeding population. *Amer. Potato J.* 63:430. (Abstr.).
- Haynes, K. G., F. L. Haynes, and W. H. Swallow. 1986. Variability of flowering and unreduced pollen production in diploid potatoes under high temperatures. *Amer. Potato J.* 63:430. (Abstr.).
- Helgeson, J. P., G. J. Hunt, G. T. Haberlach, and S. Austin. 1986. Somatic hybrids between Solanum brevidens and Solanum tuberosum: Expression of a late blight resistance gene and potato leaf roll resistance. *Plant Cell Rep.* 5:212-214.
- Hermundstad, S. and S. J. Peloquin. 1986. Characteristics of haploid-wild species F2 families. *Amer. Potato J.* 63:430-431. (Abstr.).
- Hermundstad, Shelley and S. J. Peloquin. 1986. Tuber yield and tuber traits of haploid-wild species F1 hybrids. *Potato Research* 29:289-297.
- Herriott, A. B., F. L. Haynes, Jr. and P. B. Shoemaker. 1986. The heritability of resistance to early blight in diploid potatoes. (Solanum tuberosum subsp. phureja and stenotomum). *Amer. Potato J.* 63:229-232.
- Hosaka, K. 1986. Leaf shape variation in tuber-bearing Solanum species. *Amer. Potato J.* 63:434. (Abstr.).
- Hosaka, K. 1986. Who is the mother of the potato? - restriction endonuclease analysis of chloroplast DNA of cultivated potatoes. *Theor. Appl. Genet.* 72:606-618.
- Huang, Y., J. P. Helgeson, and L. Sequeria. 1986. Differential responses of potato tissue cultures to inoculation with strains of Pseudomonas solanacearum. *Phytopathology* 76:1137. (Abstr.).
- Jatala, P., H. Mendoza, and M. Iwanaga. 1986. A strategy for development of potato cultivars resistant to Meloidogyne. *J. Nematol.* 18:615. (Abstr.).
- Jaworski, C. A., S. C. Phatak, S. R. Ghate, and R. D. Gitaitis. 1986. Cultural practices and screening in use of true seed of potato and tuber-forming Solanum species under hot climates. *Hortscience* 21:683. (Abstr.).

- Jaworski, C. A., S. C. Phatak, S. R. Ghate, and R. D. Gitaitis. 1986. Performances for tuber-forming Solanum species in warm climates and from true seed. *Hortscience* 21:891. (Abstr.).
- Johansen, R. H., B. Farnsworth, G. Secor, D. C. Nelson, P. H. Orr, and A. A. Boe. 1985. Norking Russet, a new potato variety. *N. D. Farm Res.* 43(2):13-14.
- Jongedijk, E. 1985. The pattern of megasporogenesis and megagametogenesis in diploid Solanum species hybrids: Its relevance to the origin of 2n-eggs and the induction of apomixis. *Euphytica* 34:599-611.
- Kemble, R. J., T. L. Barsby, R. S. C. Wong, J. F. Shepard. 1986. Mitochondrial DNA rearrangements in somatic hybrids of Solanum tuberosum and Solanum brevidens. *Theor. Appl. Genet.* 72:787-793.
- Kotch, G. P. and S. J. Peloquin. 1986. Variation among Tuberosum haploids in tuber quality characteristics. *Amer. Potato J.* 63:437-438. (Abstr.).
- Lapointe, S. L. and W. M. Tingey. 1986. Glandular trichomes of Solanum neocardenasii confer resistance to green peach aphid (Homoptera:Aphididae). *J. Econ. Entomol.* 79:1264-1268.
- Levy, D., E. Pehu, and R. Veilleux. 1986. Photosynthetic efficiency and dry matter partitioning of clone PP5 (Solanum phureja), its anther-derived tetraploids and its cross with S. tuberosum cv. Atlantic. *Amer. Potato J.* 63:439-440. (Abstr.).
- Li, P. H. 1985. Potato cold hardiness and freezing stress. Pp 201-216. In: Key, J. L. and T. Kosuge (ed). *Cellular and molecular biology of plant stress*. Alan R. Liss, Inc., New York, NY.
- Liedl, B. E. and S. L. Desborough. 1986. Genetics of the esterase isozyme complex in Solanum tubers. *Hortscience* 21:791. (Abstr.).
- Macaso-Khwaja, A. C., R. P. Batugal, A. A. de la Cruz, M. M. Castaneda, and J. P. Valdez. 1986. Breeding strategies for achieving uniform, high yielding true potato seed families in the Philippines. *Amer. Potato J.* 63:441. (Abstr.).
- Main, D. and C. D. Carter. 1986. Inter- and intra-accessional variability in Solanum for non-preference antibiosis and tolerance to Colorado potato beetle. *Amer. Potato J.* 63:442. (Abstr.).

- Miller, P. D. and S. L. Sinden. 1986. Electroporation of potato protoplasts. *Amer. Potato J.* 63:445. (Abstr.).
- Mullin, Barbara A. and B. B. Brodie. 1986. Syncytia associated with Globodera rostochiensis (RIA) females developing in resistant potatoes. *J. Nematol.* 18:622. (Abstr.).
- Mullin, Barbara A. and B. B. Brodie. 1986. The reproduction potential of Globodera rostochiensis (RIA) in resistant potatoes. *J. Nematol.* 18:622. (Abstr.).
- Nicolas, Z. and M. Canto-Saenz. 1986. Reaction of 15 selected potato clones to Pratylenchus flakkensis. *J. Nematol.* 18:623. (Abstr.).
- Owen, H. R. Jr., R. E. Veilleux, and E. Pehu. 1986. Variation among plants regenerated from callus of an anther-derived, monoploid genotype of the tuber-bearing potato species, Solanum phureja. *Hortscience* 21:851. (Abstr.).
- Peloquin, S. J. 1986. Chromosome engineering with meiotic mutants. Pp 47-52. In: David L. Mulcahy, Gabriella Bergamin, Mulcahy, and Ercole Ottaviano (eds). *Biotechnology and Ecology of Pollen*. Springer-Verlag, New York.
- Pehu, E., Carol Gassman, R. Veilleux, and T. Kalb. 1986. Changes in isozyme patterns and ultrastructure of callus tissue of Solanum phureja during regeneration. *Hortscience* 21:803. (Abstr.).
- Pellow, J. W. and L. E. Towill. 1986. Colony formation and plant regeneration from mesophyll protoplasts of Solanum etuberosum. *Plant Cell Tiss. Org. Cult.* 7:11-19.
- Radcliffe, E. B. and D. G. Radcliffe. 1986. Evaluating the U.S. potato germplasm collection for resistance to Colorado potato beetle. *Amer. Potato J.* 63:448-449. (Abstr.).
- Rahimi, F. R. and C. D. Carter. 1986. Screening for resistance to Colorado potato beetle in tuberous Solanum species. *Amer. Potato J.* 63:449. (Abstr.).
- Rascusen, D. 1985. Patatin and esterase in Desiree potato tubers. *J. Food Biochem.* 9:361-367.
- Reynolds, M. P. and E. E. Ewing. 1986. Screening accessions from the IR-1 potato collection for heat tolerance. *Amer. Potato J.* 63:451. (Abstr.).
- Romanova, L. V. and K. Z. Budin. 1985. [Differentiation of wild potato species by the photoperiodic sensitivity of tuber formation]. *Sel' skokhozyaestvennaya Biologiya* 9:71-73. [In Russian]. (*Field Crop Abstr.* 39:338.).

- Rose, Elise and J. Palta. 1986. Long-term acclimation to cold in wild potato (Solanum commersonii). Plant Physiol. 80(Suppl):109. (Abstr.).
- Rowell, A. B., E. E. Ewing, and R. L. Plaisted. 1986. General combining ability of Neo-tuberosum for potato production from true seed. Amer. Potato J. 63:141-153.
- Rowell, A. B., E. E. Ewing, and R. L. Plaisted. 1986. Selection for improvement of potato populations grown from true seed. Amer. Potato J. 63:207-218.
- Rowell, A. B., E. E. Ewing, and R. L. Plaisted. 1986. Comparative field performance of potatoes from seedlings and tubers. Amer. Potato J. 63:219-227.
- Sanford, L. L. and W. W. Cantelo. 1986. Resistance to Colorado potato beetle in Solanum species. Amer. Potato J. 63:453. (Abstr.).
- Schmiediche, P. and C. Martin. 1986. The use of wild species in breeding for resistance to bacterial wilt (Pseudomonas solanacearum). Amer. Potato J. 63:453. (Abstr.).
- Scurrah, M. 1986. One cycle of selection for resistance to potato tuber moth. Amer. Potato J. 63:454. (Abstr.).
- Sinden, S. L., K. L. Deahl, and L. L. Sanford. 1986. A new alkaloid in a protoplast fusion hybrid. Amer. Potato J. 63:455. (Abstr.).
- Sinden, S. L., L. L. Sanford, W. W. Cantelo, and K. L. Deahl. 1986. Leptine glycoalkaloids and resistance to the Colorado potato beetle (Coleoptera:Chrysomelidae) in Solanum chacoense. Environ. Ent. 15:1057-1062.
- Smith, J. A. and S. L. Desborough. 1986. An interpretation of genomic balance in seed formation in interspecific hybrids of Solanum. Theor. Appl. Genet. 72:346-352.
- Steffen, K. L., A. Y. Abdallah, and J. P. Palta. 1986. Photosynthetic acclimation to growth temperature in potato species which differ in relative cold-tolerance. Plant Physiol. (Suppl):123. (Abstr.).
- Steffen, K. L. and J. P. Palta. 1986. Relative sensitivity of photosynthesis and respiration as determined by freeze-thaw procedure. Hortscience 21:719. (Abstr.).
- Steffen, K. L. and J. P. Palta. 1986. Evidence of differential responses to photoinhibitory treatments in potato species: Light vs. dark reactions. Hortscience 21:756. (Abstr.).

- Staffen, K. L. and J. P. Palta. 1986. Effect of light on photosynthetic capacity during cold acclimation in a cold-sensitive and a cold-tolerant potato (Solanum) species. *Physiol. Plant.* 66:353-359.
- Stelly, David M. and S. J. Peloquin. 1986. Formation of 2n megagametophytes in diploid tuber-bearing Solanums. *Amer. J. Bot.* 73:1351-1363.
- Stelly, David M. and S. J. Peloquin. 1986. Diploid female gametophyte formation in 24-chromosome potatoes: genetic evidence for the prevalence of the second meiotic restitution mode. *Can. J. Genet. Cytol.* 28:101-108.
- Surikov, I. M., N. A. Zhitlova, and L. I. Alakseeva. 1985. [Hybridization of Solanum berthaultii Hawk. with wild and cultivated potato species in order to transmit the character leaves covered with multicellular glandular trichomes]. *Genetika USSR* 21:1215-1221. [In Russian] (*Plant Breed. Abstr.* 56:313).
- Tai, G. C. C. and T. R. Tarn. 1986. Comparison of different selection strategies in an *Andigena* breeding population. *Amer. Potato J.* 63:457-458. (Abstr.).
- Tingey, W. M. and J. E. Laubengayer. 1986. Glandular trichomes of a resistant hybrid potato alter feeding behavior of the potato leafhopper (Homoptera:Cicadelliadae). *J. Econ. Entomol.* 79:1230-1234.
- Towill, L. E. 1985. Low temperature and freeze-/vacuum-drying preservation of pollen. Pp 171-198. In: Kartha, K. K. (ed). *Cryopreservation of plant cells and organs*. CRC Press, Inc., Boca Raton, Florida.
- Tseng, M. J. and P. H. Li. 1986. Alterations of gene expression in tuber-bearing Solanum species during cold acclimation and ABA treatment. *Pl. Physiol.* 80(Suppl):109. (Abstr.).
- Uhrig, H. 1985. Genetic selection and liquid medium conditions improve the yield of androgenetic plants from diploid potatoes. *Theor. Appl. Genet.* 71:455-460.
- Vilaro, F. L. and R. L. Plaisted. 1986. Gene-cytoplasmic male sterilities in *Neotuberosum* and *Andigena* populations. *Amer. Potato J.* 63:460. (Abstr.).
- Werner, J. E. and S. J. Peloquin. 1986. Frequency and mechanisms of 2n egg formation in haploid *Tuberosum*-wild species F2 hybrids. *Amer. Potato J.* 63:461. (Abstr.).
- Wiersema, S. G. 1986. The effect of density and tuber yield in plants grown from true potato seed in seed beds during two contrasting seasons. *Amer. Potato J.* 63:465-472.

Wiersema, S. G. 1986. A method of producing seed tubers from true potato seed. Potato Research 29:225-237.

Wiersema, S. G. and R. Cabello. 1986. Comparative performance of different-sized seed tubers derived from true potato seed. Amer. Potato J. 63:241-249.

Xia, J-K. and W. M. Tingey. 1986. Green peach aphid (Homoptera: Aphididae): Developmental and reproductive biology on a Solanum tuberosum x S. berthaultii hybrid potato. J. Econ. Entomol. 79:71-75.

7. APPROVED

2/5/87
Date

F. L. Haynes
F. L. Haynes, Chairman, Technical Committee

2/24/87
Date

R. L. Lower
R. L. Lower, Regional Administrative Advisor

SUPPLEMENT

6. PUBLICATIONS ISSUED DURING THE YEAR

C. Theses Reporting Research with IR-1 Stocks

- Adiwilaga, Kartika D. 1986. Production of potato trisomics and identification of potato chromosomes using Giemsa C-banding technique. M.S. Thesis. University of Wisconsin-Madison. 33 pp.
- Amoah, V. 1985. Tuber, seed production and sterility factors in reciprocal crosses of Solanum. Ph.D. Thesis. Penn. State University. 68 pp. (Dissert. Abstr. 46:3329-B).
- Arndt, Gisela C. 1986. Comparisons of 4x x 2x hybrid, open pollinated and selfed true potato seed families for plant and tuber traits. M.S. Thesis. University of Wisconsin-Madison. 99 pp.
- Buso, Jose A. 1986. Evaluations of families and clones from the 4x x 2x breeding scheme in potatoes. Ph.D. Thesis. University of Wisconsin-Madison. 211 pp.
- Chujoy, J. E. 1985. Tuber yields of 2x and 4x progeny from 2x x 2x crosses in potato; barriers to interspecific hybridization between Solanum chacoense Bitt. and S. commersonii Dun. Ph.D. Thesis. University of Wisconsin-Madison. 146 pp. (Dissert. Abstr. 47:2-B).
- Dimock, M. B. 1985. Studies on mechanisms of resistance in the wild potato Solanum berthaultii (Hawkes) to the Colorado potato beetle, Leptinotarsa decemlineata (Say) (Coleoptera: Chrysomelidae). Ph.D. Thesis. Cornell University. 106 pp. (Dissert. Abstr. 46:2928B).
- Hermundstad, Shelley A. 1986. Haploid-wild species hybrids in potato breeding, genetics, and germplasm enhancement. Ph.D. Thesis. University of Wisconsin-Madison. 186 pp. (Dissert. Abstr. 47:915-B).
- LaPointe, S. L. 1986. Potato glandular trichomes: Influence on behavior, biology, and virus transmission capability of the green peach aphid. Ph.D. Thesis. Cornell University.
- Pehu, E. P. 1986. Analysis of anther-derived plants of Solanum phureja: Variation in ploidy, photosynthetic efficiency and structure of the nuclear genome. Ph.D. Thesis. Virginia Polytechnic Institute and State University. 112 pp.
- Pomery, E. O. 1986. Evaluation and inheritance of resistance to the Colorado potato beetle Leptinotarsa decemlineata (Say) in some wild potato Solanum species. Ph. D. Thesis. University of Minnesota- St. Paul.

Ruchijat, E. 1985. Interaction between Meloidogyne javanica and Pseudomonas solanacearum on bacterial wilt-susceptible and -resistant potato genotypes. Ph.D. Thesis. University of Georgia. 108 pp. (Dissert. Abstr. 46:2901-B).

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
1987 Summer Meeting, Hilton Hotel, Reno, Nevada, July 20-23, 1987

DAL Report
L. L. Boyd

This report covers the time period from the Spring meeting in Washington, DC on March 1, 1987 through July 17, 1987. I participated in the following activities that required travel during this period:

3/2-3 Hatch Act Centennial Programs, Washington,
3/3-4 NISARC Winter meeting, Dupont Plaza Hotel, Washington, DC
3/4 DAL meeting, 1:00 p.m.
3/11-13 PBAG Project Review, Honolulu, Hawaii
3/24 MSO sponsored video projector/plate demonstration by Davis Audio-Visual
3/26 Meeting with Schlegel/Roe on OCRs in Berkeley
3/30 RIC meeting, Ft. Collins
4/13-14 California visit-Riverside campus and area
4/21 Discussed RIC and C-9 needs with Myers et al, Washington, DC
4/22 DAL meeting to select accomplishments for NARC and Joint Council
4/26 DAL meeting, Arizona Inn, Tucson, AZ, 1:00 p.m.
4/26-29 ESCOP Spring meeting, Arizona Inn, Tucson, AZ
5/3-5 Cornell Centennial Activities
5/6-8 UAB in Iowa (Ames and Des Moines)
5/11 ARI Workshop for Congressional Staff, Washington, DC
5/21-22 ESCOP Special Initiatives; Washington, DC
6/25 DAL meeting, Holiday Inn International, Minneapolis, 8:00 a.m.
6/25-26 ESCOP Summer Interim meeting, Holiday Inn International, Minneapolis
6/28-7/1 ASAE Summer Meeting, Baltimore, MD
7/2 Meeting with John Naegele, CSRS, on Expert Systems/AI Workshop, etc.
7-10 DAL meeting, Washington, DC-met with Bender, Crossan and Cath (ARI)

I continue to work closely with Colin Kallenbach on ESCOP activities. I believe that Colin is doing an excellent job as Chair of ESCOP. I handled the arrangements for the Summer Interim meeting at the Holiday Inn-International, Minneapolis. I am looking forward to the Fall meeting in Jackson Hole, Wyoming, which Colin is hosting.

All DALs have worked with Chuck Krueger and others on gaining the maximum support for the FY88 budget request. There have been several conference calls to discuss the situation and plan strategies. Several of you received letters from Chuck and/or me encouraging you to make contact with your Congressional members who hold important leadership positions. You also have received Dialcom messages from me as we strive to make timely contacts to reinforce and strengthen our position relative to the budget. You all are aware of the tremendous competition for funds. We not only have to work for additional funds for important programs, but also make certain that we don't lose funds through overconfidence and/or complacency. While some congressional representatives seem to be more important to our cause than others, all are important. Often they move unexpectedly to important roles. We need to be certain that they are keenly aware of our programs, even when they are in lesser roles. Remember that there is vote trading all the time. Unfortunately the House still has not "marked up" and apparently the Senate won't until the House does. NASULGC expects the "mark ups" to be completed before the August 8-September 8 recess. In my judgment there is virtually no chance that there will be a "conference" before then. This means that August contacts can be critical to obtaining the greater amounts of the "two marks". I expect that Pat Jordan will send you information on them as soon as he has it. I will try to follow

up with suggestions relative to contacts.

You received copies of the FY89 Budget request at this meeting. Possibly, you also may have received copies at home from Bob Gast; if not, you will soon. Bob Heil has prepared a statement on it for you. I worked closely in the development in the early stages last fall and early this year with different ways to present the historical information in graphical form. Bob chose not to use it, which is o.k. I have copies with me, if any of you are interested. Much credit goes to Keith Huston for getting the data and working the accomplishment statements into a useable form. It would be very helpful to Jim Zuiches and me to have your judgments on this presentation and any ideas you have for FY1990 that might make it even more effective. The FY1990 Budget subcommittee holds its first meeting in Washington, DC on September 9. The DALs have worked with Don Crossan to select the Chief Executive Officers (CEOs) to ask to visit OMB Director James Miller to request support for the FY1989 CSRS budget, really the NASULGC budget. Don expects to have the first contacts made in early September. Don has mentioned the CEOs telephoning. The DALs urged him to try to get the CEOs to make a personal visit. He is also thinking about individual visits/calls versus a group visit. I believe a group visit would have a great impact, but it is unlikely that we can get a group together at one time to go.

A brief review of some items of interest and importance follow. The PBAG project reviews went well in Honolulu in March. Ray Smith, the new Assistant Director at Hawaii who replaced Ada Demb, was well prepared and had followed up well with the peer reviewers, who were slow in getting their appraisals back. The group decided to hold next years reviews in Guam. I am looking forward to that visit and will have to decide whether or not to plan visits to Micronesia and American Samoa at that time. I do hope to visit Japan again on one leg of the trip. The Science City (Research Center), Tsukuba, was a fascinating experience, when we visited in October of 1981. I will be interested in new developments there since then. The second state visit to California to the Riverside campus and area was most interesting. Seymour Van Gundy and Irwin Sherman had things well planned. I had a chance to get better acquainted with them, their priorities and southern California agriculture. I also had the opportunity to visit USDA's Salinity Laboratory. Dave Schlegel accompanied me on this visit providing us with an additional opportunity to discuss such things as W-161, RIC and Committee of Nine activities.

The spring meeting of ESCOP in Tucson was excellent. Pete Dewhirst and his colleagues had things well planned including the tour to their new Maricopa experiment station, a very large dairy and a large farm using below ground drip irrigation for row crops. The Cornell Centennial program was excellent. Norm Scott and his colleagues had everything in order and the attendance was very good. Jim Welsh also was there. The UAB meeting in Ames and Des Moines was about as expected. Lee Kolmer and his associates had a good program the first day about Iowa State programs. The second day was devoted to tours to the Thompson farm near Boone, a "low input" farm, and to the National Animal Disease Laboratory in Ames. Saturday morning's trip to Pioneer Hybrids in Johnston, just northwest of Des Moines, was all too short in the planning and further abbreviated because of flight schedules. It was another example of very little time for serious discussion between and among members of UAB and with those making presentations to them. I plan to discuss this with Dr. Bentley sometime. The ARI Congressional Staff Workshop was interesting, but found "wanting" in my opinion. It appeared that Staff were not adequately briefed in advance that they would be expected to react to presentations that were to be made. Some comments from Staff further convince me that we have a continuing job of keeping them updated and, more important, making certain

that they fully understand the critical issues, and the costs incurred and by whom from inaction or poor judgments. This problem is exacerbated, of course, by the rapid turnover/change of Staff. Can I assist you in some way on this?

ESCOP Special Initiatives got off to a good start under new Chair Norm Scott. Unfortunately, both of the West's representatives found it necessary to stay home and attend to important state Legislative issues. A major concern is that we are creating expectation from task force members relative to moving their reports into the budget requests. I think it is important in the charges that we give these groups to remind them that the purpose of the task force efforts is to ASSESS the opportunities in the area, so ESCOP and the Budget Subcommittee can decide which are the highest priorities. Those will move into the budget request first, but also are influenced by political realities. Several assignments were made. I chair a group to look into research equipment need. Roald Lund and Semour Van Gundy will be working with me on this. Gale Buchanan will be gathering information on leadership training needs. Bob Kalter will develop a discussion paper on agricultural policy/technology assessment needs. Mel Nesheim of Cornell will be asked to lead a discussion on nutrition/diet/health. The next meeting will be held in Denver on September 17-18 at the downtown Holiday Inn. Our office is making the arrangements.

The ESCOP Summer Interim meeting raised important issues for which we need your input. One is the employment of a Coordinator for the Water Initiative and how we can assess the states to cover the cost. Another is the need for an ESCOP "position" on the issue of Extension personnel conducting research. Both of these should have been covered by the time I report. If not, I will report orally on them. The West needs to give serious thought to which one of our Directors might serve as the FY1991 ESCOP Budget Subcommittee Chair. We look for the best person, but try when possible to maintain a rotation. It is our turn already again. The FY1991 Chair should get closely involved in the FY1990 process.

At the ASAE meeting, Pat Jordan gave his usual inspiring address relative to the national agricultural research system including its history and prospects for the future. I spent much of my time with activities of the ASAE Research Committee, especially trying to develop plans for professional society interactions in setting research priorities to forward to ESCOP, NARC and the Joint Council. Professional society members need to know how research priorities are determined and how they can participate in and contribute to the process. I also am working on developing an endowment for a major ASAE award for those working in the Structures and Environment area. It will honor my major professor, Henry Giese. After the meeting I met with John Naegel in Washington, DC to get updated on the June 9-10 Expert Systems-AI Workshop sponsored by CSRS and the WRCC-62, which I had to miss. We also discussed his draft of an Executive Management Training Program (EXCEL), which Pat Jordan has asked John and the CSRS Research Management Standing Committee to address. Pat distributed a draft of the concept at the April ESCOP meeting in Tucson. I have copies of that for you and can make available copies of John's draft, if Pat hasn't already done so, and with his and John's concurrence. I remind you again of Pat's willingness to "sponsor" someone at a session of the Federal Executive Institute in Charlottesville, VA. I recommend it highly.

I have worked closely with John Myers and others to develop information that is useful to RIC and the Committee of Nine, in particular, in making assessments of existing projects. These and other data which come from the CRIS system and other sources, largely from USDA agencies, should be useful to you in the state and to the WAAESD office. I also have worked with George Hol-

comb, Editor of the Factbook for U. S. Agriculture and people in ERS and the Government Printing Office to get Agricultural Statistics and the Factbook on floppy diskettes for distribution for easy use without reentry costs and possible errors. We're making progress, but we aren't there yet. I've also talked with Kay Hatch about the Professional Workers Guide and the Directors Listing and with Ted Wilson about various information items, which he sends out. John Myers will have told you about the "derived files" that he has on five floppy discs. This may meet our needs for information now printed in the Inventory of Agricultural Research documents.

As I wrote in my report for the March meeting, I have sent you various kinds of information. It continues to be helpful to have your assessment both about how useful what I have sent is, but also what I should be sending that will be useful. I need your ideas to go with mine on what new things I can do to assist you most. This will continue to be an item of discussion during my state visits. There are states or locations, which I have not yet visited. I hope I will have visited all by no later than March. Some will have had second or even third visits by then. I find the visits most informative and interesting.

Thanks once more for the opportunity to represent you in a number of ways. Also, thanks to the many of you who provide information when I need it and help me in various ways to serve you and your interests.

Report to Experiment Station Directors on the Museum Exhibit
"The Search for Life: Agricultural Science
in the Twentieth Century"

Filmore Bender
July, 1987

The work on developing the museum exhibit is proceeding on schedule. Current plans call for an opening of the exhibit in November. In order to maximize the public relations possibilities for this exhibit, we are planning on having the NASULGC senate hold its annual meeting in the National Museum of American History on the afternoon of Sunday, November 8, 1987. Immediately following that meeting, which lasts approximately 45 minutes, those individuals will be provided with a "sneak preview" of the exhibit. We will then have a reception on the evening of Tuesday, November 10, 1987 which will mark the official opening of the exhibit. The exhibit will be open to the public beginning the morning of Wednesday, November 11, 1987.

An article has been written for the magazine Science of Food and Agriculture. This article describes the museum exhibit "The Search for Life." Because this magazine is distributed to high school science teachers and students throughout the United States, we feel it is especially important to obtain this exposure. We are also working with a number of newspapers and magazines in an attempt to get greater publicity about this exhibit at the time that it opens.

Although Dr. Roger Kennedy, Director of the National Museum of American History, was unable to join us on the evening of March 2, 1987, he was extremely impressed by the favorable reactions that the Secretary of the Smithsonian Institution and others related to him. He has suggested that a food product from a different university could be offered each month at the museum's ice cream parlor. If such an arrangement can be made, I believe that we can develop a one page sheet which will tell the research story of the product on one side of the page and talk about the teaching, research and extension programs of the institution on the other side. To my knowledge, the Smithsonian Institution has never provided this form of publicity for outside organizations before.

As the museum exhibit "The Search for Life" has evolved, Dr. Kennedy, the Director of the Museum, has realized that the expertise necessary for exhibits in this area of science does not currently reside within the National Museum of American History. If we are able to persuade a corporation to provide a \$1,000,000 endowment, Dr. Kennedy will establish a curator of life sciences for the National Museum of American History. Such an individual would be able to provide the intellectual leadership to expand and update the exhibit that is currently being developed.

A corporate grant for \$150,000 is being sought to underwrite the publication of a book that will be an amplification of the material that will be in the exhibit. An additional corporate grant of \$300,000 is being sought to underwrite the cost of the interactive videos, which the designers of the exhibit feel are needed. Corporate commitments of \$100,000 a year are being sought to underwrite the costs of maintaining the operation of this exhibit and keeping it current. We also seeking corporate grants of \$50,000 for each of four video cassettes, which will be used to amplify various facets of this exhibit.

-2-

Because many scientists who have heard of this exhibit have come forward and requested an opportunity to be a part of the exhibit, we have obtained clearance from the Smithsonian Institution and the University of Maryland Foundation to raise money from individual donations that will support this museum exhibit and the ancillary activities. Attached are the approved solicitation letter, donation form and text of the certificate that will be given to a donor.

With ESCOP's endorsement, I am working with the professional societies, requesting that the president of the society endorse this solicitation program and distribute the request to the membership of the association. Although I believe that this will raise a substantial sum of money, the primary purpose of this direct mail solicitation approach is to increase the awareness of individual scientists concerning this exhibit and the other activities that have been undertaken to tell the story of agricultural research in the United States.

The current schedule for the exhibit "The Search for Life" is to open in Washington, D.C. the evening of November 10, 1987 for a six month run. It will then tour the United States for twenty-four months. After the tour, it will return to Washington, D.C. to be updated, refurbished and installed as a permanent exhibit.



THE UNIVERSITY OF MARYLAND

AGRICULTURAL EXPERIMENT STATION
College Park-Eastern Shore-Research Farms
(301) 454-6721

July, 1987

Dear Colleague:

In June, 1986, the W. K. Kellogg Foundation provided a grant to the University of Maryland Foundation to support the development of a museum exhibit titled "The Search For Life." The grant totaled \$987,864 and is to be used to design, develop and build this museum exhibit, which will open in the National Museum of American History, Smithsonian Institution, Washington, D.C., November, 1987.

This exhibit will tell the story of the research that has been carried on in private institutions, public institutions, state agricultural experiment stations, the U. S. Department of Agriculture and private industry addressing the concerns of agriculture and human medicine.

The exhibit covers the period from 1900 to 1990. The primary focus is on genetics. The exhibit occupies a space of approximately 3,500 square feet and is divided into three areas, which reflect major milestones in science:

- o From the work of Gregor Mendel to the discovery of the double helix by Watson and Crick.
- o From the discovery of the double helix to the first successful experiments in recombinant DNA.
- o The exciting world of today.

The primary purpose of this exhibit is to help people understand the role that science plays in transforming agriculture and, through agriculture, in changing the lives of the American people. However, research applied to agricultural problems has important linkages with the science of human medicine. Consequently, this exhibit shows the linkages between agricultural science and the science of human medicine. This story becomes especially complex and interrelated as a result of the work in biotechnology. We feel that this is an important story which needs to be understood by the general public, legislators, government officials and leaders in the society.

As an individual, you have devoted your life to science in agriculture. This exhibit helps to tell this important story to the American public. You can be a part of this exciting exhibit by making a tax deductible contribution which will provide operating funds for this permanent exhibit as well as funds for supporting related educational activities. Your donation to the University of Maryland Foundation will be devoted in its entirety to supporting this program of the Smithsonian Institution's National Museum of American History.

Sincerely yours,

Filmore Bender
Filmore Bender
Associate Director

THE SEARCH FOR LIFE

Yes, I want to be a part of the exciting museum exhibit "The Search for Life."

I want to enlist as a:

- ☐ Friend (\$100 donation). I will receive a certificate and souvenir coffee mug.
- ☐ Supporter (\$500 donation). I will receive a certificate, souvenir coffee mug and souvenir letter opener.
- ☐ Sponsor (\$1,000 donation). I will receive a desk set with an engraved plaque recognizing my contribution plus a souvenir coffee mug and a letter opener.
- ☐ Patron (\$5,000 donation). I will receive a wall plaque recognizing my contribution plus a souvenir coffee mug and a letter opener.
- ☐ Benefactor (\$10,000 donation). I will receive a wall plaque recognizing my contribution plus a souvenir coffee mug and a letter opener.
- ☐ Enclosed is my tax deductible donation in the form of a check for \$ _____ made payable to the University of Maryland Foundation.
- ☐ I plan to make my tax deductible donation in five annual installments. A check for \$ _____ made payable to the University of Maryland Foundation is enclosed for the first installment.
- ☐ Please have my name listed in the forthcoming book The Search for Life in the appropriate donor category.
- ☐ I prefer that my name not be listed in the forthcoming book The Search for Life.

Name: _____

Address: _____

Please mail this form and your check to:

Dr. Filmore Bender
 The Search for Life Museum Exhibit
 Agricultural Experiment Station
 The University of Maryland
 College Park, Maryland 20742

The National Museum of
American History
of the
Smithsonian Institution

and

The University of
Maryland Foundation

gratefully recognize

John R. Doe

as a friend

of the museum exhibit

The Search for Life

Roger G. Kennedy
Director
National Museum of
American History

Robert G. Smith
President
The University of
Maryland Foundation

May, 1987

DRAFT

100TH CONGRESS
1ST SESSION

S. _____

IN THE SENATE OF THE UNITED STATES

Mr. DOMENICI introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To create joint Federal-State-industry agricultural research and development task forces, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assem-*
3 *bled,*

4 SECTION 1. AGRICULTURAL COMPETITIVENESS TASK
5 FORCES.

6 (a) IN GENERAL.—The National Agricultural Re-
7 search, Extension, and Teaching Policy Act of 1977 (7
8 U.S.C. 3101 et seq.) is amended by adding at the end
9 thereof the following new subtitle:

1 **“Subtitle N-Agricultural COMPETITIVENESS”**
2 **Task Forces**

3 "SEC. 1484. PURPOSE.

4 .. "It is the purpose of this Act—

5 "(1) to encourage and promote the
6 development of new strategies for keeping
7 United States agricultural industries and
8 the products thereof competitive in the
 World economy;

9 "(2) to strengthen research directed
10 towards the development of new markets for
 agricultural products;

11 "~~(3) to develop new approaches to cost~~
reduction on farms, ranches and related
12 agricultural enterprises; and

13 " (4) to establish agricultural com-
14 petitiveness task forces at a major agricul-
tural university in each state.

15 "SEC. 1485. DEFINITIONS.

16 “As used in this Act:

17 “(a) BOARD.—The term “board” means an in-
18 dustry advisory board established under section
19 1486(d).

20 “(b) TASK FORCE.—The term “task force”
21 means an agricultural competitiveness task
22 force established under section 1486(a).

1 "SEC. 1486. AGRICULTURAL COMPETITIVENESS TASK
2 FORCES.

3 "(a) ESTABLISHMENT.—There is established in each
4 State an agricultural competitiveness task force,
5 under the authority of the Governor of that State.

6 "(b) FUNCTIONS.—A task force in a State shall—

7 "(1) examine methods to improve existing
8 strategies and develop new strategies for the
9 expansion of foreign and domestic markets
10 for United States agricultural commodities
and the products thereof;

11 "(2) design effective alternatives to
12 reduce the operating expenses of farms, and
13 other agricultural enterprises within the
14 State and to improve the competitiveness of
State agricultural products in foreign and
domestic markets; and

15 "(3) conduct research directed towards
16 the specific agricultural problems of the
17 State which restrict the ability to compete
with the goal of developing a solution to
those problems.

18

19 "(c) LOCATION.—A task force shall be located at the
20 primary agricultural college or university of the State, as
21 determined by the Governor.

22 "(d) INDUSTRY ADVISORY BOARD.—

23 "(1) ESTABLISHMENT.—Within each task force
24 there shall be established an industry advisory board
25 to direct the operations of the task force.

26 "(2) MEMBERSHIP.—

1 “(A) APPOINTMENT.—The board shall con-
2 sist of no more than 12 members appointed by
3 the Governor, of which—

4 “(i) no more than 2 members shall be
5 officials of the State entity responsible for
6 agriculture or of the State entity responsi-
7 ble for economic development; and

8 “(ii) no more than 10 members shall
9 be full-time farmers or ranchers, or persons
10 employed in other agricultural businesses
11 of the States.

12 “(B) TERM OF SERVICE.—

13 “(i) INITIAL YEAR.—Of the original
14 members appointed by the Governor to
15 serve on the board, no more than 6 shall
16 serve a 2-year term, and no more than 6
17 shall serve a 3-year term, as determined by
18 the Governor.

19 “(ii) SUBSEQUENT YEARS.—On expira-
20 tion of the term of a 2-year member, the
21 Governor shall appoint a replacement
22 member as prescribed in subparagraph (A)
23 for a 3-year term. On expiration of the
24 term of a 3-year member, the Governor

1 shall appoint a replacement member as pre-
2 scribed in subsection (A) for a 2-year term.

3 “(C) VACANCIES.—A vacancy on the board
4 shall be filled in the manner in which the origi-
5 nal appointment was made and in accordance
6 with the terms prescribed in subparagraph (B).

7 “(D) CHAIRMAN.—The Board shall elect
8 one of its own members as
9 Chairman of the Board.

10 “(E) MEETINGS.—The board shall meet at
11 the call of the Chairman or a majority of its
12 members.

13 “(F) COMPENSATION.—All members of the
14 board shall serve without additional compensa-
15 tion.

16 “(G) EXPENSES.—All members of the
17 board shall be reimbursed for travel, subsist-
18 ence, and other necessary expenses incurred by
19 the members in the performance of their duties.

20 “(e) PERSONNEL, SERVICES, AND RESOURCES.—

21 “(1) PERSONNEL AND SERVICES.—The college or
22 university chosen as the site of the task force under
23 subsection (c) shall have authority to appoint person-
24 nel and procure permanent, temporary, and intermit-
25 tent services as it considers necessary, at rates for in-

1 individuals prescribed by the Governor, and approved
2 by the board.

3 “(2) CONTRACTS.—The college or university re-
4 ferred to in paragraph (1) shall have the authority to
5 contract, with State entities or with entities outside
6 the State, for resources needed by the task force to
7 carry out task force functions.

8 “(f) HEARINGS.—The task force may, for the purpose
9 of carrying out this Act, hold such hearings, and sit and act
10 at such times and places, as the task force considers appro-
11 priate.

12 “SEC. 1487. FUNDING.

13 “(a) APPROPRIATION.—To carry out this subtitle, there
14 is authorized to be appropriated \$15,000,000 for each
15 fiscal year.

16 “(b) USE OF FUNDS.—Of the amount appropriated
17 under subsection (a)—

18 “(1) an amount of \$250,000 shall be
19 made available to the task force of each
20 State that provides an equal amount of
21 matching contributions from State or
22 private sources, or both; and—

23 “(2) an amount of \$2,500,000 shall be
24 used to coordinate the regional and national
functions of each task force--

1

2

"(A) on a regional basis, through existing agricultural experiment stations established under section 1409A(e); and

3

4

"(B) on a national basis, through the cooperative State research institutions as designated by the Secretary of Agriculture pursuant to section 1409A(d).

5

6

7

"(c) MATCHING FUNDS.—Notwithstanding any other provision of this subtitle, no Federal funds shall be allocated to the task force of a State if a State does not provide a matching contribution in accordance with subsection (b)(2).

8

9

10

11

12

"SEC. 1488. TERMINATION OF AUTHORITY.

13

14

The authority provided under this subtitle shall terminate 5 years after the date of enactment of this subtitle."

15

16

17

18

(b) TABLE OF CONTENTS.—The table of contents of the Food and Agriculture Act of 1977 (7 U.S.C. 1281 note) is amended by adding at the end of title XIV the following new items:

"SUBTITLE N-AGRICULTURAL RESEARCH AND DEVELOPMENT
TASK FORCES

"Sec. 1484. Purpose.

"Sec. 1485. Definitions.

"Sec. 1486. Agricultural research and development task forces.

"Sec. 1487. Funding.

"Sec. 1488. Termination of authority."