MINUTES OF THE MEETING OF

THE WESTERN ASSOCIATION OF

AGRICULTURAL EXPERIMENT STATION DIRECTORS

Washington, D.C.

March 1, 1987

SUMMARY OF ACTIONS

March 1, 1987

TABLE OF CONTENTS

INDEX OF APPENDICES

WESTERN ASSOCIATION OF
AGRICULTURAL EXPERIMENT STATION DIRECTORS

MINUTES

March 1, 1987
Dupont Plaza Hotel
Washington, D.C.

ATTENDANCE:

Alaska	J. V. Drew	New Mexico	J. C. Owens
Arizona	L. W. Dewhirst	Nevada	S. A. Wallace
California	L. N. Lewis	Oregon	S. L. Davis
	D. E. Schlegel		V. Van Volk
	S. D. Van Gundy	Utah	C. E. Clark
Colorado	R. D. Heil	Washington	J. J. Zuiches
	H. F. McHugh		D. L. Oldenstadt
Idaho	G. A. Lee	Wyoming	C. C. Kaltenbach
	R. C. Heimsch	WDAL	L. L. Boyd
Montana	J. R. Welsh	ARS	W. H. Tallent
CSRS	W. D. Carlson	CARET	Dick Joyce

1.0 Call to Order

Chairman Oldenstadt called the meeting to order at 8:30 a.m. on Sunday, March 1, 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 modified. MOTION CARRIED. A copy of the agenda is included as Appendix A, p. 12.

4.0 Approval of Minutes of November 11, 1986 Meeting

The motion was made and seconded to approve the minutes of November 11, 1986 meeting. MOTION CARRIED.

5.0 Chairman's Report/Interim Actions -- D. L. Oldenstadt

The chairman of ESCOP has requested an additional member from the West for the ESCOP Subcommittee on Human Nutrition. From a list of potential members which was developed, Dr. Robert Rucker of California was identified as a willing participant. The motion was made and seconded to appoint Robert Rucker as the additional representative to the Human Nutrition Subcommittee of ESCOP. MOTION CARRIED.

6.0 Executive Committee Report -- D. L. Oldenstadt

Since RIC will not meet until March 31, 1987 in Fort Collins, CO, the Executive Committee has discussed the problems associated with getting the Western Directors' approvals for the recommendations of RIC. An acceptable alternative for getting the the recommendations approved has been worked out. Boyd has agreed to send by Dialcom the RIC recommendations to the WDA Executive Committee for review. If the WDA approves, the Executive Committee would handle the review and approval of RIC recommendations for the WDA. Copies of the outlines and petitions for which RIC will be making recommendations will be sent to all members of the WDA, as well as to the members of the Executive Committee.

Information could be out to the Executive Committee through Dialcom by Wednesday, April 1, 1987. The response for approval or disapproval should be returned to the Office of the Director-at-Large by Thursday, April 2, so that the RIC recommendations could be sent by express mail on Friday to the administrative advisors if changes are needed.

It was moved and seconded that the Executive Committee act on recommendations from RIC for the Western Directors. MOTION CARRIED.

A telephone invitation was received from Dr. Smith, chairman of the Committee of Nine, for the regional alternate to the Committee of Nine to attend the next meeting of the Committee of Nine. G. W. Ware (AZ) is the alternate and the invitation was extended to him.

7.0 Reports from Federal Agency Liaison Representatives

7.1 CSRS Report -- J. P. Jordan

The CSRS Report was presented by W. D. Carlson and is included as Appendix B, pp. 13-14.

7.2 ARS Report -- W. E. Tallent/W. G. Chace, Jr.

Tallent distributed the ARS report on budget increases and a fact sheet on the Federal Technology Transfer Act of 1986, which is included as Appendix C, pp. 15-17.

In 1987, the top priority was new and improved uses of agricultural products. A decision was made not to repeat the request for funding for that priority in 1988, although ARS probably will again in 1989.

The Federal Technology Transfer Act of 1986 has provisions that authorizes ARS to negotiate cooperative agreements with individual firms in industry that were difficult to do before.

The Department of Agriculture has retained a consultant who will develop an implementation plan and evaluate the impact of the new law on programs in the Department. FS and ARS are the only two

agencies with inhouse research programs that are large enough to fall under the provisions of the Act.

Tallent will send the ARS policy statement with specific examples on patents/licenses to Boyd for distribution to the WDA.

The report from the Western Regional ARS liaison, W. G. Chace, Jr. was distributed and is included as Appendix D, pp. 18-19.

8.0 Informational Reports from Representatives to Regional and National Committees

8.1 Joint Council -- L. W. Dewhirst/J. P. Jordan

Dewhirst distributed a report on Joint Council activities, which is included as Appendix E, p. 20.

8.2 Users Advisory Board -- C. C. Kaltenbach/L. L. Boyd

Kaltenbach distributed a report on the Users Advisory Board, which is included as Appendix F, p. 21.

UAB is very strong on Competitive Grants. They did recommend increases of: $1 million in human nutrition; $3 million in animal science, and $660 thousand in range grants. This year they dropped a recommendation for animal health funds. In last year's UAB budget recommendations, animal health was their number one priority.

8.3 Western Agricultural Research Committee -- C. E. Clark

Clark distributed a report on WARC activities, which is included as Appendix G, p. 22.

A few minor revisions of the western procedures for research planning were made at the Summer 1986 WDA meeting. At the present time, membership of the Western Agricultural Research Committee is centered around representation to ESCOP because the ESCOP planning process is taking much more initiative and is more aggressive than ever before.

The membership of the WARC consists of the three ESCOP members who have rotating assignments within WARC. For example, the first year representative to ESCOP is the WDA chairman; the second year representative to ESCOP is also the representative to WARC, NARC and the ESCOP Planning Subcommittee; and the third year representative to ESCOP would be the WARC chairman and representative to the ESCOP Interim Subcommittee and the Western Regional Council. In as much as Kaltenbach is the 1987 ESCOP chairman, Clark has assumed some of his responsibilities.

Other members are the WDA representatives to the ESCOP Special Initiatives Subcommittee, the ESCOP Home Economics Research Subcommittee, and the RIC chairman-elect.

Clark made a recommendation that the WDA add two representatives to this membership list: (1) a representative from the Council of Veterinary Deans/Association of American Veterinary Colleges and (2) the National Association of Professional Forestry Schools and Colleges. It was moved and seconded that the WDA invite liaisons from the Council of Veterinary Deans/Association of American Veterinary Colleges and from the National Association of Professional Forestry Schools and Colleges to participate in WARC. MOTION CARRIED.

8.4 National Agricultural Research Committee -- C. E. Clark

Clark distributed a report on the National Agricultural Research Committee, which is included as Appendix H, pp. 23-26.

8.5 Western Regional Council -- C. E. Clark

Clark distributed a report on the Western Regional Council, which is included as Appendix I, p. 27.

8.6 Committee of Nine -- D. E. Schlegel

Schlegel distributed the report on the Committee of Nine, which is included as Appendix J, p. 28.

As agreed at the November 11, 1987 meeting, Clark appointed a committee to look at funding IR projects of C. E. Clark (UT), L. W. Dewhirst (AZ) and H. F. McHugh (CO).

Dewhirst reported that he, Clark and McHugh had telephone conferenced regarding the IR projects. They agree that the IR projects which are research oriented are IR-6 and IR-7. The others (IR-1, IR-2, IR-4 and IR-5) are needed, but they question whether they should be interregional projects.

For plant germplasm projects, including the regional introduction centers, there ought to be a national meeting at which CSRS, the SAES, ARS, and other interested agencies try to get some sense as to how these projects and centers are set up and how they are funded. Basically, it is a national concern and not just a state concern, although the states have interest in it as well.

McHugh stated that it is a matter of thinking whether or not the WDA feels that the service nature of IR-1, IR-2, IR-4, and IR-5 are appropriate to be funded in the same way as IR-6 and IR-7. If the are, then there is no disagreement. If they are not, then a broader look and not just those projects but also the plant introduction stations is suggested.

Schlegel reported that the Committee of Nine and ESCOP were asked by the Northeast Regional Association to look into the issue of off-the-top funding. ESCOP deferred it to the Committee of Nine, and the Committee of Nine has contacted all four regions for their

input regarding interregional projects. The Committee of Nine plans to discuss this in detail in May.

Clark indicated that the WDA should develop a recommendation to go to the Committee of Nine for procedures for IR projects which asks CSRS to appoint a committee to look into the problem with representation from each of the regions. One part of the charge of the committee would be to develop a recommendation of whether or not the IR projects should be terminated, phased out or continued. Another part would be to look into future IR activities and see whether the definition is adequate, and if not, update it. In the process, they should give emphasis to the fact that all of regional projects are potentially interregional. They ought to review also the concept about regional, interregional, and national projects to see if there is merit there and how far to go with the idea of national projects, if at all. Then they should come up with a very detailed guideline on establishing IR projects: What is an IR project? What is the procedure for reviewing the IR once it gets started? How is it reviewed and how is it phased out? How is a priority for an IR established? How are they reviewed periodically so that they can be established and then terminated when the job is done? What are funding options? How are IR projects managed?

The committee was requested to draft a resolution for the Committee of Nine addressing the concerns and questions of the WDA and report to the WDA in Agenda Item 13.1 Other Business.

8.7 IR-6 Symposium Report -- D. E. Schlegel

Copies of the agenda of the National IR-6 Symposium, which is included as Appendix K, pp. 29-30, were distributed.

Schlegel reported that, at the IR-6 Symposium in Atlanta, a historical summary of IR-6 work was given. The evolution of the IR-6 program has been concentrated in the areas of (1) identification of the benefits of research, (2) elaboration of the partition between research and extension, and (3) methodological advances. A proceedings from the Symposium is being developed for distribution in May, 1987.

It was noted that society insists that agriculture provide more information on societal and environmental impacts before new technologies move into the implementation stage.

8.8 ESCOP/ECOP Interactions -- C. C. Kaltenbach

Kaltenbach distributed the report on ESCOP/ECOP Interactions, which is included as Appendix L, p. 31.

The Cooperative Extension Service was authorized to do research in the last Farm Bill. There is concern in some quarters that there needs to be a quality control system put in place. Some kind of

guidelines will be developed but whether people can be forced to adopt the guidelines remains to be seen.

The research that Extension Service will do is applied and site specific, in most cases. It remains to be resolved whether the research information will go through the CRIS system.

8.9 ESCOP FY88 Budget Subcommittee -- L. L. Boyd/D. E. Schlegel

Boyd distributed handouts on the ESCOP FY88 Budget, which is included as Appendix M, pp. 32-41.

Most of the WDA have received correspondence and telephone calls about contacting those people who are in important positions in Congress, and on the Appropriations Committee in particular. We are still in a budget deficit reducing situation and it is important to register how you feel about it. One effective approach is to show how the budget impacts your state, and building on that, request support for the total budget.

8.10 ESCOP FY89 Budget Subcommittee -- R. D. Heil/L. L. Boyd

Boyd distributed handouts regarding the ESCOP FY89 Budget, which is included as Appendix N, pp. 42-68.

What the FY89 ESCOP Budget Subcommittee decided is to show a three year projection rather than a single year. The advantage would be to give more continuity for people to evaluate where we're headed; the disadvantage is a tendency to lock in succeeding budget chairmen and committees to a previously projected budget. The main effort is to tie to program goals and very clearly into the priorities that are coming out as ESCOP Research Initiatives. If you can see ways in which the budget request can be strengthened, contact Boyd or Heil as representatives from the Western Region, or Gast as chairman of the committee.

In the new approach to the FY89 budget request, there are three basic items to accomplish: 1) to tie very specifically to the research planning process, 2) testing a multi-year approach, and 3) a much shorter time frame for development of the budget.

8.11 ESCOP Communications Subcommittee -- D. M. Briggs

The report on the ESCOP Communications Subcommittee was distributed and is included as Appendix O, p. 69.

8.12 ESCOP Strategic Plan Subcommittee -- L. W. Dewhirst/J. P. Jordan

Dewhirst distributed a report on the ESCOP Strategic Plan Subcommittee, which is included as Appendix P, pp. 70-71.

8.13 ESCOP Research Planning Subcommittee -- C. E. Clark

Clark distributed a report on ESCOP Research Planning Subcommittee, which is included as Appendix Q, p. 72.

8.14 Western Higher Education -- C. E. Clark

Clark distributed a report on Western Higher Education Committee, which is included as Appendix R, p. 73.

8.15 ESCOP Interim Subcommittee -- C. E. Clark

Clark distributed a report on the ESCOP Interim Subcommittee, which is included as Appendix S, p. 74.

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

The Treasurer's Report was distributed and is included as Appendix T, pp. 75-76.

10.0 DAL Report -- L. L. Boyd

Boyd distributed information regarding the activities of the DAL, which is included as Appendix U, pp. 77-98.

The forms that have been sent requesting biographical information on the directors, associate directors and assistant directors have not been coming in well. This kind of information helps to pick people that would best represent the station system in the West on important issues. It also helps us to get to know a little bit about each other and work better together. The stations are encouraged to get them in.

11.0 Aquaculture Centers Report -- G. A. Lee

Lee distributed a report on Aquaculture Centers, which is included as Appendix V, pp. 99-101.

The Western Aquaculture Consortium met on February 12 and 13, 1987 in Seattle, WA. They are moving forward in the organizational part of the center. They have a Board of Directors, an Industrial Advisory Council, and have appointed a technical committee. Extension was identified as one of the top priorities in that program and they have total of six biological research areas. The subcommittees will write the objectives for the program which the technical committee will then take to the board of directors for finalization, and it will be under those objectives that they will start funding research programs.

The voting members of the Board of Directors have requested a board member from the Western Association of Agricultural Experiment Station Directors and also a board member from the Western Association of Extension Directors. It was moved and seconded that Gary Lee serve as delegate for

three years and that L. L. Boyd serve as permanent alternate to the Western Aquaculture Consortium . MOTION CARRIED.

12.0 Report of Hatch Centennial Activities in States -- All

AK -- Slides/tapes have been specifically developed for the Experiment Station to be used in conjunction with the one from CSRS on the Hatch Centennial Program in the booth at the state fair this year, which is in August.

AZ -- October 14, 1987 will be the dedication of the Maricopa Agricultural Center. The Experiment Station was required to move out of the Phoenix area and consolidate activities in Maricopa. The station is presently completing about $12 million worth of improvements on that property. The Hatch Centennial for 1987 will be observed at the time of the dedication. It is hoped that the Secretary of Agriculture and Governor will be there. They plan to award an honorary degree on that day. It's also Cotton Field Day. Belt-buckles are being made that are going to be given out that day.

CA -- Little activity; ground breaking for a new building at Fresno County Field Station in May. The Governor will be there and the Hatch Centennial will be featured at that time. The Plant Germplasm Expression Center (PGEC) will open in November.

CO -- H. F. McHugh is coordinating a Colorado Agricultural Initiative that is centered around this year's Hatch Centennial, next year's 100th anniversary of the Colorado Agricultural Experiment Station, and the 75th anniversary of the Cooperative Extension Service that will take place in 1989. There are not any activities focusing specifically on Hatch Centennial other than to begin using it as a watching point for the Colorado Agricultural Initiative.

ID -- Primarily the materials and videotapes from CSRS will be used in field days this summer as an activity. Recognition in the Legislature is anticipated this year.

MT -- Not very much activity to report. Some elements of the Hatch Centennial will be featured at an upcoming Agricultural Day celebration in the legislature. A dedication and open house will be conducted on April 16 on a $5 million controlled environment plant growth center as part of the Hatch Centennial activities.

NM -- 1988 is the centennial of NM State University so it is dovetailed with the Hatch Centennial as the prelude to the one for the university. A Centennial Committee is working for both areas and devoting the next issues of the external newsletter to the celebration. There is also a group working on a play and a book. There is an $18 million fund drive to add to existing endowments in agricultural economics.

NV -- Moving very slowly but hope to have something in conjunction with homecoming activities in November.

OR -- No committee has been formed yet. The Oregon Agricultural Experiment Station will be 100 years old next year, so a joint celebration is planned with the Hatch Centennial sometime in late '87 or '88. The Hatch Centennial information that was sent out was used last week at the Oregon State University Agricultural Conference Days, and the video is intended to be used at the Oregon State Fair.

UT -- Two issues of Utah Science are to be devoted to the Hatch Centennial. A year from now is the anniversary of the Experiment Station which will be celebrated by the Experiment Station Day. Also in the next session of the legislature, a goal is to get reaffirmation of the Experiment Station Legislation similar to what is being done in the Congress. A video and also an exhibit are being prepared to go to the State Fair, and it will also be transported around the state to various activities.

WA -- A new magazine, "Washington's Land and People," is being published and the first issue will be out March 8. A special section will be devoted to agricultural research in Washington. W. J. Spillman, a hybrid wheat breeder, was also the first football coach at WSU. A 30 second public service announcement commemorating the Hatch Centennial was made featuring him. The Governor is going to declare March 9 as Agriculture Research Day. A slide-tape show is also available.

WY -- Activities will be very limited. A week-long tour of outlying stations which was initiated last year will be done again this year, and Hatch Centennial will be featured as a part of that. The national materials will be used wherever they're appropriate.

13.0 Other Business

13.1 Interregional Research Project Committee Report -- H. F. McHugh

The committee proposed the following resolution for consideration by the WDA:

The WAAESD recommends to the Committee of Nine that a national ad hoc committee be established with representation from the SAES regions and appropriate agencies to determine whether or not the current definition for interregional projects is valid; to refine current procedures or propose alternative mechanisms for initiating, funding, evaluating and continuing work of this nature; and assess current interregional projects (IR-1, IR-2, IR-4, IR-5, IR-6, and IR-7) associated regional projects (NC-007, NE-009, S-009, and W-006) in relation to the definitions and mechanisms proposed.

The motion was made and seconded that the WDA submit the above resolution to the Committee of Nine for consideration at the May 1987 meeting. MOTION CARRIED.

14.0 Future Meetings

14.1 RIC Meeting (Procedure for approval of recommendations of 3/31/87 RIC meeting) -- L. L. Boyd

See Agenda Item 6.0 - Executive Committee Report

14.2 Joint Summer Meeting -- D. L. Oldenstadt/C. E. Clark

The Joint Meeting with the Western Directors Association, Western CAHA, Western Resident Instruction, Western Cooperative Extension and Western CARET will be on Tuesday, July 21, 1987. There is a no host social evening on Monday, July 20. There is also a planning session for the joint meeting on March 9, 1987 in Reno, NV.

RIC will meet on July 20. The WDA Meeting will start on Wednesday morning, July 22, and be finished by Friday noon, July 24.

Several subjects for the agenda were suggested:

1. Have a better understanding of some of the regional plant introduction projects. S. Dietz for W-6 and/or G. Ware for IR-4 were suggested.

2. Get an update on CRIS from Ted Bauer and/or John Myers.

3. Discuss any changes that are occurring in the release of new varieties of cultivars (plant variety protection, included).

4. Have speakers or a panel from UAB or a university give a presentation on an outsider's view of current and emerging experiment station philosophy.

5. Plant Water Stress taskforce discussion by Dewhirst and Heil.

6. Small farm issues.

14.3 NASULGC Meeting in Washington, D.C. -- C. C. Kaltenbach

The format for NASULGC will be significantly different this year to accommodate Hatch Centennial activities.

- Monday morning will be devoted to Resident Instruction. There will be a Morrill Lecture. Following that will be a series of mini-symposia on research. The afternoon session will be devoted to Research.

- Tuesday morning is to be devoted to Cooperative Extension. Following that will be another series of mini-symposia.

- "Graduation" exercise will be Tuesday noon. Bill Cosby will be the featured speaker.

- The NASULGC program ends Tuesday afternoon at approximately 2:00.

- All the meetings (Budget, Division and Section, Regional, Committees, ESCOP, ECOP, RICOP, etc.) are all going to have to work outside the Monday morning to Tuesday afternoon time frame, including the meeting of the WDA.

- The regional associations will be scheduled to meet on Sunday before the NASULGC meeting.

- Kaltenbach called for suggestions for topics and speakers for the mini-symposia to be given.

14.4 Proposals for 1988 Spring Meeting

An invitation from New Mexico State University was extended.

Boyd proposed that the Spring Meeting have a two-day schedule that might end at noon on the second day, but would allow more time for discussion of agenda items.

It was moved and seconded to plan a two-day meeting for Spring 1988. MOTION CARRIED.

15.0 Adjournment

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

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS

Sunday, March 1, 1987
8:30 am - 4:00 pm
Dupont Plaza Hotel
Washington, D.C.

AGENDA

8:30 am	1.0	Call to Order
	2.0	Introductions and Announcements
	3.0	Adoption of Agenda
	4.0	Approval of Minutes of November 11, 1986 Meeting
8:45	5.0	Chairman's Report/Interim Actions -- D. L. Oldenstadt
9:05	6.0	Executive Committee Report -- D. L. Oldenstadt
	7.0	Reports from Federal Agency Liaison Representatives
9:25	7.1	CSRS Report -- J. P. Jordan
9:45	7.2	ARS Report -- W. E. Tallent
10:00	BREAK	
	8.0	Informational Reports from Representatives to Regional and National Committees
10:20	8.1	Joint Council -- L. W. Dewhirst/J. P. Jordan
10:40	8.2	Users Advisory Board -- C. C. Kaltenbach/L. L. Boyd
11:00	8.3	Western Agricultural Research Committee -- C. E. Clark
11:10	8.4	National Agricultural Research Committee -- C. E. Clark
11:20	8.5	Western Regional Council -- C. E. Clark
11:30	8.6	Committee of Nine -- D. E. Schlegel
11:45	8.7	IR-6 Symposium Report -- D. E. Schlegel
12:00 n	LUNCH	
1:00 pm	8.8	ESCOP/ECOP Interactions -- C. C. Kaltenbach
1:10	8.9	ESCOP FY88 Budget Subcommittee -- L. L. Boyd/D. E. Schlegel
1:20	8.10	ESCOP FY89 Budget Subcommittee -- R. D. Heil/L. L. Boyd
	8.11	ESCOP Communications Subcommittee -- D. M. Briggs (Written report to be distributed)
1:30	8.12	ESCOP Strategic Plan Subcommittee -- L. W. Dewhirst/ J. P. Jordan
1:40	8.13	ESCOP Research Planning Subcommittee -- C. E. Clark
1:45	8.14	Western Higher Education -- C. E. Clark
1:50	8.15	ESCOP Interim Subcommittee -- C. E. Clark
2:00	9.0	Treasurer's Report -- J. R. Welsh
2:10	10.0	DAL Report -- L. L. Boyd
2:25	11.0	Aquaculture Centers Report -- G. A. Lee
2:40	BREAK	
3:00	12.0	Report of Hatch Centennial Activities in States -- All
3:15	13.0	Other Business
	14.0	Future Meetings
3:25	14.1	RIC Meeting (Procedure for approval of recommendations of 3/31/87 RIC meeting) -- L. L. Boyd
3:35	14.2	Joint Summer Meeting -- D. L. Oldenstadt/C. E. Clark
3:45	14.3	NASULGC Meeting in Washington, D.C. -- C. C. Kaltenbach
3:55	14.4	Proposals for 1988 Spring Meeting
4:00	15.0	Adjournment

Twenty copies of all reports should be brought for distribution at the meeting. Because time will be limited, please plan for your oral report to be brief to allow maximum time for discussion.

Cooperative State Research Service
Report to
Western Regional Association
Washington, DC
March 1, 1987

Hatch Centennial. 1987 is the centennial of the Hatch Act. CSRS, in cooperation with the State Agricultural Experiment Stations, has a number of planned activities. The 1986 Yearbook of Agriculture, "Research for Tomorrow," was in recognition of the contribution of science and research to agriculture. Two Hatch Memorial lectures are scheduled: the first was held in conjunction with the annual meeting of the Land-Grant Colleges and Universities. The second will be held in Washington, DC, March 2-3 at the National Academy of Sciences in conjunction with a National Research Forum--"Research: Tomorrow's Challenges." A permanent Smithsonian exhibit, "The Search For Life," will be previewed at the same time but not opened to the public until November. "The Search For Life" exhibit was financed with a grant from the Kellogg Foundation. A history of the State Agricultural Experiment Station system and the Hatch Act, entitled "The Legacy," is in preparation. A videotape/film, "New Beginnings," and a tapeslide set, "SAES: Catalyst for American Agriculture," are being distributed nationally. Many States are conducting individual events in addition to these nationally coordinated programs.

Budget. Hearings on the FY 1988 budget before the House Subcommittee on Rural Development, Agriculture and Related Agencies are tentatively scheduled for March 12, 1987. The Senate hearings have been scheduled for March 9. CSRS is working closely with the ESCOP Budget Subcommittee in developing the FY 1989 budget request.

Aquaculture Centers. A meeting on the Regional Aquaculture Centers was held in Washington, DC, 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 by the University of Washington, Southeastern Massachusetts University, Mississippi State University, and jointly by the University of Hawaii and the Oceanic Institute.

CSRS Office Automation. CSRS is implementing a plan for complete office automation. Plant and Animal Sciences, Natural Resources and Food and Social Sciences, and the CSRS budget office will be operating a shared system. These units will be able to share information with the administrator's office and the Office of Grants and Programs Systems through the USDA local area network. Communications with other members of the Agricultural Research System will continue via telephone linkage.

CSRS Strategic Plan. The general outline and intentions of the strategic plan have been presented to Assistant Secretary Bentley, all four Regional Directors' Associations, the 1890 Research Directors' Association, and ESCOP. Based on the responses received, CSRS is proceeding to implement the plan. Director's representatives have been identified in cooperation with ESCOP and the seven standing committees are being established and will be holding their initial meetings this month.

Personnel Changes. During the last several months, CSRS has lost three more scientists to retirement: George Mountney, foods and human nutrition; Kenneth Dorschner, weed science; and Olga Owens, Associate Program Manager, Competitive Grants. Earlier, Earl Splitter, veterinary science; and Eldon Weeks, agricultural economics, retired. We have added Dyarl King, veterinary science, Clark Burbee (on detail from Economic Research Service), in agricultural economics; John Bourke (IPA from New York-Geneva), pesticide area; and Don Hegwood (IPA from Maryland), in horticulture and higher education. CSRS will be working with the system to identify replacements.

Deputy Assistant Secretary Robert W. Long is in full swing of his assignment and you may wish to call on him as well as Assistant Secretary Orville G. Bentley and the CSRS staff to speak at your staff conferences and other special occasions.

Biotechnology. Procedures for the oversight of biotechnology research in general, and agriculture-related research in particular, are beginning to gel. 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. The new Guidelines are being reviewed by the workshop participants in preparation for their distribution to other agencies and appropriate outside reviewers in the scientific community. Meanwhile, Dr. Bentley has initiated 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 Guidelines will be forthcoming relatively soon.

Business Officers Workshop. The 1987 Workshop will be held March 10 and 12 in Denver, Colorado. These workshops are designed to improve our business operations and interactions. Your support is appreciated.

Miscellaneous. (a) The Directory of Professional Workers has gone to print and should be ready for distribution in early March.

(b) The Salary Analysis is complete and should also be available in March.

Respectfully submitted,

JOHN PATRICK JORDAN
Administrator

ARS Budget Increases

An increase of $7,347,000 for crop germplasm collection, maintenance and evaluation.

Resources will be used to further improve the Germplasm Resources Information Network (GRIN) database system. Exploration for new germplasm for both conventional and new crops will be accelerated. Endangered seed stocks will be regenerated and placed into long-term storage. Plant quarantine facilities will be improved and modernized, and research on long-term preservation of plant germplasm will be expanded.

An increase of $2,100,000 for research to decrease fats in beef, pork, lamb and poultry.

Selected research approaches will be pursued to reduce fat in beef, pork, lamb and poultry. Approaches will include determination of how specific genes interact with other genes to reduce fat and enhance development of lean tissue; identification of mechanisms responsible for hormonal influence on protein and fat synthesis; determination of how rate of prenatal and postnatal fat and muscle is controlled; identification of systemic and cellular mechanisms that control fat and protein formation; characterization of tissue receptor sites for fat and protein synthesis and identification of metabolic pathways responsible for lipid deposition, mobilization, and metabolism.

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

- Signed by the President 10/20/86. Amends the Stevenson-Wydler Act of 1980.

- Key feature is authorization of Federal-Industrial Cooperative Research and Development Agreements

  — With individual firms, R&D consortia (like the one forming at Peoria) 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 go 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 (e.g., as conducted for ARS by NTIS).

    — 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." ARS fits this definition.

- 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." This does not change ARS rules regarding outside employment (i.e., in the case of non-retired employees, the participation in reference should be as a part of official duties and responsibilities for technology transfer).

- The Federal Laboratory Consortium for Technology Transfer is now a legislatively established entity.

  — Housed and provided administrative support by the National Bureau of Standards on a reimbursable basis.

  — Funded by annual assessments from Federal R&D budgets of 0.005 percent (ca $25,000 for ARS vs. $4,000 we are now contributing).

  — Jim Hall and Andy Cowan will continue to be ARS representatives to FLC.

- 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.

- We will develop an implementation plan for compliance with this new law that will become a part of our ARS Technology Transfer Plan.

ARGICULTURAL RESEARCH SERVICE
REPORT OF NORTHWEST AREA, MOUNTAIN STATES AREA,
AND PACIFIC BASIN AREA TO
WESTERN EXPERIMENT STATION DIRECTORS
March 1, 1987

NORTHWEST AREA

Construction of the National Forage Seed Production Research Center, Corvallis, Oregon, will be completed in March, 1987. The facility is occupied by existing staff and recruitment actions are in process to increase the number of scientists from four to seven. The facility was designed to accommodate ten scientists.

Planning for the National Cereal Germplasm Research Facility, Aberdeen, Idaho is approaching the 95 percent design stage. The facility will house the World Small Grain Collection that is now in Beltsville, Maryland and a germplasm evaluation and enhancement program in wheat, oats, and barley.

Dr. Charles Parker, Research Leader, U.S. Sheep Experiment Station, Dubois, Idaho resigned in January, 1987 to become Chairman, Animal Science Department at Ohio State University. We hope to have the position filled by June, 1987. Dr. Norman James, Director, Northwest Area, plans to transfer to College Station, Texas, not later than August 1987, to be Director of the Southern Plains Area. Transfers of this kind require the approval of the Secretary of Agriculture, therefore, it is a plan at this time.

MOUNTAIN STATES AREA

Changes in personnel precipitated the decision to close out our alfalfa genetics work at Reno, Nevada and to redirect the resources for a strengthening of the range research at that location. James Young succeeded Ray Evans as Research Leader.

With retirement of the only scientist in the cereal pathology unit in Logan, it was decided to transfer that function to Aberdden, Idaho.

In Arizona, we were fortunate in attracting Eric Erickson to succeed Marshall Levin as Director of the Carl Hayden Bee Research Center. To provide more intimate and effective cross-disciplinary research we have combined the hydrology, erosion and range management research units into a single entity, Arid Land Watershed Management.

Most important for MSA, Steve Eberhardt will join ARS in March as Director of the National Seed Storage Lab in Fort Collins. The President's budget includes a recommendation for FY 88 to provide $1,000,000 for planning an expansion of the overtaxed Seed Lab facility, and another $1,000,000 for program support at the Lab.

PACIFIC BASIN AREA

The Pacific Basin Area was fortunate to receive FY 87 increases for the Plant Gene Expression Center — to improve biotechnology techniques for transfer of plant stress resistance; Western Regional Research Center — to develop new and value added dairy products and to develop new techniques for lightly processing fruits and vegetables; Fresno — for evaluation of stone fruit germplasm; Salinas — increase research to find control measures for rhizomania; Western Human Nutrition Center — to expand research on reliable and cost effective food intake and nutritional status evaluation methods; and Hawaii — to develop "infestation free" system to eliminate need for quarantine. Also, ARS received $1M for developing plans for a new U.S. Salinity Lab on or near the UC Riverside Campus.

Dr. Parker Pratt has been appointed the Director of the U.S. Salinity Lab. Most of you know Dr. Pratt from his successful career as Department Chairman and scientist with the University of California, Riverside.

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS

Report on March 1, 1987

8.10 JOINT COUNCIL

L. W. Dewhirst/J.P. Jordan

The Joint Council on Food and Agricultural Sciences continues to carry out its mandated fuction in the Food Security Act of 1985. It initiated four reports 1) Need Assessment, 2) A Five-Year Plan, 3) An Annual Priorities report, and 4) An Annual Accomplishments Report. Each of you receives copies of these Reports as they are published. The Joint Council continues to be "the only act in town" which provides a national focus for the total agricultural system in planning and reports.

We urge you to read the reports and provide input to your AES representatives, N. Clarke (TX) and L. W. Dewhirst (AZ). The next meeting of the Joint Council is April 15 - 17, 1987 in Washington, D.C. when we will select and rank priorities of FY 1989.

APPENDIX F

REPORT TO WESTERN DIRECTORS

March 1, 1987

Colin Kaltenbach

Users Advisory Board

I had the privilege of meeting with the UAB on February 4 to present the FY 88 ESCOP budget request. In spite of, or perhaps because of, my efforts UAB again chose to support the Executive recommendation in most instances (see below). They did support increases for human nutrition and Animal Science competitive grants. Of greatest interest is their failure to support 1433 Animal Health and Disease funding which was their top priority last year. I plan to meet with UAB again in May to make an early presentation of our FY 89 request.

COOPERATIVE STATE RESEARCH SERVICE: FY 1987 budget history and recommendations for FY 1988

Program Activity	President's FY 1987 Budget Proposal	UAB FY 1987 Recommendations	FY 1987 Appropriation	President's FY 1988 Budget Proposal	UAB FY 1988 Recommendation	FY 1988 Appropriation
			---Dollars in thousands---			
Hatch Act	155,500	155,500	148,792	155,545	155,545	
Cooperative Forestry Res.	13,000	13,000	12,412	12,975	12,975	
Payments to 1890 Colleges & Tuskegee University	23,300	23,300	22,320	23,333	23,333	
1890 Research Facilities	9,900	9,900	9,508	- 0 -	- 0 -	
Animal Health & Disease	- 0 -	5,476	5,476	- 0 -	- 0 -	
Critical Agricultural Materials Act of 1984 (Guayule research)	- 0 -	- 0 -	20,368	- 0 -	- 0 -	
Competitive Research Grants:						
(1) Plant Science	15,600	15,600	12,126	15,484	15,484	
(2) Human Nutrition	2,500	2,500	2,377	3,000	4,000	
(3) Animal Science	4,500	10,500	4,279	7,000	10,000	
(4) Biotechnology	19,900	19,900	19,016	19,016	19,016	
(5) Pest Science	- 0 -	2,853	2,853	- 0 -	- 0 -	
(6) Forestry 1/	- 0 -	(6,507)	(4,500) 2/	- 0 -	(6,000)	
	42,500	51,353	40,651	44,500	48,500	
Special Research Grants	- 0 -	8,750	28,037	- 0 -	- 0 -	
Rangeland Research Grants	- 0 -	475	475	- 0 -	666	
Federal Administration	200	200	2,630	1,917	1,917	
Aquaculture R & D, and Demonstration Centers	- 0 -	XXX 3/	3,000	- 0 -	3,000	
Research Facilities Act	- 0 -	XXX	2,000	- 0 -	- 0 -	
Higher Education 4/	2,000	7,000	4,754	2,000	7,000	
TOTAL	246,400	274,954	300,423	240,270	252,936	

1/ Funds have been appropriated to Forest Service but are administered by CSRS.
2/ This amount does not include an additional $1.5 million which has been proposed for rescission in FY 1987.
3/ Indicates that the UAB did not make any funding recommendation.
4/ Does not include the $2.8 million Morrill-Nelson permanent appropriation.

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
Washington, DC, March 1, 1987
Report of

WARC Activities
C.E. Clark

Acknowledgment is given to 1986 WARC co-chairmen Helen McHugh (CO) and Roger Bay (FS) for organizing Western research priorities for 1989. This process included interacting with Western SAES directors and WARC membership followed by discussion of the top eleven initiatives with Directors at the WDA 1986 summer meeting, Coeur d'Alene, Idaho. Following this meeting Western SAES administrators, including directors from American Samoa and Guam were requested to rank in priority order the twenty-one initiatives identified by ESCOP Planning Subcommittee. All rankings were tabulated and a consensus established for Western SAES research priorities--1989. The following represents this consensus which was submitted to NARC with supportive narrative statements, January 1987:

1. Maintain and Protect Water Quality and Quantity
2. Integrating Agricultural Technology
3. Biotechnology
4. Interrelationships of Food and the Nutritional and Health Status of People
5. Improved Management of Crop Pests and Diseases
6. Genetic Improvement of Economically Important Plants
7. Impact of Agricultural Policy on Global Markets
8. Rural Family and Community Well-Being
9. Profitability of Range and Pasturelands
10. Market Penetration and Efficient Marketing of Agricultural and Forest Products
11. Sustaining Soil Productivity
12. Biological Efficiency of Animals
13. Energy Efficient Systems
14. Animal Health Disease
15. Computer Technology for Agricultural Management
16. Processing and Quality Enhancement
17. Forest Profitability
18. Effects of Atmospheric Deposition on Crops, Forests, Livestock, Wildlife and Associated Ecosystems
19. Robotics in Agriculture
20. Agriculture in the Urban Environment
21. Short-Term Adjustments for Enhancing the Economics of Agriculture.

Western Association of Agricultural Experiment Station Directors
Washington, D. C.
March 1, 1987

Report of National Agricultural Research Committee (NARC)

C. E. Clark

A. Research Priorities

NARC staff utilized the various research priority lists prepared by SAES Regions, Federal agencies and other participating research entities to develop a consolidated list for review by NARC. The following prioritized listing describes the consensus of NARC and will be submitted to Joint Council:

1. Maintain and protect water quality and quantity
2. Biotechnology
3. Genetic improvement of economically important plants
4. Sustaining soil productivity
5. Management of crop pests and diseases
6. Biological efficiency of animals
7. New and expanded uses for agricultural and forest products
8. Interrelationships of food and the nutritional and health status of people
9. Impact of public policy on global markets
10. Market penetration and efficient marketing of agricultural and forest products
11. Integrating agricultural technology
12. Animal health and disease
13. Processing and quality enchancement
14. Rural family and community well-being
15. Forest productivity, utilization and marketing
16. Effects of atmospheric deposition on crops, forests, livestock, wildlife, and associated ecosystems
17. Range and pasturelands management systems
18. Computer technology for agricultural management
19. Energy efficient systems
20. Short-term adjustments, for enhancing financial viability of agriculture
21. Agriculture in the urban environment
22. Robotics in agriculture
23. Wildland-urban interactions

B. Accomplishments Report

The Joint Council Research Accomplishments Report will include both long-term and the usual short-term accomplishments. The national committees for research, extension and higher education were each requested by Joint Council to submit examples of long-term accomplishments (1976-1986). Joint Council will consolidate this information and prepare 10 examples for publication in its Research Accomplishments Report.

Names of nationally recognized individuals suggested as resource people to prepare the statements of accomplishment and the following prioritized listing of research areas, which have demonstrated a significant impact within the past ten years, will be submitted by NARC to Joint Council.

1. Germplasm
2. Plant Science--tissue culture, biotechnology, etc.
3. Poultry productivity and products
4. Tillage improvements
5. Human Nutrition, diet-health, food safety
6. Industrial developments
7. Forest Products
8. Pest Management Strategies
9. Computer and information systems
10. Aquaculture
11. Ornamental plants
12. Animal health, immunology, etc.

Administrators of Experiment Stations, Federal agricultural research agencies, and other NARC participants will be requested to contribute individual accomplishments for the short-term portion of the Joint Council Accomplishments Report. A common format that can be utilized by NARC, CSRS, ESCOP, NASULGC and Joint Council will be developed and distributed early in March 1987. Research administrators will have approximately 30 days to prepare and submit these statements of accomplishment.

NARCRANK February 26, 1987
Ranking by NARC members of 23 Research Initiatives (2 new ones)
in Research Initiatives from the ESCOP Research Planning Committee

NO.	INITIATIVES – As Submitted to NARC for Ranking (Some of the titles were changed, but those are not shown below)	TOTAL*
1	Agriculture in the Urban Environment	295
2	Animal Health and Disease	158
3	Biological Efficiency of Animals	131
4	Biotechnology	44
5	Computer Technology for Agricultural Management	251
6	Effects of Atmospheric Deposition on Crops, Forests, Livestock, Wildlife and Associated Ecosystems	217 218
7	Energy Efficient Systems	251
8	Forest Profitability	209
9	Genetic Improvement of Economically Important Plants	73
10	Impact of Agricultural Policy on Global Markets	148
11	Improved Management of Crop Pests and Diseases	118
12	Integrating Agricultural Technology	154
13	Interrelationships of Food and the Nutritutional and Health Status of People	148 148
14	Maintain and Protect Water Quality and Quantity	37
15	Market Penetration and Efficient Marketing of Agricultural and Forest Products	148 148
16	Processing and Quality Enhancement	182
17	Profitability of Range and Pasturelands	225
18	Robotics in Agriculture	297
19	Rural Family and Community Well-being	197
20	Short-term Adjustments for Enhancing the Economics of Agriculture	278 279
21	Sustaining Soil Productivity	96
22	Wildland/Urban Interactions	309
23	New and Expanded Uses for Agricultural and Forest Products	136

* summation of the rankings of 15 NARC members

See reverse side for rankings

RANK	INITIATIVES – As Ranked by 15 NARC Members (Some of the titles were changed, but those are not shown below)	TOTAL*
1	Maintain and Protect Water Quality and Quantity	37
2	Biotechnology	44
3	Genetic Improvement of Economically Important Plants	73
4	Sustaining Soil Productivity	96
5	Improved Management of Crop Pests and Diseases	118
6	Biological Efficiency of Animals	131
7	New and Expanded Uses for Agricultural and Forest Products	136
8–10	Interrelationships of Food and the Nutritutional and Health Status of People	148
8–10	Market Penetration and Efficient Marketing of Agricultural and Forest Products	148
8–10	Impact of Agricultural Policy on Global Markets	148
11	Integrating Agricultural Technology	154
12	Animal Health and Disease	158
13	Processing and Quality Enhancement	182
14	Rural Family and Community Well-being	197
15	Forest Profitability	209
16	Effects of Atmospheric Deposition on Crops, Forests, Livestock, Wildlife and Associated Ecosystems	217
17	Profitability of Range and Pasturelands	225
18–19	Computer Technology for Agricultural Management	251
18–19	Energy Efficient Systems	251
20	Short-term Adjustments for Enhancing the Economics of Agriculture	278
21	Agriculture in the Urban Environment	295
22	Robotics in Agriculture	297
23	Wildland/Urban Interactions	309

* summation of the rankings of 15 NARC members

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
Washington, DC, March 1, 1987
Report of

Western Regional Council
C. E. Clark

Under chairmanship of Dean Larry Branen (ID) the Western Regional Council (WRC) convened February 11, 1987. Those in attendance included representatives from CAHA, W-SAES, FS, ERS, ARS, ES, AASCU, Home Economics, Veterinary Medicine. Larry Miller, Executive Secretary, Joint Council and Tim Blosser, Report Staff, Joint Council were in attendance and provided a valuable perspective to WRC regarding the mission and objectives of the Joint Council. WRC reviewed program priorities of FS, ARS, ERS, ES, and western committees for research and higher education. A representative from Federal Extsension provided the Extension perspective since a representative for Western Extension was not in attendance at this meeting. The following initiatives were identified and will be submitted with supportive narrative statements to the Joint Council as the WRC priorities for 1989; the narratives will describe integrated activities of research, extension and teaching as a unified approach:

1. Protect the quality and increase the supply of water
2. Establish competitiveness and profitability in agriculture
3. Improve human nutrition, food safety and health
4. Improve management of forests and rangelands
5. Establish rural revitalization programs
6. Improve efficiency of production through biotechnology
7. Improve curriculum and faculty development activities
8. Sustain a high level of soil productivity
9. Strengthen family and community well-being
10. Recruit and retain high quality college students

REPORT OF THE COMMITTEE OF NINE
DECEMBER 3, 1986

The Committee of Nine met in Saint Louis on December 3, 1986. The 1987 Committee Officers are: A. M. Smith (VT), Chair; D. M. Gossett (TN), Vice Chair; and S. E. Leland, Jr. (KS), Secretary.

During the last year the Committee spent considerable time discussing the criteria to be used during their review process. Committee members are directed to the evaluation elements in Appendices B and C of the Manual for Cooperative Regional Research. Technical committees developing new or revised projects should pay particular attention to those sections in developing project proposals.

The committee confirmed that regional research projects will normally start on October 1 and end on September 30, five years later. If a project is unable to begin on October 1, it may begin at a later date, but it will terminate on September 30 with a duration of no more than 60 months.

The Committee of Nine will review in depth the question of off-the-top funding for IR projects in May. All regions have been asked to provide the committee with their views about establishing priorities for IR projects, the adequacy of funding levels, review and evaluation of projects, etc.

D. E. Schlegel
February 23, 1987

NATIONAL SYMPOSIUM

Evaluating Agricultural Research and Productivity

January 29-30, 1987

Sponsored by IR-6 and Farm Foundation

Terrace Garden Inn
3405 Lenox Road NE
Atlanta, Georgia 30326
(404) 261-9250

(Free Registration)

Evaluating Agricultural Research and Productivity

Thursday, January 29:

Morning	Topic	Author
8:30	Determinants of State Agricultural Productivity Changes 1949-82: A Provisional Analysis	Robert Evenson Yale Univ.
9:20	Cost Structures, Productivities and the Distribution of R&D Benefits Among Producers for Major U.S. Field Crops	Stephen Cooke and Burt Sundquist Univ. of Minn.
10:10	Break	
10:30	Measuring the Requirements and Benefits of Productivity Maintenance Research	Lee Blakeslee Washington State Univ.
11:20	Discussion	
11:50	Lunch	

Afternoon		
1:00	Research Spending - Output Relationships of the U.S. Agricultural Experiment Stations	Phil Pardey Univ. of Minn. and ISNAR
1:50	Distribution of Agricultural Research Benefits	Fred White Univ. of Georgia-Athens
2:40	Break	
3:00	Research Bias Effects for Input and Output Decisions: An Application to U.S. Cash Grain Farms	Wallace Huffman Iowa State Univ.
3:50	Priority Setting by the State Agricultural Experiment Stations	B.R. Eddleman Texas A&M
4:40	Discussion	
5:10	Recess	

Friday, January 30:

Morning		
8:30	Evaluating the Research Benefits for Agricultural Trade Commodities	Geoff Edwards La Trobe Univ. Melbourne
9:20	Role of the Private Sector in Agricultural Research and Technology Transfer	Carl Pray Rutgers Univ.
10:10	Break	
10:30	Economic Evaluation of Forestry Research: Synthesis and Methodology	Barry Seldon Ohio Univ.
11:20	Evaluating Social Science Research in Agriculture	George Norton VPI
12:10	Lunch	

Afternoon		
1:10	Economic Evaluation of Post Harvest Research: Conceptual and Empirical Issues	Max Langham Univ. of Florida and Joseph Purcell Univ. of Georgia-Griffen
2:00	Discussion	
2:20	Symposium Summary and Future Research Evaluation Needs	Vernon Ruttan Univ. of Minn.
3:00	Adjourn	

REPORT TO WESTERN DIRECTORS

March 1, 1987

Colin Kaltenbach

ESCOP/ECOP Interactions

ESCOP and ECOP officers began scheduling meetings last year for the purposes of coordination and discussion of topics of mutual interest.

This practice is being continued. The first meeting was held in Washington, D.C., on February 5. The major thrusts for both groups during the coming year were reviewed. ECOP has appointed a Futures Task Force which will be looking at structure and linkages within extension. They recently hosted a forum entitled "Agricultural Competitiveness and Profitability." ECOP is also developing a publication on extension's role in Biotechnology.

The major topic of interest involved the Division initiative and water quality and management. It is proposed an individual from one of the states be hired (source of funds to be determined) to work the hill full time on this issue. The discussion on this issue continues.

The next meeting is scheduled for May 19 or 20. The major item of business will be quality assurance of research conducted by extension personnel.

APPENDIX M

CMBRM107
Members of Important Congressional Committees
February 27, 1987

STATE	P	CONGRESSIONAL NAME	RG	SUBCOMMITTEES	OFFICE	LOC	TELEPHONE	AGR RELATED STAFF	SAES DIRECTOR
		MEMBERS OF HOUSE COMMITTEE ON AGRICULTURE							
		Castillo, A. Mario		Chief of Staff	1301	LHOB	225-2171		
		Brown, Anita		Staff Assistant	1301	LHOB	225-2171		
		Hilty, Charles		Dir, Minority Staff	1305	LHOB	225-0029		
				d c o m f l t w					
IA	R	Grandy, Fred*	NC		1711	LHOB	225-5476		Kolmer/Mahlstede/Hazen
IA	D	Nagle, David*	NC		214	CHOB	225-3301		Kolmer/Mahlstede/Hazen
IL	D	Evans, Lane	NC		328	CHOB	225-5905		Holt/Jones
IL	R	Madigan, Edward R.	NC		2312	RHOB	225-2371		Holt/Jones
IN	D	Jontz, James*	NC		1005	LHOB	225-5037		Baumgardt/Lechtenberg
KS	D	Glickman, Dan	NC	d o m w	1212	LHOB	225-6216		Woods/Feltner/Leland
KS	R	Roberts, Pat	NC		1314	LHOB	225-2715		Sauer/Allen/Thompson
MI	R	Schuette, Bill	NC	f w	415	CHOB	225-3561		Gast/Fisher/Anderson
MN	D	Penny, Timothy J.	NC	l w	436	CHOB	225-2472		Sauer/Allen/Thompson
MN	R	Stangeland, Arlan	NC	c l w	2245	RHOB	225-2165		Sauer/Allen/Thompson
MO	R	Coleman, Thomas E.	NC	d m	2344	RHOB	225-7041		Mitchell/Pfander
MO	R	Emerson, Bill	NC	c m w	418	CHOB	225-4404		Mitchell/Pfander
MO	D	Volkmer, Harold L.	NC	l w	2411	RHOB	225-2956		Mitchell/Pfander
SD	D	Johnson, Tim*	NC		513	CHOB	225-2801		Moore
WI	R	Gunderson, Steve	NC	d l	227	CHOB	225-5506		Walsh/Lower/Jorgensen
VT	R	Jeffords, James M.	NE	l	2431	RHOB	225-4115		Smith
WV	D	Staggers, Harley O., Jr.	NE	o m	1504	LHOB	225-4331		Barr
AL	D	Harris, Claude*	S		1009	LHOB	225-2665		Frobisch
FL	R	Lewis, Tom	S	c m	1216	LHOB	225-5792		Tefertiller/Davison
GA	D	Hatcher, Charles	S	o f t	405	CHOB	225-3631		Donoho/Laughlin
GA	D	Thomas, Robert Lindsay	S	d	431	CHOB	225-5831		Donoho/Laughlin
KY	R	Hopkins, Larry J.	S	l	2437	RHOB	225-4706		Barnhart
LA	R	Holloway, Clyde C.*	S		1207	LHOB	225-4926		Little
LA	D	Huckaby, Jerry	S	C m f	2421	RHOB	225-2376		Little
MS	D	Espy, Mike*	S	o	216	CHOB	225-5876		Foil
NC	D	Jones, Walter B.	S	t	241	CHOB	225-3101		Bateman/Kriz/Cook
NC	D	Rose, Charles	S	c o l T w	2230	RHOB	225-2731		Bateman/Kriz/Cook
OK	D	English, Glenn	S	c l t	2235	RHOB	225-5565		Browning/Johnson
SC	D	Tallon, Robin	S	d c t	432	CHOB	225-3315		Snell
TN	D	Jones, Ed	S	D c l	108	CHOB	225-4714		Gossett
TX	R	Combest , Larry	S	c t	1529	LHOB	225-4005		Clarke
TX	D	de la Garza, E. Kika	S		1401	LHOB	225-2531		Clarke
TX	D	Stenholm, Charles W.	S	d c o l	1226	LHOB	225-6605		Clarke
VA	D	Olin, Jim	S	m f l	1238	LHOB	225-5431		Nichols/Boyd, E. N.
CA	D	Brown, George E.	W	d O	2256	RHOB	225-6161		Lewis/Schlegel
CA	D	Coelho, Tony	W	c m L	403	CHOB	225-6131		Lewis/Schlegel
CA	R	Herger, Wally*	W		1630	LHOB	225-3076		Lewis/Schlegel
CA	D	Panetta, Leon E.	W	c o M f	339	CHOB	225-2861		Lewis/Schlegel
CO	D	Campbell, Ben Nighthorse*	W		1724	LHOB	225-4761		Heil/McHugh/Niehaus
ID	D	Stallings, Richard H.	W	d c f	1221	LHOB	225-5531		Lee
MT	R	Marlenee, Ron	W	f w	2465	RHOB	225-1555		Welsh
OR	R	Smith, Robert F. (Bob)	W	f l w	118	CHOB	225-6730		Davis, S./Van Volk
WA	R	Morrison, Sid	W	d f	1434	LHOB	225-5816		Zuiches/Oldenstadt/Ozbun

* - Indicates new members of the Committee

As of February 9, 1987, confirmed office and subcommittee assignment information was not available. That shown is for 1987.

Captial letter indicates Chair of subcommittee

d - conservation, credit and rural development
c - cotton, rice and sugar
o - operations, research and foreign agriculture
m - marketing, consumer relations and nutrition
f - forests, family farms and energy
l - livestock, poultry and dairy
t - tobacco and peanuts
w - wheat, soybeans and feed grains

CNGRM287
Members of Important Congressional Committees
February 27, 1987

STATE	P	CONGRESSIONAL NAME	SUBCOMMITTEES	OFFICE LOC	TELEPHONE	AGR RELATED STAFF	SAES DIRECTOR
		MEMBERS OF THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON AGRICULTURE, RURAL DEVELOPMENT AND RELATED AGENCIES					
		Foster, Bob	Dir, Majority Staff	2362 RHOB	225-2638		
		Ryan, Rob	Dir, Minority Staff	2202 RHOB	225-6435		
IA	D	Smith, Neal	NC	2373 RHOB	225-4426	Dandy, Darrold	Kolmer/Mahlstede/Hazen
IL	D	Durbin, Richard J.	NC	417 CHOB	225-5271	Jepsen, Jim	Holt/Jones
IN	R	Myers, John T.	NC	2372 RHOB	225-5805	McCarthy, David	Baumgardt/Lechtenberg
MI	D	Traxler, Bob	NC	2366 RHOB	225-2806	Szmaraj, Roger	East/Fisher/Anderson
MN	R	Weber, Vin*	NC	106 CHOB	225-2331	Christenson, Anne	Sauer/Allen/Thompson
NE	R	Smith, Virginia, Ranking	NC	2202 RHOB	225-6435	Ryan, Rob	Ostvedt/Vanderhola
NY	D	McHugh, Matthew F.	NE	2335 RHOB	225-6335	Warner, Susan	Scott
KY	D	Natcher, William H.	S	2333 RHOB	225-3501	None	Barnett/Collins
MS	D	Whitten, Jamie, Chair	S	2314 RHOB	225-2638	Foster, Bob	Foil
OK	D	Watkins, Wes	S	2348 RHOB	225-4565	Jackson, Paul G.	Browning/Johnson
HI	D	Akaka, Daniel K.	W	2301 RHOB	225-4906	McGarey, Patrick	Kefford/Ching
WY	R	Simpson, Joe	W	1007 LHOB	225-2365	Lamina, Bob	Owens/Smith/Briggs
		OTHER MEMBERS OF THE FULL HOUSE APPROPRIATIONS COMMITTEE					
IL	R	Porter, John Edward	NC				
IL	D	Yates, Sidney	NC				
MI	R	Pursell, Carl D.	NC				
MI	D	Carr, Bob	NC				
MN	D	Sabo, Martin	NC				
OH	D	Stokes, Louis	NC				
OH	R	Miller, Clarence E.	NC				
OH	R	Regula, Ralph	NC				
WI	D	Obey, David	NC				
MA	D	Boland, Edward P.	NE				
MA	D	Early, Joseph D.	NE				
MA	R	Conte, Silvio O.	NE				
NJ	D	Dwyer, Bernard J.	NE				
NY	R	Green, Bill	NE				
NY	R	Kemp, Jack F.	NE				
NY	D	Mrazek, Robert J.	NE				
PA	R	McDade, Joseph M.	NE				
PA	R	Coughlin, Lawrence	NE				
PA	D	Gray, William III	NE				
PA	D	Murtha, John P.	NE				
WV	D	Mollohan, Alan B.*	NE				
AL	D	Bevill, Tom	S				
AR	D	Alexander, Bill	S				
FL	D	Chappell, Bill, Jr.	S				
FL	R	Young, C. W. (Bill)	S				
FL	D	Lehman, William	S				
KY	R	Rogers, Harold	S				
LA	R	Livingston, Bob	S				
LA	D	Boggs, Lindy (Mrs. Hale)	S				
NC	D	Hefner, W. G. (Bill)	S				
OK	R	Edwards, Mickey	S				
TN	D	Boner, Bill	S				
TX	D	Coleman, Ronald D.	S				
TX	R	Delay, Tom*	S				
TX	D	Wilson, Charles	S				

CN08M207
Members of Important Congressional Committees
February 27, 1987

STATE	P	CONGRESSIONAL NAME	SUBCOMMITTEES	OFFICE LOC	TELEPHONE	AGR RELATED STAFF	SAES DIRECTOR
		MEMBERS OF THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON AGRICULTURE, RURAL DEVELOPMENT AND RELATED AGENCIES					
		Foster, Bob	Dir, Majority Staff	2362 RHOB	225-2638		
		Ryan, Rob	Dir, Minority Staff	2202 RHOB	225-6435		
VA	R	Wolf, Frank R.	S				
AZ	R	Kolbe, Jim	M				
CA	R	Lewis, Jerry	M				
CA	R	Lowery, Bill	M				
CA	D	Roybal, Edward R.	M				
CA	D	Dixon, Julian C.	M				
CA	D	Fazio, Vic	M				
OR	D	AuCoin, Les	M				
WA	D	Dicks, Norman D.	M				

CNGRS287
Members of Important Congressional Committees
February 27, 1987

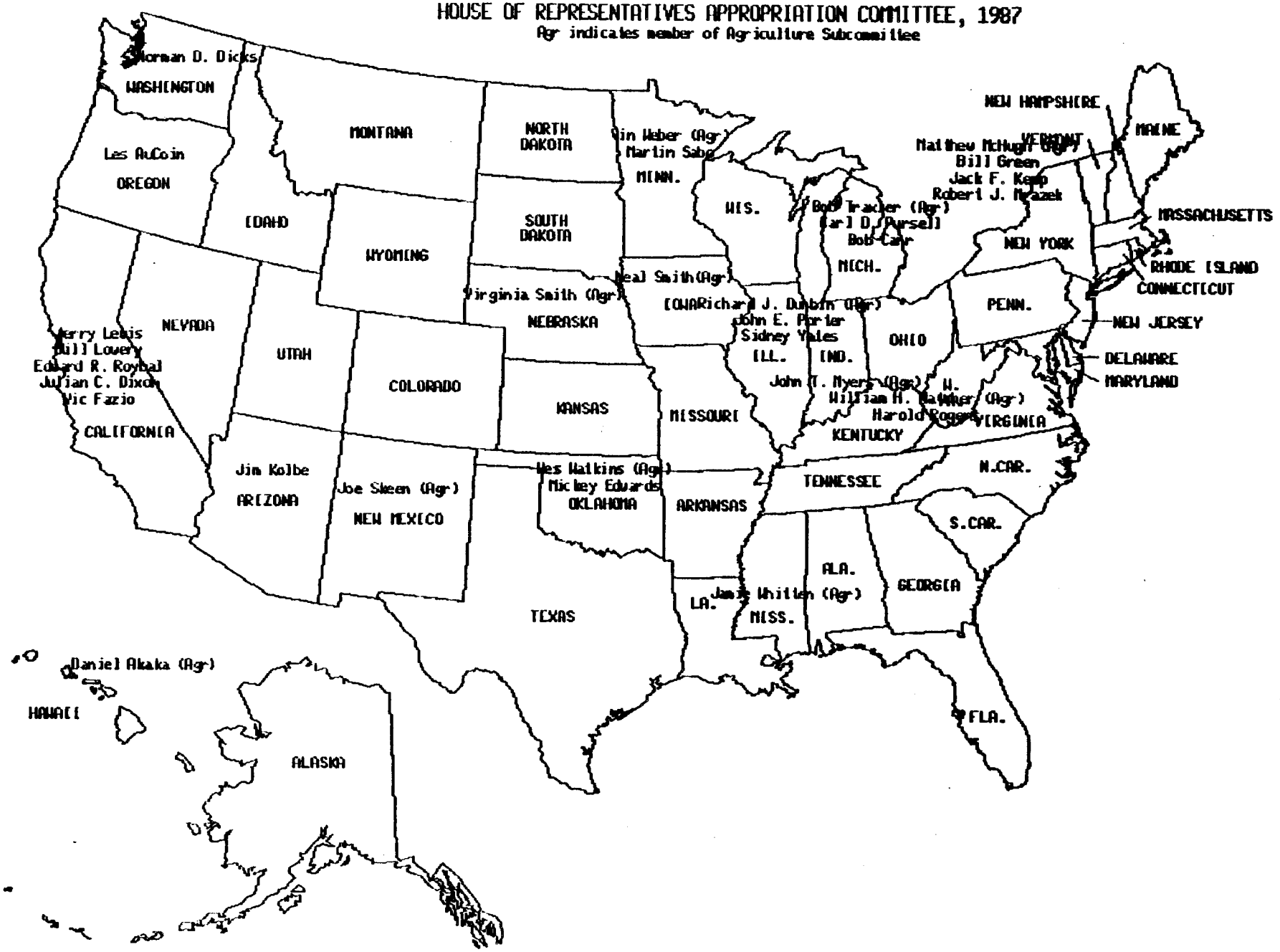
STATE	P	CONGRESSIONAL NAME	SUBCOMMITTEES	OFFICE LOC	TELEPHONE	AGR RELATED STAFF	SAES DIRECTOR
		MEMBERS OF SENATE APPROPRIATIONS AGRICULTURE SUBCOMMITTEE					
		Kuhn, Rocky L.	Chief Clerk	140 SDOB	224-7240		
		Hanneman, Irma L.	Minority Clerk	150 SDOB	224-7337		
IA	R	Grassley, Charles E.	NC	135 SHOB	224-3744	Johnson, Allen	Kolmer/Mahlstede/Hazen
IA	D	Harkin, Tom	NC	317 SHOB	224-3254	Palmer, George	Kolmer/Mahlstede/Hazen
ND	D	Burdick, Quentin N.,Chair	NC	511 SHOB	224-2551	Kuhn, Rocky L.	Lund
WI	R	Kasten, Robert	NC	110 SHOB	224-5323	Britt, Joseph	Walsh/Lower/Jorgensen
PA	R	Specter, Arlen	NE	331 SHOB	224-4254	Barnette, Jim	Hood/Krueger
AR	D	Bumpers, Dale	S	229 SDOB	224-4843	Gilliland, Donice	LaFerney
FL	D	Chiles, Lawton	S	250 SROB	224-5274	Snell, Rand	Tefertiller/Davison
MS	D	Stennis, John	S	205 SROB	224-6253	Grafton, Steve	Foil
MS	R	Cochran, Thad	S	326 SROB	224-5054	Graves, David	Foil
TN	D	Sasser, Joe	S	298 SROB	224-3344	Coffin, Chris	Gossett
ID	R	McClure, James A.	W	361 SDOB	224-2752	Mittmeyer, Jane	Lee
		OTHER MEMBERS OF THE FULL SENATE APPROPRIATIONS COMMITTEE					
		(This group not yet confirmed)					
IA	D	HarkIn, Tom	NC				
WI	D	Proxmire, William	NC				
WI	R	Kasten, Robert	NC				
CT	R	Weicker, Lowell	NE				
NH	R	Rudman, Warren	NE				
NJ	D	Lautenberg, Frank	NE				
NY	R	D'Amato, Alfonse	NE				
PA	R	Specter, Arlen	NE				
VT	D	Leahy, Patrick	NE				
WV	D	Byrd, Robert	NE				
AR	D	Bumpers, Dale	S				
FL	D	Chiles, Lawton	S				
GA	R	Mattingly, Mack	S				
LA	D	Johnston, J. Bennett	S				
MS	R	Cochran, Thad	S				
MS	D	Stennis, John	S				
SC	D	Hollings, Ernest F.	S				
TN	D	Sasser, Jim	S				
AK	R	Stevens, Ted	W				
AZ	D	DeConcini, Dennis	W				
HI	D	Inouye, Daniel	W				
ID	R	McClure, James A.	W				
NM	R	Domenici, Pete V.	W				
OR	R	Hatfield, Mark	W				
UT	R	Garn, Jake	W				

CN0887187
Members of Important Congressional Committees
February 27, 1987

STATE	P	CONGRESSIONAL NAME	RG	SUBCOMMITTEES	OFFICE LOC	TELEPHONE	AGR RELATED STAFF	SAES DIRECTOR
		MEMBERS OF THE SENATE COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY						
		Riemanschneider, Chas		Dir, Majority Staff	328A SROB	224-0815		
		Conner, Charles		Dir, Minority Staff	328A SROB	224-0035		
				c p r f n d				
IA	D	Harkin, Tom	NC	f n	317 SHOB	224-3254	Palmer, George	Kolmer/Mahlstede/Hazen
IN	R	Lugar, Richard	NC	n	306 SDOB	224-4814	Conner, Charles	Baumgardt/Lechtenberg
KS	R	Dole, Robert	NC	p N	141 SHOB	224-6521	Scanlan, Mark	Woods/Feltner
MN	R	Boschwitz, Rudy	NC	f n	506 SHOB	224-5641	Pearson, Dan	Sauer/Allen/Thompson
MO	R	Bond, Kit	NC	p r f	321 SHOB	224-5721	Franzel, Brent	Mitchell/Pfander
ND	D	Conrad, Kent*	NC	p f	825A SHOB	224-2043	Hall, Kent	Lund
NE	D	Zorinsky, Edward	NC	c P f	443 SROB	224-6551	Pasco, Rick	Ostvedt
SD	D	Daschle, Tom*	NC	p f	724 SHOB	224-2321	Billings, Gregg	Moore
VT	D	Leahy, Patrick J., Chair	NE		433 SROB	224-2424	Riemanschneider, Chas	Smith
AL	D	Heflin, Howell T.	S	c p r	728 SHOB	224-4124	Raby, Steve	Frobisch
AR	D	Pryor, David	S	p F d	264 SROB	224-2353	Robertson, Dennis	LaFerney
GA	D	Fowler, Wyche*	S	p r	320 SHOB	224-3643	Redding, Bob	Donoho/Laughlin
KY	R	McConnell, Mitch	S	p	120 SROB	224-2541	Poole, Jay	Barnhart
MS	R	Cochran, Thad	S	c p f	326 SROB	224-5054	Graves, David	Foil
NC	R	Helms, Jesse	S	c p f d	403 SDOB	224-6342	Weatherly, Keith	Bateman/Kriz
OK	D	Boren, David L.	S	c p	453 SROB	224-4721	Eversole, Kellye	Browning/Johnson
CA	R	Wilson, Pete	W	p r f	720 SHOB	224-3841	Mathews, Alex	Lewis/Schlegel
MT	D	Melcher, John	W	R f n	730 SHOB	224-2644	Voight, David	Welsh
				13 5 11				

* - Indicates new members of the Committee

Captial letter indicates Chair of subcommittee
c - credit and rual electrification
p - agricultural production and stabilization of prices
r - agricultural research, conservation, forestry and general legislation
f - domestic and foreign marketing and product promotion
n - nutrition
d - rural development, oversight and investigations


HOUSE OF REPRESENTATIVES APPROPRIATION COMMITTEE, 1987
Agr indicates member of Agriculture Subcommittee
Norman D. Dicks
WASHINGTON
Les AuCoin
OREGON
MONTANA
IDAHO
WYOMING
NEVADA
UTAH
COLORADO
CALIFORNIA
Jerry Lewis
Bill Lowery
Edward R. Roybal
Julian C. Dixon
Vic Fazio
Jim Kolbe
ARIZONA
Joe Skeen (Agr)
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
Jim Weber (Agr)
Martin Sabo
MINN.
Neal Smith (Agr)
Virginia Smith (Agr)
IOWA
Les Aspin (Agr)
Richard J. Durbin (Agr)
John E. Porter
Sidney Yates
ILL.
MISSOURI
Wes Watkins (Agr)
Mickey Edwards
ARKANSAS
LA.
Jamie Whitten (Agr)
MISS.
ALA.
WIS.
Bob Traxler (Agr)
Carl D. Pursell
Bob Carr
MICH.
IND.
John T. Myers (Agr)
William H. Natcher (Agr)
Harold Rogers
KENTUCKY
TENNESSEE
GEORGIA
FLA.
S.CAR.
N.CAR.
VIRGINIA
W.
OHIO
PENN.
NEW YORK
Matthew McHugh (Agr)
Bill Green
Jack F. Kemp
Robert J. Mrazek
NEW HAMPSHIRE
VERMONT
MAINE
MASSACHUSETTS
RHODE ISLAND
CONNECTICUT
NEW JERSEY
DELAWARE
MARYLAND
Daniel Akaka (Agr)
HAWAII
ALASKA

The following are the budget functions including identifying numbers from SPECIAL ANALYSES:Budget of the United States Government, Fiscal Year 1988. Excerpts are from Analysis A, Table A-15, Current Services Budget Authority by Function and Program, pages A-20 to A-31. Comparable information of Current Services Outlays is given in Table A-16.

(In millions of dollars)

NO.	Function/Subfunction	1986 Actual	Current Services 1987 est	1988 est	1988 Adm Proposals
050	NATIONAL DEFENSE				
051	Dept of Defense-Military	281390	284931	303295	303295
053	Atomic Eergy def actvties	7287	7478	8050	8050
054	Defense-related actvties	470	518	622	622
	Total budget authority	289146	292927	311967	311967
250	GENERAL SCIENCE, SPACE & TECHNOLOGY				
251	Gen science & basic research:				
	NSF programs	1472	1636	1685	1898
	DOE gen sci programs	650	708	781	814
	Subtotal, G sci/bas res	2121	2345	2466	2712
270	ENERGY				
271	Energy supply:				
	Research & Development	2070	1697	2374	2187
300	NATURAL RESOURCES AND ENVIRONMENT				
304	Poll control & abatement				
	Reg, enfrcmt & res prgms	1373	1444	1476	1436
350	AGRICULTURE				
351	Farm income stabilizaion:				
	Com price sprt/rel prgms				
	Existing law	23085	21514	16108	16069
	Proposed legislation				308
	Crop insurance:				
	Existing law	344	345	746	500
	Proposed legislation				---
	Agricultural credit:				
	Existing law	4627	3506	4068	3685
	Proposed legislation				50
	Other prgms/unalctd ovhd	9	*	*	---
	Subtotal, Farm inc stab	25569	26232	19359	18057
352	Agr research & services:				
	Research programs				
	Existing law	775	862	852	783
	Proposed legislation	---	---	---	*
	Extension programs	328	332	345	263
	Marketing programs:				
	Existing law	133	134	142	140
	Proposed legislation				-40
	Animl/plnt health prgms:				
	Existing law	310	308	331	303
	Proposed legislation				-86
	Economic intelligence	182	188	198	200
	Other prgms/unalctd ovhd				

Existing law	206	211	221	247
Proposed legislation				-4
Offsetting recipts	-97	-99	-102	-102
Subtotal, Agr res/srvcs	1836	1938	1986	1703
Total budget authority	29901	27303	22908	22158
550 HEALTH				
551 Health care services:				
552 Health research:				
NIH research	5013	5894	6093	7970
Other research programs	539	726	677	639
Subtotal, Health resrch	5552	6621	6770	8609

FEDRES87 February 12, 1987

The following information is from SPECIAL ANALYSES:Budget of the United States Government, FY1988, Special Analysis J, Research. Table J-2, page J-5, Conduct of Research by Major Departments and Agencies.

Department or agency	Obligations (In millions of dollars) 1986 actual	1987 estimate	1988 estimate	%Change '88vs'87
Defense-Military functions	34205	37533	44080	17.44%
Health and Human Sevices	5661	6353	6294	-0.93%
(National Institutes of Health)	(5004)	(5519)	(5573)	0.98%
Energy	4708	4801	5016	4.48%
NASA	3420	4185	4498	7.48%
NSF	1336	1441	1680	16.59%
Agriculture	925	978	961	-1.74%
Transportation	387	308	290	-5.84%
Interior	378	366	364	-0.55%
EPA	317	329	346	5.17%
Commerce	394	397	333	-16.12%
AID	211	217	233	7.37%
Veterans Administration	188	211	214	1.42%
All other	483	514	463	-9.92%
Totals*	52612	57631	64771	12.39%

* Addition of columns will not equal totals because of rounding in the column values. The right column is not given in the original table, but was calculated and added.

Michigan State University
AGRICULTURAL EXPERIMENT STATION
Michigan State University
109 AGRICULTURE HALL
EAST LANSING, MICHIGAN 48824-1039
(517) 355-0123
OFFICE OF THE DIRECTOR

February 20,1987

MEMORANDUM

TO: Members, FY'89 ESCOP Budget Subcommittee

FROM: Robert G. Gast RGG

RE: Draft of FY'89 ESCOP Budget Recommendations

I am enclosing a first draft of the FY'89 ESCOP Budget Recommendations for your review and reaction. In addition, I am enclosing a copy of a document outlining the strategies used in preparing the recommendations for those of you who may be interested in the details of that process.

Between the budget recommendations and the strategies document I believe that the process and results are fairly well defined. I would only make the following additional points.

1. The budget recommendations were developed using the research initiatives or priorities and accompanying budget recommendations outlined in the ESCOP Research Planning Committees "Research Initiatives" document, with some modification to allow for input from the affiliate organizations and previous budget recommendations.

2. After reviewing the budget figures with the ESCOP Interim Committee, it was recommended that Plan 1 as outlined in the strategies document be used; i.e. the top 25 percent of the priorities identified in the Research Initiatives document were recommended for funding in FY'89 with the balance divided between FY'90 and FY'91.

3. This approach not only allows the budget recommendations to be tied closely to the planning process but also allows them to be presented in terms of research program categories that can be tied to the base budget. They are also presented in terms of budget authority.

4. The format used is close to that discussed during a meeting of several Budget Subcommittee members in Lansing on December 15, 1986.

Please look the budget recommendations over carefully and give me your frank comments and reactions in terms of both the format and recommended increases. I especially need your reactions concerning the proposed increases before I meet with the Division FY'89 Budget Committee on March 10th.

It is obvious that the write-ups concerning the "Six Research Program Categories" need to be strengthened. This is especially true in the accomplishments section. We also need to carefully review the objectives or priority section to see that they reflect the highest priorities in that area.

Finally, I apologize for not getting this to you earlier. However, the task of developing the recommendations from the priorities and budget recommendations outlined in the Research Initiatives document proved to be greater than I expected. I want to especially convey my appreciation to Keith Huston who did all the work in this regard.

While there are obviously many details to be completed, I feel that this approach has promise. I will look forward to receiving your reactions and comments in this regard. Thanks for your patience.

RGG/nbj
lESCOP3

cc: J. Patrick Jordan
Neville Clark
Orin Little
Colin Kaltenbach

STRATEGIES USED IN PREPARING FY'89 ESCOP BUDGET RECOMMENDATIONS
January, 1987

1. FY'89 ESCOP Budget Committee Suggestions:

   a. '87 Base Budget should be itemized so that each FY'89 proposed increase could be added to existing programmatic and funding authority bases.

   b. A multiyear budget should be used so that priorities identified by ESCOP Special Initiatives and ESCOP National Planning Committees could be addressed in an orderly fashion.

   c. The Joint Council Priorities should be part of the budget write-up (Note: Because Joint Council Priorities change every year and because they may exclude major parts of the base program, they are less useful as a programmatic base.

   d. The ESCOP National Planning reports, particularly "Research Initiatives" and its priorities and strategies ought to be part of the budget write-up (Note: ESCOP :"Research Initiatives" change every 4 years. Within each 4 year period, some initiatives have higher priority than others. They, to, exclude major parts of the base program. Hence,they are not sufficient for developing a programmatic base for multiyear budget alone; i.e. other factors need to be considered.

Conclusions

A CRIS based summary system offers permanence needed for programmatic basis, i.e. "base programs". Two existing choices are an RPG/RP or a Goal/RPA summary. RPG/RP is a derived summary requiring computer summarization of partial RPA's. Moreover RPG/RP funding summaries are not published now in CRIS summaries. Goal/RPA approach follows Joint Council and ESCOP Planning more closely than RPG/RP. The 9 Goals of the Goal/RPA summary can be consolidated into fewer Goal Groups. The Goal/Major Research Area/Research Problems Area (Goal/MRA/RPA) summary used by NARC with some additional adjustments in Goal IX provides a number of FY'89 Budget Options for Base Program Summarization as outlined below:

Abbreviated or Modified CRIS Goals	Consolidated Goals-Option A
I. Natural Resources	*1. Natural Resources (I)
II. Protection from Pests	*2. Profitability (II&III)
III. Decrease Production Costs	3. Expand Demand (IV)
IV. Expand Demand for Products	4. Expand Markets (V&VI)
V. Improve Marketing	5. Consumer Health (VII)
VI. Expand Export Markets	6. Rural Families & Communities (VIII&IX)
VII. Consumer Health	
VIII. Rural Family Life	
IX. Community Improvement	

Consolidated Goals-Option B

*1. Natural Resources (I)
*2. Profitability of Forests
MRA 2.4 & 3.4 + 1/4 (3.7)
3. Profitability of Field & Hort Crops
MRA 3.1,3.2, 2/3 (3.5), 3.6,3.7,3.8.2.1,2.2, 2/3 (2.5)
4. Profitability of Animals MRA 2.3, 3.3, 1/3 (3/5)
5. Expand Demand IV
6. Expand Markets V & VI
7. Consumer Health VII
8. Rural Families & Communities (VIII&IX)

Consolidated Goals-Option C

1. Natural Resources (I)
2. Protection from Pests (II)
3. Decrease Production Costs (III)
4. Expand Demand for Products (IV)
5. Expand Markets (V & VI)
6. Consumer Health (VII)
7. Rural Families & Communities (VIII&IX)

Consolidated Goals-Option D

*1. Natural Resources (I)
*2. Profitability of Forests
MRA 1/3(2.5)1 1/4(3.7) 2.4,3.4,4.4
3. Profitability of Farms and Ranches
MRA 2.1, 2.2,2/3(2.5) 3.1,3.2,3.5,3.6, 3/4 (3.7),4.1,4.2,4.3
4. Expand Markets (V & VII)
5. Consumer Health VII)
6. Rural Families & (VII & &IX) Communities

*MRA 1.3 could be moved into Goal 2. with either forest profitability MRA's

2. **Budget Plans Used in Preparing FY'89 Recommendations**

A. Budget Plan 1

1. Recommendations are based on top 25 percent of the "objectives" or priorities identified in the "Research Initiatives" document.
2. Of the total $231 million recommended ongoing budget needs identified in the "Research Initiatives" document, $98.7 million is associated with the top 25 percent priorities.
3. The $98.7 million was distributed among the six consolidated goals or budget categories.
4. Consideration was then given to other high priority research areas identified in the FY'89 budget recommendations and recommendations received from the Affiliate Groups.
5. The remainder of the $231 million recommended increases or $143 million was divided equally in developing the FY'90 and 91 recommendations.

B. Budget Plan 2

1. Recommendations are developed assuming that the $231 million increase in the "Research Initiatives" document will be spread over three years or $77 million per year (see page 5 the "Research Initiatives" document).
2. Does not include any recommended increases in Budget Category or Goal 3, "Expanded Uses" since Research Initiatives does not include any Goal 3 items in the top 25 percent.

3. FY'87 budget figures were developed by goal or budget category using actual FY'85 allocation pattern but based on FY'87 appropriations.

4. FY'88 budget figures were based on the February 1. 1987 ESCOP budget Recommendations.

5. FY'90 and FY'91 budget figures were developed by splitting the difference between the FY'89 recommended increases (98.7 million in Plan 1 and $77 million in Plan 2) and the $231 million over a two year period. Some of the increase for Goal 2, "Profitability" was moved to Competitive Grants along with some of Goal 5, "Consumer Health". No increases were recommended for special grants.

6. Facilities and equipment costs identified in the "Research Initiatives" document were divided between FY'89 and FY'90 based on the recommended 2 year phase in with cost share with States.

DRAFT

PROPOSED BUDGET

Cooperative State Research Service of the U. S. Department of Agriculture

Fiscal Year 1988

WITH PROJECTIONS INTO FISCAL YEARS 1990-1991

RECOMMENDED BY THE BUDGET SUBCOMMITTEE OF THE
EXPERIMENT STATION COMMITTEE ON ORGANIZATION AND POLICY
FEBRUARY, 1987

DRAFT
2/87

USDA/CSRS BUDGET RECOMMENDATIONS

Introduction

American agriculture is a dynamic industry which has expressed continued change since the country was first founded. The ability to respond to these changes has to a large extent been associated with a strong state/federal agricultural research program.

Today, American agriculture and forestry industries are facing yet another period of major change, that of adjusting to competition in a global rather than a domestic economy. The major commodity producing sectors of agriculture are among the few truly successful, globally competitive, industries left in the United States. However, they will remain in that position only if productivity growth is sufficient to enhance our competitive position. Such growth will require an expanded public agriculture research system with both state and federal support. The budget recommendations reported here are based on that need along with the research needs associated with the many other changes associated with these adjustments.

Developing the Budget Recommendations

As in the case of past budget recommendations, the recommendations presented here were developed from the recent extensive planning efforts of the Experiment Station Committee on Policy (ESCOP) along with recommendations from Joint Council on Food and Agricultural Sciences of the USDA, and the ESCOP Special Initiatives Subcommittee. The specific recommendations differ from those in the past in that they are more directly tied to the research initiatives or priorities and related budget needs outlined in recent ESCOP planning document "Research Initiatives, A Research Agenda State Agricultural Experiment Stations".

The recommendations also differs in that recommendations are projected for three budget years, FY'89, FY'90 and FY'91, with the understanding that the FY'90 and FY'91 recommendations are tentative and subject to change. Hopefully, however, this will help provide greater continuity to the budgeting process.

Research Program Categories and Priorities

In addition to budget recommendations being made in terms of the budget authorities (Hatch Act, McIntire Stennis, Evans-Allen ect.) they are also made in terms of six research program categories developed using the current Research Information System (CRIS). This, for the first time, provides a mechanism for tying budget recommendations to previous base budgets. The six research program categories and high priority research areas within each category are:

1. Managing Natural Resources: Soil and Waste

   Groundwater Quality and Quantity
   Soil Productivity

2. Improved Profitability of Farms, Ranches and Nurseries Through New Technology

   Biotechnology
   Sensor Technology
   Computer Assisted Management Systems
   Plant Germ Plasm
   Improved Plant and Animal Efficiency
   Alternate Crops

3. Expanded Demand for Agriculture and Forest Products

   New Processes
   New Food Uses
   Non Food Uses
   Dietary Needs

4. Developing New and Expanded Markets

   (Need to add specific items of highest priority)

5. Protecting Consumer Health and Well-Being

   (Need to add specific items of highest priority)

6. Improved Rural and Community Life

   Rural Institutions and Government
   Family Stress
   Small Scale Agriculture

Ten Year Trends in CSRS Budgets

In making and evaluating future budget recommendations, it is helpful to review past budget trends. Federal appropriations for CSRS during the past ten years are given in Table 1 in terms of both the levels of funding and the distribution between funding authorities. While the figures reflect several significant trends or development, the two most important are:

1. While there has been a modest overall increase of 5.7 percent in constant dollar funding during the ten year period, there has been a 21 percent decrease in Hatch funds.

2. The major increase in funding during this period has been in the category of competitive grants which increased by 57 percent in constant dollar support.

Table 1. Appropriations for Research, FY 1978-1987, USDA Cooperative State Research Service

FUNDING AUTHORITY	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
A. Actual Dollars										
Hatch Act Formula	109.1	109.1	118.6	128.6	141.1	147.2	152.3	156.5	148.8	148.8
Cooperative Forestry	9.5	9.5	10.0	10.8	12.0	12.4	12.7	13.1	12.4	12.4
1890 Colleges & Tuskegee	14.1	16.4	17.8	19.3	21.5	21.8	22.8	23.5	22.3	22.3
Special Research Grants	7.2	16.3	15.2	18.2	23.1	27.8	26.5	33.2	29.0	52.0
Competitive Research Grants	15.0	15.0	15.5	16.0	16.3	17.0	17.0	46.0	42.3	40.7
Rural Development Research	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Animal Health & Disease	0.0	5.0	6.0	6.5	5.8	5.8	5.8	5.8	5.5	5.5
Direct Federal Admin.	1.5	1.5	1.3	1.3	0.8	0.3	0.6	1.5	1.5	1.7
Forestry Competitive Grants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	6.5	4.5
Total, CSRS	157.9	174.3	185.9	200.7	220.6	232.3	237.7	287.4	268.3	287.9
B. Constant 1978 Dollars										
Cooperative State Research Service										
Hatch Act Formula	109.1	100.0	97.7	96.9	99.3	99.4	98.4	96.7	88.9	86.3
Cooperative Forestry	9.5	8.7	8.2	8.1	8.4	8.4	8.2	8.1	7.4	7.2
1890 Colleges & Tuskegee	14.1	15.0	14.7	14.5	15.1	14.7	14.7	14.5	13.3	12.9
Special Research Grants	7.2	14.9	12.5	13.7	16.3	18.8	17.1	20.5	17.3	30.1
Competitive Research Grants	15.0	13.8	12.8	12.1	11.5	11.5	11.0	28.4	25.3	23.6
Rural Development Research	1.5	1.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Animal Health & Disease	0.0	4.6	4.9	4.9	4.1	3.9	3.7	3.6	3.3	3.2
Direct Federal Admin.	1.5	1.4	1.1	1.0	0.6	0.2	0.4	0.9	0.9	1.0
Forestry Competitive Grants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	3.9	2.6
Total, CSRS	157.9	159.8	153.1	151.3	155.3	156.8	153.5	177.6	160.2	166.9

Reflects reductions under P.L. 99-177, the Balanced Budget and Emergency Deficit Control Act of 1985.

Excludes 1890 Colleges and Tuskegee Research Facilities which has been $10.0 million annually from FY 83 through FY 85, 9.9 million in FY 86, and 9.6 in FY 87.

FY 87 constant dollars assumes 3% inflation rate.

PART I. BUDGET SUMMARIES

Table 2. Federal Funding of State Agricultural Experiment Station and Affiliated Groups Through USDA/CSRS

	FY'87 Appropriation	ESCOP Recommendations FY'88	FY'89	FY'90	FY'91
FORMULA FUNDS		Millions of Dollars			
Hatch Act	148.792	173.792	219.390	245.630	271.870
McIntire-Stennis Cooperative Forestry	12.412	25.000	29.500	31.680	33.860
Evans-Allen Program	22.320	26.090	37.190	41.120	45.050
Animal Health and Disease	5.476	6.400	10.400	11.350	12.300
Total Formula Funds	189.000	231.282	296.480	329.780	363.080
GRANT FUNDS 1/					
Special Research (PL 89-106)	28.512	45.431	55.670	55.670	55.670
Competitive Research (PL 89-100)	40.651	59.050	91.050	105.050	139.050
ADMINISTRATION 2/					
Federal	0.144	1.917	1.917	1.917	1.917
TOTAL	258.307	337.680	445.117	492.417	559.717

1/ Details are shown in Tables 3 and 4.

2/ Includes support for an office of Agricultural Biotechnology, peer review panels for project grant awards, operating costs for the office of Grants and Program Systems, and increased pay and retirement costs.

Table 3. Special Research Grants (PL 89-106) 1/

	FY'87 Appropriation	ESCOP Recommendations FY'88	FY'89	FY'90	FY'91
CONTINUING NATIONAL RESEARCH PROGRAMS 2/		Millions of Dollars			
Integrated Pest Management	2.940	3.434	3.434	3.434	3.434
Pesticide Clearance	1.369	1.440	1.440	1.440	1.440
Minor Use Animal Drugs	0.229	0.240	0.240	0.240	0.240
Pesticide Impact Assessment	1.968	2.069	2.069	2.069	2.069
Rural Development Centers	0.363	0.379	0.379	0.379	0.379
Animal Health (Sec. 1414.c.1)	5.705	6.666	8.666	8.666	8.666
Aquaculture	0.485	0.518	0.518	0.518	0.518
Germplasm Resources	0.000	1.000	1.000	1.000	1.000
Tropical and Subtropical	3.091	3.250	3.250	3.250	3.250
Acid Precipitation	0.661	0.695	0.695	0.695	0.695
Rangeland (Subtitle M, PL 97-98)	0.475	0.500	0.500	0.500	0.500
Biological Impact Assessment	0.000	0.250	0.250	0.250	0.250
NEW NATIONAL RESEARCH PROGRAM					
Water Quality and Management	0.000	20.000	20.000	20.000	20.000
Family Stress	0.000	0.000	2.000	2.000	2.000
SPECIAL PROBLEM GRANTS 3/	11.226	5.000	11.226	11.226	11.226
TOTAL	28.512	4/ 45.441	55.667	55.667	55.667

1/ Awards are made on a competitive basis to fund ongoing national programs, except those state specific grants identified by the Congress.

2/ The FY'88 funding requested equals either the FY 1985 or FY 1986 appropriation whichever was higher, except for integrated pest management and animal health which represent an 11.1% increase over the FY 1985 appropriation.

3/ Numerous special problem grants are established to deal with acute situations usually in one state. Where these problems persist, they can usually be incorporated into the ongoing programs of the Agricultural Experiment Station after one or two years.

4/ A list of all Special Research Grants approved for funding in the FY'87 Continuing Resolution is shown in Table 7.

Table 4. Competitive Research Grants (PL 89-106) 1/

	FY'87 Appropriation	ESCOP Recommendations FY'88	FY'89	FY'90	FY'91	
		Millions of Dollars				
Plant Science	12.126	16.500	23.000	25.500	28.000	
Plant Science Centers	0.000	3.500	3.500	7.000	10.500	2/
Human Nutrition	2.377	4.000	6.000	8.000	10.000	
Animal Science	4.279	10.000	20.000	26.000	32.000	
Biotechnology	19.016	25.000	35.000	45.000	55.000	
Pest Science	2.853	0.000	0.000	0.000	0.000	3/
TOTAL	40.651	59.000	87.500	111.500	135.500	

1/ This program has national support as a funding mechanism to enrich and expand basic research in several fundamental areas important to the agricultural and general economy of this nation. ESCOP also supports the restoration of competitive research grants in forest science that were in the Department of Interior budget.

2/ A joint USDA-National Science Foundation-Development of Energy competitive grant program in plant science to address basic aspects of plant biotechnology, rhyzosphere dynamics, and microbial ecology.

3/ The funding for pest science was incoporated into the plant and animal science competitive research grant programs in the FY'88 recommendations.

Table 5. CSRS FY'87 Appropriations and ESCOP Recommended FY'88-FY'91 Base and Grant Program Budgets Listed by Research Program Category

RESEARCH PROGRAM	HATCH					McINTIRE-STENNIS					EVANS-ALLEN					ANIMAL HEALTH (1433)				
	FY'87	FY'88	FY'89	FY'90	FY'91	FY'87	FY'88	FY'89	FY'90	FY'91	FY'87	FY'88	FY'89	FY'90	FY'91	FY'87	FY'88	FY'89	FY'90	FY'91
A. PROGRAMMATIC																				
1. Natural Resources	16.81	21.81	29.81	33.38	36.95	7.04	9.63	10.63	11.42	12.21	3.04	3.64	4.14	4.58	5.02	0.16	0.16	0.16	0.17	0.18
2. Increased Profitability	97.46	107.46	130.06	145.61	161.16	3.66	8.66	10.66	11.45	12.24	10.73	12.13	15.53	17.17	18.81	5.24	6.16	10.16	11.10	12.04
3. Expanded Uses	12.35	17.35	22.35	25.02	27.69	1.25	6.25	7.25	7.79	8.33	1.24	1.94	2.64	2.92	3.20	0.02	0.02	0.02	0.02	0.02
4. Expanded Markets	6.55	6.55	8.55	9.57	10.59	0.34	0.34	0.84	0.90	0.96	0.20	0.20	0.70	0.77	0.84	0.00	0.00	0.00	0.00	0.00
5. Consumer Health	8.18	10.68	15.68	17.56	19.44	0.04	0.04	0.04	0.04	0.04	2.88	2.88	4.41	4.88	5.35	0.06	0.06	0.06	0.06	0.06
6. Rural Families and Communities	7.44	9.94	12.94	14.49	16.04	0.08	0.08	0.08	0.08	0.08	4.24	4.77	9.77	10.80	11.83	0.00	0.00	0.00	0.00	0.00
TOTALS	148.79	173.79	219.39	245.63	271.87	12.41	25.00	29.50	31.68	33.86	22.33	26.09	37.19	41.12	45.05	5.48	6.40	10.40	11.35	12.30

RESEARCH PROGRAM	COMBINED BASE					SPECIAL GRANTS					COMPETITIVE GRANTS					OTHER				
	FY'87	FY'88	FY'89	FY'90	FY'91	FY'87	FY'88	FY'89	FY'90	FY'91	FY'87	FY'88	FY'89	FY'90	FY'91	FY'87	FY'88	FY'89	FY'90	FY'91
A. PROGRAMMATIC																				
1. Natural Resources	27.05	35.24	44.74	49.55	54.36	5.21	22.77	25.48	25.48	25.48	1.26	2.76	2.76	2.76	2.76	0.00	0.00	0.00	0.00	0.00
2. Increased Profitability	117.08	134.41	166.41	185.33	204.25	16.82	19.56	21.69	21.69	21.69	35.29	49.02	79.02	101.02	123.02	2.63	0.00	0.00	0.00	0.00
3. Expanded Uses	14.87	25.56	32.26	35.75	39.24	2.16	0.96	2.16	2.16	2.16	2.40	3.90	3.90	3.90	3.90	0.00	0.00	0.00	0.00	0.00
4. Expanded Markets	7.09	7.09	10.09	11.24	12.35	1.51	0.67	1.51	1.51	1.51	0.12	0.12	0.12	0.12	0.12	0.00	0.00	0.00	0.00	0.00
5. Consumer Health	11.16	14.19	20.19	22.54	24.89	2.39	1.06	2.39	2.39	2.39	1.63	3.25	5.25	7.25	9.25	0.00	0.00	0.00	0.00	0.00
6. Rural Families and Communities	11.76	14.79	22.79	25.37	27.95	0.42	0.41	2.44	2.44	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	189.01	231.28	296.48	329.78	363.04	28.51	45.43	55.67	55.67	55.67	40.70	59.05	91.05	115.05	139.05	2.63	0.00	0.00	0.00	0.00
B. FACILITIES																31.90	0.00	65.00	65.00	65.00
C. EQUIPMENT																0.00	0.00	46.00	46.00	46.00

Table 6. Summary of FY'89 Recommended Budget Increases by Research Categories (Millions of Dollars)

BUDGET CATEGORY	HATCH	EVANS-ALLEN	McINTIRE-STENNIS	ANIMAL HEALTH (1433)	SPECIAL GRANTS	COMPETITIVE GRANTS	TOTAL INCREASE
Natural Resources	8.0	0.5	1.0	0.0	2.7	0.0	12.2
Profitability	22.6	3.4	2.0	4.0	2.1	30.0	64.1
Expanded Uses	5.0	0.7	1.0	0.0	1.2	0.0	7.9
Expanded Markets	2.0	0.5	0.5	0.0	0.8	0.0	3.8
Consumer Health	5.0	1.0	0.0	0.0	1.3	2.0	9.3
Rural Families and Communities	3.0	5.0	0.0	0.0	2.0	0.0	10.0
TOTAL	45.6	11.1	4.5	4.0	10.1	32.0	107.3

PART II APPENDIX

1989 ESCOP BUDGET PROPOSAL

I. MANAGING NATURAL RESOURCES: Soil and Water

A. Situation

Soils

Ten years ago, the Natural Resources Inventory showed that 38 percent of U.S. cropland was eroding faster than new soil was being formed. Today, erosion continues to threaten long-term productivity of crop, range and forest lands. While certain production methods, tillage practices, and equipment contribute to erosion and declining soil productivity, others such as no-till and minimum tillage can reduce soil erosion and sustain or even enhance productivity. But knowledge is lacking about the long-term impact of these practices on the interaction of soil type, plant variety, fertilizer needs and practices, equipment, planting and harvesting practices, cropping sequences, and pest management. Data bases are needed to assess effects of these different cropping systems on soil productivity.

Water

About 86 percent of the total U.S. water resource is in groundwater aquifers. Agriculture already uses 68 percent of the groundwater withdrawn, and half the U.S. population depends on groundwater for drinking water. As overall dependence on groundwater increases, its availability for agriculture will decline making increased efficiency of use essential. Groundwater pollution is appearing throughout the nation. Government regulators must be able to predict the fate of agricultural chemicals and their impact on the environment, including groundwater. Special efforts are needed to develop ways of reclaiming contaminated aquifers.

B. Accomplishments

- A five-fold increase in conservation tillage over the past 10 years has contributed to reduced farmland erosion; conservation tillage can reduce wind and water erosion by as much as 90 percent in some locations.

- The Low Energy Precision Application system developed by the Texas Agricultural Experiment Station reduces water use by 22 percent and energy use by 35 percent over conventional overhead sprinklers.

- Iowa research has resulted in breakthroughs concerning the transformation of nitrogen and sulfur in soils including (1) the discovery of a bacterial pathway by which nitrous oxide is produced in soil and emitted into the atmosphere and (2) a way to inhibit production of nitrous oxide.

- Agricultural engineers in Tennessee have developed circuitry and computer software to process rainfall data from a laser spectrometer interfaced with a computer; i.e. allowing engineers to study how rainfall energy relates to soil particle detachment and removal from the soil mass.

-Irrigation scheduling in Nebraska saved about 1.5 million acre-feet of water in 1983.

- Crop and environmental sensors linked to computerized irrigation schedules have reduced irrigation by 50 percent among Texas and Arizona cotton growers.

-Critical factors affecting the profitability and adoption of laser leveling technology were identified and evaluated in Arizona by USDA's Economic Research Service and the Arizona Agricultural Experiment Station.

-Laser leveling investments conserve water by improving irrigation application efficiencies and may also increase farm profits.

C. **Objectives of New Research**

Soils: To develop economically feasible crop production systems that protect the soil resource while reducing inputs needed to maintain productivity.

1. **Erosion-Soil Property Relationships.**--to identify effects of erosion on chemical, physical, and biological properties of soil and develop soil productivity indices.

2. **Tillage Management Interactions.**--to define inter-relationships among tillage practices and production system components including soil type, crop rotation and sequences, planting and harvesting methods, varieties, fertilizer practices and pest management.

3. **Water**: To provide an adequate quantity and and acceptable quality of water while sustaining agricultural, industrial, and municipal activities.

4. **Groundwater Quality and Quantity.**--to predict the environmental fate of agricultural chemicals and assess the potential for groundwater contamination.

5. **Water Use Efficiency.**--to develop economical water management and irrigation systems that minimize water quality degradation.

6. **Water Yield.**--to develop strategies and practices (such as remote sensing) that increase total water yield and availability for both irrigated and nonirrigated lands.

D. **Budget Increase Recommendations**

	FY'88	FY'89	FY'90	FY'91
		Millions of Dollars		
Hatch Act	5.000	8.000	3.565	3.565
McIntire Stennis	2.588	1.000	0.789	0.789
Evans-Allen	0.600	0.500	0.438	0.438
Animal Health(1433)	0	0	0.014	0.014
Special Grants Water quality and Management)	17.560	2.707	0	0
Competetive Grants	1.496	0	0	0
Total	27.244	12.207	4.806	4.806

II. **IMPROVING PROFITABILITY OF FARMS, RANCHES, FORESTS AND NURSERIES THROUGH NEW TECHNOLOGY**

A. Situation

Greater global competition for limited export markets, the high value of the U.S. dollar and changing consumer buying patterns have reduced the demand for many agricultural and forest products. Lower priced imports and a U.S. housing industry recession have reduced forest product demand and profitability, yet global demand for lumber, plywood, particleboard, and paper is expected to expand 60 percent by the year 2000. Similar projections have been made with regard to alternate uses of U.S. forests such as tourism and recreation. Ultimately, the projected global demand for agricultural products could restore U.S. exports to the high levels of the early 1980's. Domestic demand for convenience and quality food products also will increase. Meanwhile, many farmers and ranchers are struggling to repay highinterest loans in a period of declining land values, lower product prices and rising production costs. Forest owners have little incentive for increased investments in forest management. The development of new technologies to help farmers and ranchers manage short-term financial crises, and establishing conditions favorable to the long-term profitability of U.S. agriculture and forest industries is of critical importance.

B. **Accomplishments**

- Texas scientists have identified two classes of cattle genes responsible for disease resistance; further research could make it possible to screen cattle for these genetic traits and breed resistant animals.

- Scientists in six states are mapping livestock and poultry genes that control resistance to specific diseases.

- Pennsylvania State researchers have developed a rapid, reliable computerized system to screen poultry for seven diseases using enzyme-linked immunosorbent assays (ELISAs).

- Colorado scientists have developed techniques for embryo splitting and embryo transfer, and are working on methods for microsurgery and embryo sexing.

- Biological agents to replace hazardous herbicides for weed control in rice and soybean crops have been developed by Arkansas scientists and successfully tested as aerial applications to control the weed curly dock.

- Washington State researchers are gaining insights into the functions of natural defense genes in some plants that produce chemical inhibitors in response to wounding; ultimately, it may be possible to introduce these genes into other plants.

- Investments in Integrated Pest Management (IPM) has been especially successful resulting in 1) Programs in Texas cotton resulting in direct benefits to the state of about $610 million annually 2) Lower production costs for apples, increasing net profits by $500 per acre for Northeast and North Central area growers and 3) extending the life of alfalfa stands by one year, resulting, in the case of California alone, in a $15 million annual increase in profits.

- The American chestnut, was virtually eliminated 5 decades ago by the chestnut blight fungus disease. Today chestnut extinction has been avoided through blight canker remission. This was made possible by the identification of fungus strains that have lost ability to kill the tree.

(Need to add accomplishments in the forestry and nursery areas)

C. **Objectives of New Research**--To increase productivity and economic efficiency in agricultural and forestry production.

1. **Forest Profitability**--to improve regeneration techniques, pest management systems, cultural practices, harvesting methods, forest product utilization, manufacturing processes, and domestic and foreign markets.
2. **Biological Efficiency of Animals**--to improve animal genetics, diets, housing and handling.
3. **Animal Disease Control**--to maintain an affordable, high-quality food supply and to sustain a profitable food animal industry byapplying biotechnology to develop animal health care products.
4. **Plant Genetic Improvement**--to develop high quality plants capable of resisting pests and tolerating environmental stresses.
5. **Plant Management Systems**--to develop economically feasible, environmentally safe crop production systems for managing diseases, insects, nematodes, and weeds.

6. **Biotechnology Applied to Plants and Animals**--to understand and manipulate the molecular and cellular processes in plants and animals and the genetic materials for these functions, to improve the production, quality, and quantity of food and fiber.
7. **Expert Systems**--to integrate electronic sensors, computer hardware and software, and mechanical equipment into electronic control systems that aid in the management of agricultural production and processing operations.
8. **Improved Risk Management**--to analyze the economic feasibility of diversifying crop and livestock production and marketing enterprises and to help producers make decisions about adopting new biotechnologies and information technologies.

Budget Increase Recommendations

	FY'88	FY'89	FY'90	FY'91
		Millions of Dollars		
Hatch Act	10.000	22.600	15.549	15.549
McIntire Stennis	5.000	2.000	0.791	0.791
Evans-Allen	1.400	3.400	1.643	1.643
Animal Health(1433)	0.924	4.000	0.943	0.943
Special Grants (Animal Health 1414C)	2.747	2.125	0	0
Competetive Grants	13.734	30.000	22.000	22.000
Total	33.807	34.125	18.926	18.026
Breakdown of Competitive Grants				
Biotechnology	(2.992)	(10.000)	(10.000)	(10.000)
Animal Sciences	(5.721)	(10.000)	(6.000)	(6.000)
Plants	(4.374)	(10.000)	(2.500)	(2.500)
Plant Science Centers	(3.500	(0)	(3.500)	(3.500)
Pest Science	(-2.853)	(0)	(0)	(0)

III. **Expand Demand For Agricultural and Forest Products**

A. **Situation:**

Significant changes have occurred and will continue to occur in the kinds, quantities, and forms of food and non-food products marketed in the U.S. and abroad. Consumers continue to seek a wide variety of high quality, safe, wholesome foods for home use, at a reasonable cost, and have greatly expanded their interest in convenience foods and meals away from home. Consumers are concerned with relationships among diet, health, weight control, and physical and mental fitness. To respond to these concerns, greater knowledge is needed of food properties and structures, more efficient and safer processing systems, consumer food selection patterns, and diet and health. Improved food quality and reduced food costs can result from improvements in postharvest activities, which now account for about 60 percent of each retail food dollar. Demand for many traditional non-food raw products, such as feed grains and oil seeds, has been dampened by concerns over quality and cost and will be stimulated by new products, processes, and uses for raw agricultural and forest products.

(Need to add statements applying to forestry and nursery areas)

B. **Accomplishments**:

- California scientists have purified enzymes that synthesize two fatty acids in vegetable oils; several firms are trying to genetically engineer plants that will produce the combination of fatty acids needed by the edible oil industry.

- Purdue University researchers, in collaboration with industry, have developed aseptic packaging technology that saves energy, improves food product flavor and eliminates the need for product.

- Catfish production in Mississippi has increased 30 percent and nearly 2400 jobs have been created in catfish production, processing and marketing as the result of university and industry cooperation; research on catfish breeding, culture, diseases processing and marketing has resulted in a major investment by a restaurant chain in catfish products.

(Need to expand accomplishment sections, especially in forestry and nursery areas)

C. **Objectives of New Research**--to enhance quality and reduce costs of food and forestry products by improved harvest, storage, and processing procedures.

1. **Relationships Between Diet and Health.**--To determine the impacts of food quality and safety of food production, processing, and preservation practices and important food components on health.
2. **Food Properties and Structures.**--To understand physical, chemical, and biological properties and structures of foods and related materials in order to control properties of materials in process as well as of finished foods, and to enhance yields of higher quality, safer, less expensive food.
3. **Innovative Technologies and Food Processing Systems.**--To lower costs and reduce wastes of food processing by exploiting innovations in biotechnology, robotics, sensing and tamper-proof, low-cost packaging .
4. **Safety of the Food Supply.**--To assess effects of processing and preparation practices on toxicants including persistent chemicals used in production and processing and microbial contaminants.
5. **Consumer Food Selection Patterns.**--To enable consumer selection of foods that are higher in quality, safer, and more nutritious than foods they currently purchase.

(Need to add objectives in forestry and nursery areas)

D. **Budget Increase Recommendations**

	FY'88	FY'89	FY'90	FY'91
		Millions of Dollars		
Hatch Act	5.000	2.673	2.673	2.673
McIntire-Stennis	5.000	1.000	0.538	0.538
Evans-Allen	0.7000	0.700	0.279	0.279
Special Grants	-1.200	1.200	0	0
Competetive Grants	1.496	0.00-	0	0
Total	10.996	7.900	3.490	3.490

IV. **DEVELOPING NEW AND EXPANDED MARKETS**

A. **Situation**

U.S. agricultural technology is among the nation's most effective foreign policy tools and a major contributor to the balance of payments. Yet, U.S. agricultural policy does not always reflect the realities of the global marketplace. High real interest rates, flexible monetary exchange rates, and the well-integrated international capital market have created a stressful situation for U.S. agriculture because of its increased dependence on foreign trade. Certain monetary and fiscal policies, as well as conditions in international financial markets, can cause farm commodity programs that operate by intervening in domestic markets to be counterproductive and costly to American farmers, consumers, and taxpayers. Agricultural policy must be analyzed to take into account the interrelationships among commodity, factor, and financial markets at both the national and international levels. Greater effort is needed to assess foreign market preferences, organize production to meet export demand, and promote products to foreign consumers.

Research also is needed to expand domestic markets. In order to satisfy both producer and consumer needs simultaneously, new knowledge is required regarding changing technologies, consumer tastes and preferences, and the scope of markets for food, fiber, and forest products. Also, improving the efficiency of processing and distribution operations will lower the costs of these products both at home and abroad and improve U.S. agriculture's market share in world trade.

B. Accomplishments

(A list of accomplishments in this area needs to be developed)

C. **Objectives of New Research**--to increase U.S. agriculture's share of domestic and world markets.

1. **Comparative Productivity Growth and Competition in World Markets.**--to define factors influencing different rates of agricultural productivity growth among countries and their impacts on the absolute and comparative advantage in producing agricultural commodities for world markets.

2. **Policy and Institutional Design.**--to reform policy and design institutions in order to improve the performance and profitability of U.S. agriculture in the world economy.
3. **Market Structure and Efficiency.**--to strengthen domestic and international markets by improving structure and efficiency.

D. **Budget Increase Recommendations**

	FY'88	FY'89	FY'90	FY'91
		Millions of Dollars		
Hatch Act	0	2.000	1.023	1.023
McIntire Stennis	0	0.500	0.062	0.062
Evans-Allen	0	0.500	0.074	0.074
Special Grants	-0.836	0.836	0	0
Competetive Grants	0.000	0	0	0
Total	-0.836	3.836	1.159	1.159

V. PROTECTING CONSUMER HEALTH AND IMPROVING WELL-BEING

A. Situation

Public interest in diet, nutrition and health issues has grown dramatically in recent years. Major degenerative diseases are multi-factorial and have dietary components. Americans can choose from a plentiful supply of wholesome food products. Yet, health risks have been associated with certain foods and certain food components for people in certain age categories and health conditions. The nature and magnitude of influences on health arising from food components such as total lipid content, saturated fatty acids, cholesterol, various types of poly-unsaturated fatty acids, dietary fiber, vitamins and minerals, chemical residues, and naturally occurring toxicants are yet to be defined.

B. Accomplishments

- Alternative non-chemical methods (biological, cultural, resistant varieties) have been developed that have significantly reduced dependence on chemical pesticides.
- Methods have been developed for using chemical pesticides in a more selective, judicious, economical, and environmentally compatible manner.
- The quantity of pesticides on many crops has been significantly reduced, easing environmental contamination and health concerns. Researchers at Oregon State University studying biological availability have developed a new laboratory method for determining the proportion of vitamin B6 in food which is not available to humans by using a new assay that has led to identification of glycosylated forms as being the bound form of the vitamin.
- The use of ultra high temperature (UHT) pasteurization process for milk and fruit juices has led to products that have consumer appeal, and are inexpensive, safe, and nutritious as well as capable of storage at room temperature for long periods without deterioration.

- There is increased understanding of nutritional requirements, such as regulation of energy with respect to obesity of specific nutrients, such as vitamin D and its role in calcium storage and utilization within humans.

- A lactose-removal process that yields a mild product suitable for people who experience lactose intolerancehas been developed.

- Improved packaging, cooling, and handling techniques have been developed and that have maintained or improved quality and appearance of fresh foods while reducing the marketing costs.

- There are improved methodologies for evaluating consumer preferences and life styles which have led to new product developments and marketing technologies that take into account the subtle relationships among food appearance, diet, and health.

C. **Objectives**

1. **Dietary Health Risks.**--to establish more accurate information about the possible health risks associated with certain food components such as lipids, saturated fats, cholesterol, chemical residues, and naturally occurring toxicants, so that consumers can make informed decisions.

(Additional objectives need to be identified)

D. **Budget Increase Recommendations**

	FY'88	FY'89	FY'90	FY'91
		Millions of Dollars		
Hatch Act	2.500	5.000	1.875	1.875
Evans-Allen	0.530	1.000	0.467	0.467
Special Grants	-1.326	1.326	0	0
Competive Grants (Human Nutrition)	1.623	2.000	2.000	2.000
Total	3.327	9.326	4.342	4.342

VI. IMPROVING RURAL FAMILY AND COMMUNITY LIFE

A. **Situation**

Rural families and communities are increasingly being faced with economic and emotional adversity as the result of market shifts, government policy changes and new technology in the energy, agriculture, forestry and mining industries.

The well-being of rural families, both those who are involved in agriculture and those who are not, affects the quality of life in their communities. Their economic well-being depends upon their purchasing power, income stability, and resource management skills. Physical well-being is related to the availability of basic needs such as health care and housing, including housing that meets the special needs of the elderly and single-parent families. For social well-being, families must have access to community organizations and resources which provide support.

The recent agricultural crisis has magnified the stress on farm families as they face the loss of employment, property and their way of life. The number of people affected is significant. U.S. Department of Agriculture statistics show that at least 114,000 fewer farms were operating on June 1, 1986 than two years earlier. Both commercially significant and small-scale farmers are affected.

The severe problems facing many farmers have a devastating effect on the functioning of rural communities. This "ripple effect" also influences urban areas that depend on agriculture-related business and that will absorb many displaced farmers and their families. Research-based information on the outcome of management decisions and on sources and coping mechanisms for family stress are needed.

Farm families engaged in small-scale agriculture are more important for the contributions they make to the viability of rural communities and to quality of life than for their contribution to aggregate agricultural production.

Statistics clearly indicate that small-scale farmers are increasing rather than decreasing. It is estimated that by the year 2000, 80 percent of the American farming population will be considered small-scale producers. Furthermore, most of these farmers will operate on a part-time basis. Very little research has been done to identify technology, management and marketing strategies for small scale livestock and crop enterprises.

B. **Accomplishments**

(Need to develop list of accomplishments)

C. **Objectives**--to identify strategies to meet special needs of rural America

1. **Family Stress Factors.**--to analyze family responses to stress resulting from social, economic, and technological changes and to develop more effective coping strategies that contribute to individual, family, and community well-being.
2. **Small-scale Agriculture**--To develop diversified livestock enterprises, new crop management and marketing systems and economically feasible enterprises for small-scale farmers.

D. **Budget**

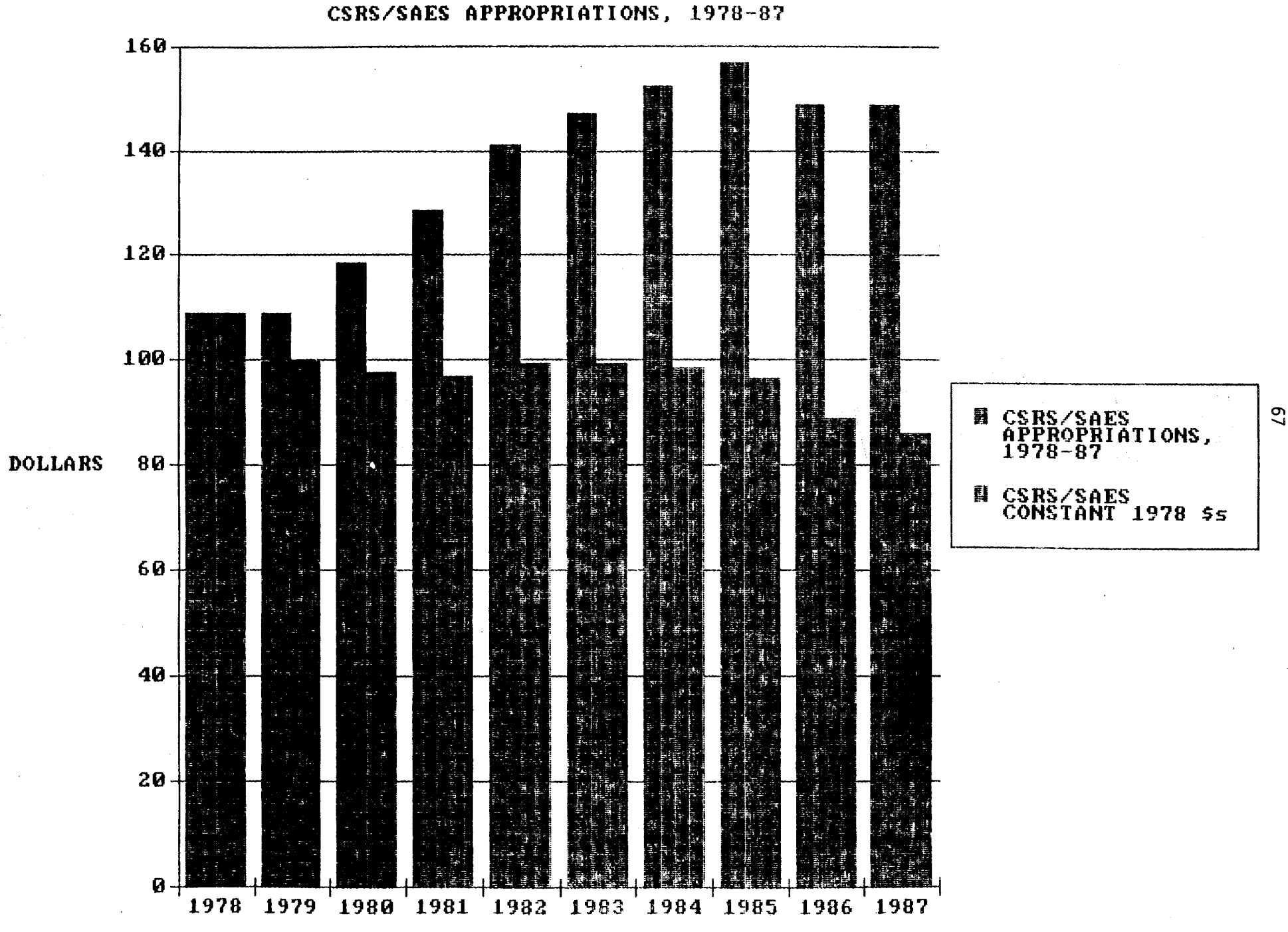
(Additional objectives need to be developed)

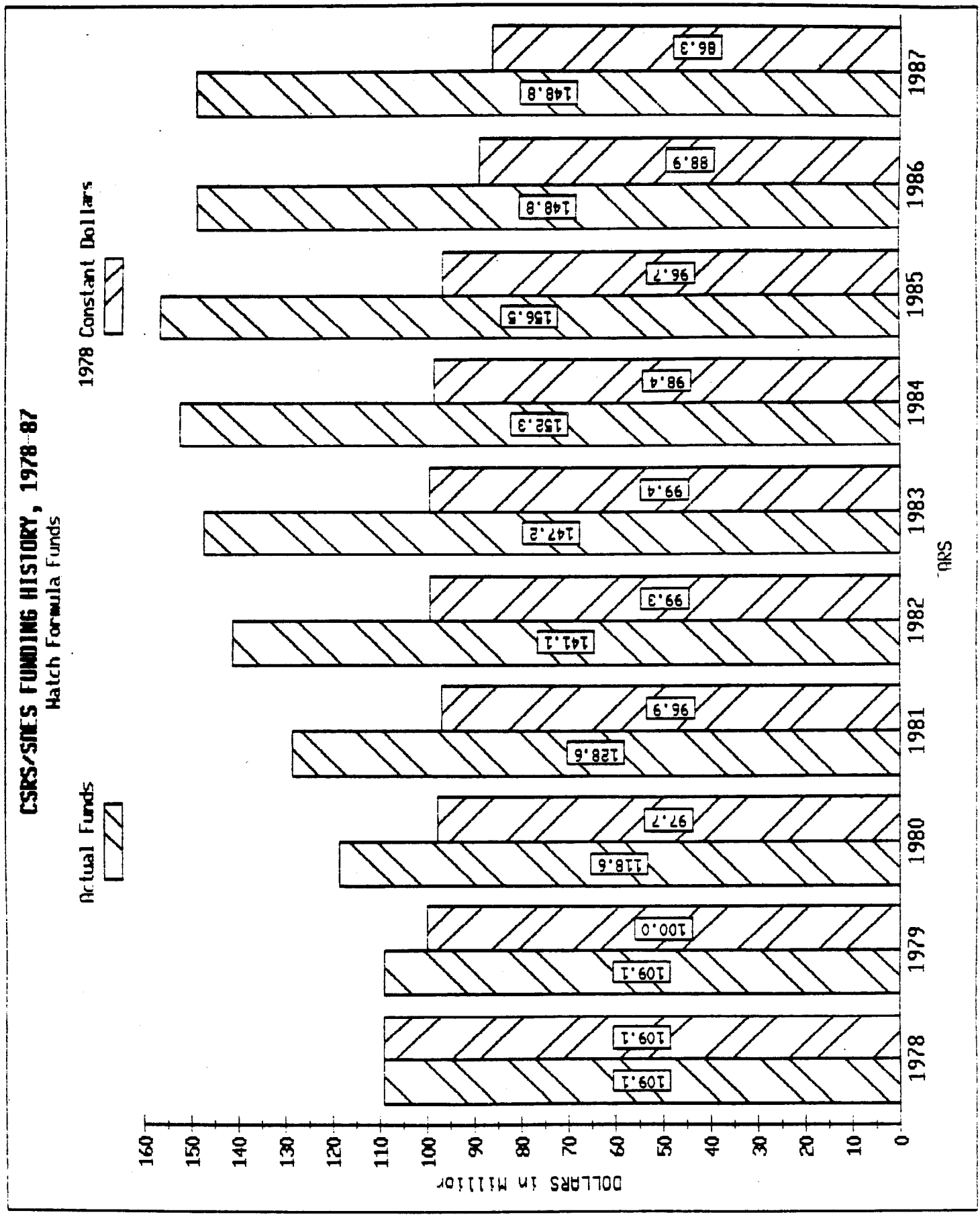
E. **Budget Increase Recommendations**

	FY'88	FY'89	FY'90	FY'91
		Millions of Dollars		
Hatch Act	2.500	3.000	1.548	1.548
Evans-Allen	0.530	5.000	1.032	1.032
Special Grants (Family Stress)	-0.017	2.033	0	0
Total	3.013	10.033	2.580	2.580

Table 7 . Special Research Grants (PL 89-106) Funded in FY'87

Special Research Grants (PL 89-106)	FY 1987 Funding Levels (Continuing Resolution)
Soil erosion in Pacific Northwest	$591,000
Dried bean, North Dakota	75,000
Food systems research group, Wisconsin	148,000
Integrated pest management	2,940,000
Pesticide clearance	1,369,000
Minor use animal drugs	229,000
Pesticide impact assessment	1,968,000
Rural development centers	363,000
Soybean cyst nematode, Missouri	285,000
Bean and beet, Michigan	93,000
Animal health	5,705,000
Aquaculture, Stoneville, Mississippi	400,000
Dairy and beef photoperiod, Michigan	33,000
Aquaculture	485,000
Germplasm resources	---
Peach tree short life, South Carolina	183,000
Blueberry shoestring virus, Michigan	92,000
Mosquito research, riceland agroecosystem	456,000
TCK smut (wheat)	193,000
Sunflower insects, North and South Dakota	190,000
Tropical and subtropical	3,091,000
Dairy goat research, Prairie View A&M, Texas	95,000
Sugarland use research, Hawaii	142,000
Integrated production systems, Oklahoma	188,000
Preservation and processing research, Oklahoma	242,000
Potato research	761,000
Dark-end syndrome of potatoes	150,000
Asparagus yield decline, Michigan	95,000
Biocontrol of grasshoppers, Kansas	48,000
Wool research, Texas	142,000
Agricultural Policy Institute, Iowa and Missouri	357,000
Biomass from dairy processing waste, Missouri	285,000
Stone fruit decline, Michigan	285,000
EDB replacement, Hawaii	285,000
Integrated reproduction management, Nebraska	95,000
Cranberry/blueberry disease and breeding, New Jersey	95,000
Alternative cropping systems in the SE	285,000
Maple research, Vermont	95,000
Wood utilization	2,852,000
Apple quality research, Michigan	95,000
Aquaculture planning grant, Hawaii	---
Fruit and vegetable production and marketing, Kentucky	142,000
Plant stress, New Mexico, California and Texas	385,000
Milk consumption, Pennsylvania	285,000
International livestock program, Kansas	95,000
Stored grain insects, Kansas	285,000
Multi-cropping strategies for aquaculture, Hawaii	152,000
Prime farmland reclamation	300,000
Belgium endive	60,000
Remote sensing, Kansas	191,000
Acid precipitation	661,000
TOTAL	$28,037,000


CSRS/SAES APPROPRIATIONS, 1978-87
DOLLARS
160
140
120
100
80
60
40
20
0
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
CSRS/SAES APPROPRIATIONS, 1978-87
CSRS/SAES CONSTANT 1978 $s


CSRS/SMES FUNDING HISTORY, 1978-87
Hatch Formula Funds
Actual Funds
1978 Constant Dollars
DOLLARS in Millions
YEARS
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
109.1
109.1
109.1
100.0
118.6
97.7
128.6
96.9
141.1
99.3
147.2
99.4
152.3
98.4
156.5
96.7
148.8
88.9
148.8
86.3

The ESCOP COMMUNICATIONS SUBCOMMITTEE purpose is to study, identify, and recommend improving dissemination of research results from State Agriculture Experiment Stations (SAES). The Subcommittee is composed of administrators and communicators from each region.

The meeting was held January 19, 1987, in Atlanta, Georgia, prior to the Hatch Centennial Communications Workshop. Jeanne Gleason (substitute for Dinus Briggs) and Greg Northcutt represented The Western Region. The next meeting will be held in Burlington, VT., October 1-2, 1987, and there has been a request for the Western Region to host the meeting in 1988.

Four items of significance were reviewed:

1. The ESCOP Communication Subcommittee approved developing guidelines for meetings in each state between Experiment Station Administration and Communication offices. Material will be developed, pilot tested, revised, and reviewed by the Subcommittee before being distributed. The concept will be promoted at Agricultural Communication in Education (ACE) meetings in July and at Regional Directors (SAES) meetings in August. Materials will be distributed after the October meeting of the ESCOP Communications Subcommittee.

2. Dr. Jordan is currently reviewing the draft of the "COOPERATIVE COMMUNICATION PLAN". The "Plan" was developed by Dr. Witters and the work group from the West consisting of R. Joyce, J. Zuiches, D. Briggs, P. Lewis, G. Evans, and G. Beall. The "Plan" will address the goal of creating a public relations network for agricultural research. Dr. Harvey Schweitzer and Dr. J.P. Jordan will contact suggested candidates for the design team.

3. Dr. Jordan reported on the CSRS STRATEGIC PLAN. The Strategic Plan is to be global and broad, not confined within current discipline boundaries. Central to implementation will be establishement of Standing Committees, modeled after Regional Research Committees. These committees will consist of Station Directors serving with CSRS faculty to be vehicles for the cooperative development of appropriate policies, procedures, and actions.

4. The overview of HATCH CENTENNIAL was presented. There will be a video (developed by Cornell) and the Smithsonian Exhibit, Hatch Act Information. There will be an evaluation of the Hatch activities by CSRS and ESCOP.

Dinus M. Briggs, March 1, 1987

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS

Report on March 1, 1987

8.12 ESCOP STRATEGIC PLAN SUBCOMMITTEE

L.W. Dewhirst/J.P. Jordan

You will recall that John A. Naegele presented a draft of the CSRS Strategic Plan to the WAAESD at the meeting last summer in Coeur d'Alene, Idaho. The plan was devised to assist the CSRS fulfill its perceived mission as promotors of science and technology in service to the people of the United States and the agricultural community.

Reasons for developing a Strategic Plan are:

I. To develop a decision making process that CSRS can effectively use to insure movement in a reasonable direction.

II. To identify decisions that must be made now, and in the future.

III. To reduce the uncertainty about the future.

IV. To provide a way for CSRS to grow intellectually and mature organizationally by establishing an iterative, reflexive process that modifies our assumptions, findings and hypotheses through time and experience. This insures organizational flexibility and a constantly fresh approach to a constantly changing environment.

V. To perpetuate participatory decision making that is both data and judgment based employing the judgments, analysis, experience and intuition of the faculty and administration.

VI. To provide a framework that assures linkage with national and USDA planning efforts as well as the activities of other federal agencies.

At the present time CSRS is now in the final stages of populating the Standing Committees. The Committees are as follows:

	COMMITTEE	ORGAN. CHAIR	ADMINS ADVSR	DIR'S REP
1.	Acquisition	Mary Heltsley	Clare Harris	L. Dewhirst
2.	Information	John Meadows	Paul O'Connell	H. Schweitzer
3.	New Science	Robert Riley	Estel Cobb	L. Pierro
4.	Partner Rel.	McKinley Mayes	William Carlson	D. Schlegal
5.	Planning	John Naegele	J.P. Jordan	N. Clarke
6.	Rsch. Manag.	Boyd Post	Charles Rumberg	D. Zinn
7.	Quality	Jack Barnes	Edward Wilson	B. Jones

The seven Director's Representatives were appointed by ESCOP. The Standing Committees are now being populated by Technical Committee members. No meetings have yet been held at which I (Dewhirst) have been invited, so I presume that will occur in the coming months.

In other words, the organization is set up and specific planning should occur soon.

Western Association of Agricultural Experiment Station Directors
Washington, D. C.
March 1, 1987

Report of
ESCOP Research Planning Subcommittee

C. E. Clark

The methodology for the ESCOP research planning process consists of a four-year cycle of activities in which all research administrators and their advisory groups in the SAES system are involved. A major effort was launched in 1985 to identify and prioritize research initiatives of primary importance. This activity was summarized in the document entitled "Research Initiatives" and published January 1986. During 1986 SAES administrators participated in a process of refining the priorities and upgrading the narrative support statements for the initiatives. This year (1987) a mid-term update of initiatives is scheduled, 1988 will be another year for refinement of activities and during 1989 a major revision will again be conducted.

The 1987 mid-term update offers the opportunity for the regions to add new initiatives, or to delete or revise currently identified initiatives. Within a few weeks material will be distributed to all SAES directors requesting input to this activity. All suggestions made by Western SAES Directors will be coordinated within the Western Region and discussed at the WDA summer meeting. A WDA consensus on prioritized initiatives will then be transmitted to ESCOP Research Planning Subcommittee August 1, 1987.

It is anticipted that information from other regions will be circulated interregionally prior to final review by Directors at the NASULGC meeting November 1987. The consolidated information will finally be utilized in ESCOP planning and budget development and by the NARC-Joint Council process.

The following is the result of 1986 activity and is the priority order of initiatives by average across SAES regions:

1. Water Quality and Quantity
2. Biotechnology
3. Soil Productivity
4. Genetic Improvement--Plants
5. Management of Crop Pests and Diseases
6. Integrating Agriculture Technology
7. Biological Efficiency of Animals
8. Food and Nutrition
9. Animal Health and Disease
10. Processing and Quality Enhancement
11. Market Penetration
12. Agricultural Policy
13. Rangelands and Pasturelands
14. Rural Family and Community
15. Forest Profitability
16. Computer Technology
17. Energy Efficient System
18. Short-Term Adjustments
19. Atmospheric Deposition
20. Robotics in Agriculture
21. Agriculture in Urban Environment

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
Washington, DC, March 1, 1987
Report of

Western Higher Education Committee
C. E. Clark (W-SAES Liaison--Acting)

The Western Higher Education Committee held a meeting February 11, 1987, immediately prior to Western Regional Council meeting, to identify areas currently needing attention in higher education. Emphasis must be given to upgrading quality of students. In a national survey agriculture ranked third from the bottom on ACT scores. Agricultural programs need to project a higher image by innovative career development activities and agricultural awareness programs in the classroom, kindergarten through 12th grade. High merit students must be educated to the opportunities in agriculture early in their school careers. The following primary areas of emphasis were identified by this committee:

1. Improve curriculum and faculty development activities
   a. encourage multi-and inter-disciplinary coordination
   b. devise an award system to compensate for excellence in teaching
   c. increase efforts for agriculture involvement in general education courses
   d. provide a continuum of faculty development, pre-entry to retirement

2. Become more effective in student recruitment and retention
   a. attract the academically outstanding
   b. encourage minorities
   c. provide good agriculture background of experience for undergraduate and graduate students
   d. provide opportunities for non-traditional students

3. Foster a positive image for agriculture, home economics, veterinary sciences and natural resources
   a. develop innovative programs for agriculture in the classroom (K-12)
   b. improve public relations on the college campus among students, faculty and administrators
   c. encourage development of general education courses.

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
Washington, DC, March 1, 1987
Report of

ESCOP Interim Subcommittee
C.E. Clark

ESCOP thrusts for 1987 were discussed by ESCOP Interim Subcommittee, Feb. 4-5, and include: (1) promote and further develop activities related to Hatch Centennial (2) develop renewed emphasis on federal budget process including working with Division of Agriculture to develop more timely request, develop multi-year budget, respond to thrusts developed by Special Initiatives Committee (3) place emphasis on liaison and interactions with UAB (4) enhance communications with Extension and ECOP, RICOP, ICOP (5) continue National Research Planning effort and examine ways to better integrate the planning and budgeting processes (6) continue a productive relationship with CSRS and develop new cooperative ventures with such agencies as ARS, ERS, OSTP, NSF, EPA, NIH, OTA, USGS (7) enhance effectiveness of ESCOP subcommittees.

Dr. Charles Krueger (PA) presented the proposed 1988 ESCOP budget. This budget is coordinated with the "Research Initiatives 1986" document prepared by ESCOP Planning. The budget proposes increases over FY 1987 of about 17% for Hatch, Evans-Allen, Animal Health and Disease (Sec. 1433), 100% for McIntire-Stennis, 59% Special Grants, 45% Competitive Grants.

It was determined that the FY 1989 budget should be developed around six broad categories, i.e., Natural Resources, Profitability, Expand Demand for Products, Expand Markets, Consumer Health, Rural Families and Communities, with added subtitles to describe current areas of emphasis. This will be a three-year budget with provision for annual updating as apparent opportunities are presented. The budget will be coordinated with the Research Initiatives 1986 document.

Dr. Jim Halpin indicated that Hatch Centennial activities are gaining considerable momentum and encourages SAES directors to invite their congressional delegation and university officials and serve as their hosts at the March 2nd celebration. The SAES communicators workshop held Jan. 1987 was well attended and helped to create a positive perspective for agriculture and a loyalty to agriculture publicity among the communicators. The IR-6 workshop, Jan 1987, demonstrated cutting edge research in areas of cost-benefit analysis, basic-applied research principles and competitiveness.

20-Feb-87

WESTERN DIRECTORS' AT LARGE ACCOUNT
FINANCIAL STATUS -FY1987

ITEM	ASSESSMENT	INCOME	BALANCE
JULY 1 BALANCE			23,328.31
ALASKA	4,340.00	4,340.00	27,668.31
ARIZONA	9,099.00	9,099.00	36,767.31
CALIFORNIA	14,099.00	14,099.00	50,866.31
COLORADO	6,001.00	6,001.00	56,867.31
GUAM	4,075.00	4,075.00	60,942.31
HAWAII	6,680.00	6,680.00	67,622.31
IDAHO	8,061.00	8,061.00	75,683.31
MONTANA	8,525.00	8,525.00	84,208.31
NEVADA	6,564.00	6,564.00	90,772.31
NEW MEXICO	6,802.00	6,802.00	97,574.31
OREGON	10,329.00	10,329.00	107,903.31
UTAH	8,664.00	8,664.00	116,567.31
WASHINGTON	9,911.00	9,911.00	126,478.31
WYOMING	7,649.00	7,649.00	134,127.31
TOTAL	110,799.00	110,799.00	134,127.31

DATE	TRANSACTION	INCOME	EXPENSE	BALANCE
01-Nov-86	TRANSFER OF FUNDS TO COLO.		50,000.00	84,127.31
22-Dec-86	SEMI ANNUAL INTEREST	1,650.73		85,778.04
5-JAN-87	TRANSFER OF FUNDS TO COLO.		25,000.00	60,778.04

20-Feb-87

WESTERN DIRECTORS' SPECIAL ACCOUNT
FINANCIAL STATUS - FY1987

ITEM	ASSESSMENT	INCOME	EXPENSE	BALANCE
JULY 1 BALANCE				6,400.61
ALASKA	656.00	656.00		7,056.61
ARIZONA	1,170.00	1,170.00		8,226.61
CALIFORNIA	1,817.00	1,817.00		10,043.61
COLORADO	1,313.00	1,313.00		11,356.61
GUAM	638.00	638.00		11,994.61
HAWAII	857.00	857.00		12,851.61
IDAHO	1,036.00	1,036.00		13,887.61
MONTANA	1,096.00	1,096.00		14,983.61
NEVADA	842.00	842.00		15,825.61
NEW MEXICO	873.00	873.00		16,698.61
OREGON	1,329.00	1,329.00		18,027.61
UTAH	1,114.00	1,114.00		19,141.61
WASHINGTON	1,275.00	1,275.00		20,416.61
WYOMING	983.00	983.00		21,399.61
TOTAL	14,999.00	14,999.00		21,399.61

DATE	TRANSACTION	INCOME	EXPENSE	BALANCE
15-Sep-86	BALANCE			21,399.61
10-Oct-86	COLO STATE - HEIL TRAVEL - ESCOP		966.53	20,433.08
03-Nov-86	ESCOP TRAVEL - KALTENBACH		616.88	19,816.20
22-Dec-86	SEMI ANNUAL INTEREST	315.53		20,131.73

WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
1987 Spring Meeting, Dupont Plaza Hotel Washington, D.C., March 1, 1987

DAL Report
L. L. Boyd

This report covers the time period from the NASULGC meetings in Phoenix, Arizona, November 9-12, 1986 through February 28, 1987. I participated in the following activities that required travel during this period:

12/2 DALs/Kaltenbach, a.m.; DALs, p.m., Denver Airport
12/3 Committee of Nine, St. Louis, MO
*12/15 USDA Aquaculture Special Grants planning session, Washington, DC
12/11 DAL meeting, Washington, DC, 1:00 pm, 336A USDA Administration Bldg
12/12-13 NAS/NRC Conference on Technology and Agricultural Policy, Wash, DC
12/15 FY1989 ESCOP Budget development, E. Lansing, MI
12/16-19 ASAE, Chicago, IL
1/7-9 Colorado State University Professional Development Institute
1/12 DALs with Krueger on FY88 ESCOP Budget, Washington, D.C.
1/29-30 IR-6/Farm Foundation Symposium on Evaluating Agricultural Research Productivity, Terrace Garden Inn, Atlanta
2/1-3 NACD Convention (ESCOP Exhibit), Reno, Nevada
2/4-5 ESCOP Interim Meeting, NASULGC, Washington, DC; rooms at Dupont Plaza
2/4-6 Users Advisory Board, Washington, DC (attended a.m. on 4th)
2/4-5 USDA Secretary's Challenge Forum on Biotechnology
2/5 ESCOP/ECOP Executive Session Breakfast
2/5 DAL meeting, Washington, DC, 1:00 pm, 336A USDA Administration Bldg
2/24 DAL meeting, Washington, DC, 1:00 pm, 336A USDA Administration Bldg
2/24 ESCOP Res Plng and Eval Subcommittee, Dupont Plaza Hotel, 7:00 pm
2/25 NARC meeting, Washington, DC, Rm 3109 South Bldg., 8:30 am-3:30 pm

I worked closely with Colin Kaltenbach on ESCOP activities, particularly in finalizing the membership of ESCOP standing and ad hoc subcommittees, designating ESCOP representative to various other groups, and in planning meeting locations. The ESCOP handbook, which Colin put out, is excellent. We plan to include the information in our "Information for Western Directors" note book unless it just gets too full. The ESCOP activities have tapered off considerbly at this point. I also worked some with Pete Dewhirst in developing plans for the Spring ESCOP meeting, which Pete will host in Tucson, April 26-29, 1987.

I participated in the NAS/NRC Conference on Technology and Agricultural Policy in Washington, D.C., December 11-13, 1987. There were approximately 250 in attendance of which about 25 could be considered as representing the agricultural experiment station system. There were four Directors and two DALs present. The rest were faculty, primarily from agricultural economics with a few from other disciplines. Most of the latter were on the program. Vice President Farrell (at that time yet to be) of the University of California gave an interesting presentation. I can provide a list of attendees from Western states, or if you wish, I can provide the entire attendance list, i.e. that preregistrants. Some did not attend. Proceedings will be forthcoming, but I do not know the release date. If you had faculty in attendance, I encourage you to interact with them about this progam. Frankly, I was disappointed in much of the coverage. The problem may have been too few people from the land grant system. A copy of the program is attached.

I did not participate in the Aquaculture planning meeting in Washington, D.C. on December 15, 1987 as you had asked me to do. A FY89 ESCOP Budget develop-

ment session was scheduled for the same date in East Lansing, Michigan. I felt I had to give higher priority to the ESCOP budget, so Gary Lee represented the West. I'm grateful to Gary for picking up that meeting for me. Gary actually had better background than I did anyway, because Idaho is a member of the Western Regional Aquaculture Consortium and because of planning that he has underway in Idaho. He reports to you at this meeting.

The FY89 ESCOP Budget introduces some changes in the ESCOP budget planning process, i.e. projecting forward into FY1990 and FY1991. We are also showing some accomplishments from past research and in addition being somewhat explicit about how the funds will be used, if appropriated. Chip Morgan, Chairman of Caret from Mississippi, made many good suggestion. Keith Huston with his long time experience played the lead role. I have developed some graphics from data that Bob Gast accumulated that we may use in the final version. They will not be in the first draft. I also am developing some additional graphics that the DALs have discussed that may be useful in various budget activities and perhaps in other ways.

At the ASAE meeting I participated actively in the Research Committee meeting. Most of the effort was in finalizing the 1987 ASAE research priorities and in making plans to interact with the research committees of other professional societies. I was elected Vice Chairman/Secretary for a term to begin July 1, 1987. This will be the second time that I will have chaired this committee, the first time in 1977-79. I also attended all sessions relating to expert systems and artificial intelligence research and extension.

Chuck Krueger (PA), FY88 ESCOP Budget Subcommittee Chair, held a telephone conference with Colin Kaltenbach, Pat Jordan, Clare Harris and the DALs to assess the FY88 Executive Budget and to develop ideas for an ESCOP response. The DALs also met with Chuck in Washington, D.C. on January 12, 1987 to further develop these ideas. Following that Chuck sent out three drafts for review by his full Committee and the above group. He brought it to the ESCOP Interim Committee for approval on February 5, 1987 and later the same day to the Division of Agriculture Budget Committee. It was approved as submitted. You now have copies in your hands. I developed mailing labels from our NISARC files for Chuck to use in mailing to those members. He also will mail to an ARI list provided by Stan Cath. In addition, I developed new lists of members of important congressional committees, information on the various budget functions and a comparison of research funding for all government agencies. Some of the graphics developed for Bob Gast also may be useful in defending and promoting the FY88 budget. I have a separate handout on budget that I will discuss briefly. I have been in contact with some of you and will be with others on a continuing basis as we try to maximize the appropriations in this Hatch Centennial year. Chuck Krueger also will be contacting some of you, if he hasn't already.

I participated in the IR-6/Farm Foundation Symposium on Evaluating Agricultural Research Productivity. This group is Chaired by Burt Sundquist of the University of Minnesota, who made a presentation at our Summer meeting. Attached is a copy of the program. If you had faculty, who made presentations or attended, I urge you to discuss this effort with them and draw them out about ways the information can be used in your own planning and budget promotion. I thought there were several very good presentations. I have copies of most of them and can make copies available to you, if you would like them. There will be a proceedings, which should be available no later than May 1, 1987. I will work with Sundquist to make certain that each station receives a copy.

I assisted Dale Zinn with the ESCOP exhibit at the National Association of

Conservation District's Convention in Reno, Nevada. Bernard Jones' communications group under the leadership of Alice Good developed an excellent exhibit. The focal point was a VCR and television monitor that showed both the Hatch Centennial movie and slide set on a continuing basis. You likely will see this at the Sunday night reception. Various publications that Directors had sent were displayed and available for pickup. The West was well represented among the publications. However, some states were noticeably absent. Interest in the exhibit was good, but not outstanding. I judged this to be the case for all exhibits in the exhibition. It is my understanding that this was the first year that NACD had done this.

In connection with the ESCOP Interim Committee meeting, both Colin Kaltenbach and I attended the Users Advisory Board's opening session. Colin presented the FY88 ESCOP Budget response to them and gave them copies of the draft document. We did not have much opportunity to interact with them, because other groups including Al Young from OSTP were making presentations and we had to leave just before noon to get back to start the Interim meeting. I did get an opportunity to talk with a few of them briefly at the Challenge Forum social hour. Both Colin and I plan to participate in the May 6-8, 1987 UAB meeting in Ames and Des Moines. We should get an opportunity to interact extensively one on one there. We probably won't have much of a program opportunity, however. I think we should consider requesting an opportunity to show the Hatch Centennial Film. A map showing the UAB members and a brief bio on each will be distributed. Note that seven members are from the West. We need to work with them as much as time will permit.

I also participated in the ESCOP/ECOP leadership breakfast on February 5 with Colin. This a continuation of the efforts launched last summer in St. Louis, when Bill Baumgardt was ESCOP chair. Colin will inform you of the issues discussed there.

The ESCOP Research Planning and Evaluation Committee meeting and the NARC meeting were the usual undertakings. I am distributing the priorities developed by NARC to be forwarded to the Joint Council. Elmer Clark will inform you in more detail about these meetings.

During this period I made no state visits. I stayed in Ft. Collins probably more than I might have due to Harriet's injury. She has been back to work on a part time basis since January 21, gradually increasing her hours from about three to nearly six per day. On February 20 her Surgeon removed the leg brace and told her to start putting weight on the leg and cleared her to drive herself. She is back essentially full time now. Because of Harriet's injury and also because some states and individuals have not got needed information back to us on the requested schedule, the 1987 edition of "Information for Western Directors" is behind schedule. We expect to have it in the mail to you no later than April 1, 1987 and hopefully sooner. We need help from about four states yet. I encourage those of you, who have not sent back the biographical information form to do so. It helps me considerably to know more about each of you in suggesting people for national roles and for open positions. It also will help all of us to get to know each other better, and because of this to work better together. I hope you found the salary information useful. I have not found time to update it further and doubt that it will be worthwhile at this date. Let me know if it will be.

I have sent you various kinds of information. It would 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 I cane to do to assist you most. I will be in contact with the states or

locations, which I have not yet visited, to try to tie down dates for visits. 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 your who provide information when I need it and help me in various ways to serve you and your interests.

USDA PROGRAM IN NEW OR ALTERNATIVE USES FOR FARM AND FOREST PRODUCTS (FY 1987)

There are two major components to this program:

- o Expanded uses for traditional farm products — especially those in surplus, e.g., corn, cotton, wheat, trees, etc.
- o Opportunities for alternative crops — primarily as chemical feedstocks for industry, e.g., fats, oils, fiber, adhesives, and natural rubber.

Finding new or alternative uses for U.S. farmers is not a new topic, but is even more important today because of more intense international competition and changing diet patterns. United States agriculture must diversify, particularly into non-food production areas, and move away from overconcentration in a few primary production areas.

The Department policy (in part) regarding this program is stated in Departmental Regulation #1043-26, which was published December 6, 1985.

It is the policy of the Department of Agriculture to faclitate the development and commercialization of new agricultural commodities to provide domestic sources of industrial materials by:

(a) cooperating with the private sector in demonstrating the commerical viability of agronomic production and processing of such commodities;

(b) encouraging USDA agencies and Land-Grant Universities to accelerate essential research needed to refine production and processing technologies for such crops; and,

(c) involving American farmers in the production of commodities needed to manufacture industrial agricultural materials.

The Food Security Act of 1985 makes several references to this subject in Title XIV — Agricultural Research, Extension, and Teaching.

Section 1428 — Supplemental and Alternative Crops (selected subsections)

The Secretary shall develop and implement a research and pilot project program for the development of supplemental and alternative crops, using such funds as are appropriated to the Secretary each fiscal year under this title.

The program developed and implemented by the Secretary shall include:

(a) An examination of the adaptation of supplemental and alternative crops;

(b) The establishment and extension of various methods of planting, cultivating, harvesting, and processing supplemental and alternative crops at pilot sites in areas adversely affected by declining demand for crops grown in the area;

(c) The transfer of such applied research from pilot sites to on-farm practice as soon as practicable.

The Secretary shall use the expertise and resources of the Agricultural Research Service, the Cooperative State Research Service, the Extension Service, and the land-grant colleges and universities for the purpose of carrying out this section.

Section 1436 — Market Expansion Research (selected subsections)

— The Secretary of Agriculture shall conduct a research and development program to formulate new uses for farm and forest products. Such program shall include, but not be limited to, research and development of industrial, new, and value-added products.

— To the extent requests are made for matching funds under such a program, the total amount of funds used by the Secretary to carry out the program under this subsection may not be less than $10,000,000 for each of the fiscal years ending September 30, 1986, through September 30, 1990.

Section 1439 — Critical Agricultural Materials (selected subsection)

— Section 5(b)(9) of the Critical Agricultual Materials Act is amended by inserting "carrying out demonstration projects to promote the development or commercialization of such crops (including projects designed to expand domestic or foreign markets for such crops)."

The research part of this program is conducted by in-house USDA agencies — Agricultural Research Service, Forest Service, and Economic Research Service and cooperating State Agricultural Experiment Stations. The education part of the program is the responsibility of the Cooperative Extension Service. The Office of Grants and Program Systems has responsibility for bridging the gap between research results and commercialization. The primary tool being used for this task is demonstration projects. The two crops being initiated in FY 1986 are guayule and kenaf. Plans are in the development phase for four additional projects in FY 1987 — crambe, winter rapeseed, hybrid striped bass, and jojoba. Draft material on each of these demonstration projects has been developed. Attachment 1 indicates the nature of the material prepared. Other crops may be added later. Attachment 2 is a recent article in Scientific America on potential new crops.

Philsophy for government involvement in demonstration projects

— Processing and market sector cannot be expected to have vested interest in U.S. agriculture. A third party is required to develop mutual interests

— Studies at Commerce Department and elsewhere show that long-term investment strategies require private/public partnerships

— Private sector must identify market

— Public sector fills in gaps

  — Provide technical expertise
  — Links production, processing and marketing sectors
  — Provides necessary seed money

— State Universities and State Governments must have active role

A renewed push on finding new uses for farm and forest products won't solve the current supply/demand imbalance in U.S. agriculture. However, it represents a positive market-oriented response and the best long-term hope for farmers to gain back prosperity.

Proposed FY 1987 Budget For Demonstration Projects

To be decided

CROP DEMONSTRATION PROJECT

What is Crop?

— Two or three sentence description

Where can Crop be Grown?

— Region of United States, what surplus crop(s) would it likely replace?

What is Project Objective?

— In bullet form identify desired outcome i.e., market that would be explored with a demonstration project

Why Should Potential of Crop be Explored?

— What industrial sector is interested in product and why?

— What are unique properties?

— Current and potential economic benefits?

— Years of R&D work and by what institution (public or private)

What are Proposed Plans for FY 1987?

— Major unanswered questions the demonstration project is designed to address i.e., what are barriers to commercialization?

— Briefly describe proposed 1987 demonstration project. Be specific on location(s), acreage, and buyer (do in bullet form)

— Identify cooperators—Universities, private sector, and other federal agencies. Especially important to identify private sector champion.

— Describe contribution of each cooperator, be brief, do not need full explanation, only the nature of the contribution. Estimate human resources, equipment, money, facility, or any other real contribution.

— Needed USDA involvement. Philosophy for government involvment is attached.

— In general, we anticipate a 2 year involvement of USDA in a demonstration project. If 1987 plan is implemented, what are likely followup needs in FY 1988?

— Remember that the focus of this proposal is on demonstration. Needed research and education activities to support this emerging industry should not be part of this package. R&E needs will be looked at seperately.

HYBRID/STRIPED BASS DEMONSTRATION PROJECT

What is a hybrid/striped bass?

The hybrid/striped bass (HSB) is a cross of the popular striped bass (rockfish) and the white bass, very similar in appearance to and with the same qualities as the striped bass.

Where can they be grown?

The hybrids can be grown in brackish water or fresh water in ponds, cages or tanks. Production areas would include land otherwise not especially suitable for other crops or lands devoted to row crops. Especially suitable would be a 50 mile swath along the coast from Florida to New York.

What is the project objective?

To demonstrate the economic viability of HSB farming as a crop alternative for east coast farmers and watermen. Midwest production would also be possible provided markets are identified.

Why should the potential for HSB farming be explored?

East coast populations of striped bass have declined and most coastal states have prohibited fishing. The seafood industry is seeking alternative sources and farmers are seeking production alternatives.

The HSB is a much superior aquaculture animal showing faster early growth, better conversion, and enhanced survivability than either the striped or the white bass.

Production would fill a market void at a premium price. A premium would remain even if normal coastal harvests return because the markets could be filled throughout the entire year. Furthermore, farm-raised HSB would be available in serving sizes of 1-1.5 pounds, substantially smaller than the minimum size generally allowed in commercial fishing, thus creating a new market niche with potential for dramatic expansion beyond traditional markets for striped bass or rockfish.

Farm production is conservatively expected to exceed 3000 lb. per acre using low intensity culture techniques. The technical justification is based on at least 20 years of research by federal and state institutions.

Proposed plans for 1987

The best available technology has not yet been combined in a production module by the private sector because of cost and certain risk factors. Uncertainty about optimal production staging, fingerling supplies, feeding regimes, and hatchery management must be overcome.

A small ongoing research project on the eastern shore of Maryland would be expanded to a production level demonstration farm for HSB using the combined best expertise of federal, state, university and private interests. The project would be operated as a full commercial enterprise.

The hybrid/striped bass product would be uniformly smaller fish and thus new to the market but would be available to the market year-round regardless of wild harvests. The fish would be marketed as "farm-raised hybrid rockfish" or "farm-raised hybrid striped bass."

Approximately 30 acres would be initially involved and would produce at least 60,000 pounds of fish on 24 water acres. Production costs are estimated at about $1.00-$1.50/lb. and gross sales at about $2.00-$2.50/lb. "in-the-round", FOB farm. Current New York price for larger striped bass is about $4.00/lb.

Markets would be selected in the Washington/Baltimore area and a private marketing firm would be selected to handle marketing and contribute to market tests.

The HSB Demonstration Project is expected to require USDA resources over the 3 year project period and cooperative contributions by participants (HSBDP). For FY 1987, the project requests $279,300 in USDA funding to cover portions of investment costs and annual costs of production, as shown on the attached SUMMARY OF COSTS. DEVELOPMENT COSTS in 1987 and all costs for 1988/1989 will be applied for, as appropriate.

List of cooperators which currently constitute HSBDP

University of Maryland
Maryland State Department of Agriculture
Maryland State Department of Natural Resources
U.S. Department of Interior-Fish and Wildlife Service
Office of Sea Grant
Walnut Point Farms
Zeigler Brothers Company

OFFICE OF CRITICAL AGRICULTURAL MATERIALS

The Office of Critical Agricultural Materials, established in 1984 by the Critical Materials Act, PL 98-284, has a dual purpose: to provide agricultural products for the Nation's industrial base and to create opportunities for utilizing the production potential for U.S. farmers. The office is committed to building private-public partnerships to strengthen the development of new products, new product uses and new markets.

Four domestically grown crops--CRAMBE/WINTER RAPESEED, GUAYULE, and KENAF--which can serve as alternatives to U.S. farmers, have been singled out as most promising for commercial development. The primary tool, used for bridging the gap between research results and commercialization of suitable agricultural crops, is the demonstration and market development project.

DOD/USDA GUAYULE AGREEMENT

USDA under the Critical Agricultural Materials Act has funding for a long-range research and development effort leading to the commercialization of guayule natural rubber. Research continues in process development, new genetic research that has produced 2 new, high-yielding rubber varieties, bioregulation (supported by the National Science Foundation) for increasing rubber yield in established plants, and providing rubber to the Army Tank Command for current tank pad tests.

To complement this work, an agreement was signed by the Departments of Agriculture and Defense for a twenty-seven-month Joint Guayule Domestic Rubber Project. Under the USDA-DoD agreement, DoD is providing $11.1 million in funding. From this amount, $1.3 million is targeted for shrub maintenance at the Gila River Indian Community (GRIC) in Arizona. The Firestone Tire & Rubber Company, also a prime contractor, has been awarded an $8.3 million contract to construct and operate a prototype processing facility at GRIC and to produce about 50 tons of rubber for evaluation testing. USDA will utilize an additional $1.5 million of DoD funds for technical assistance and cooperative agreements with universities and others to explore alternative market opportunities. Within the same time period, the USDA in partnership with the State Agricultural Experiment Stations and the Cooperative Extension Services will provide $5 million for guayule natural rubber research.

DoD has agreed to procure, within a limited price ceiling, 20% of their annual tire requirements, made from guayule natural rubber, domestically produced, to create an initial market. This procurement will begin after completion of a DoD test program and last for 5 years, at which time it is projected that guayule natural rubber will be price-competitive with the imported hevea rubber.

KENAF COOPERATIVE AGREEMENT AND DEMONSTRATION PROJECT

The Kenaf Demonstration Project was initiated in March, 1986, with a Cooperative Agreement between CSRS and Kenaf International. The objective of the Project is to gain acceptance of kenaf as a source fiber in the manufacture of newsprint for existing and greenfield pulp and paper mills in the southern tier of the United States. To answer technical questions

from the paper industry, the Joint Kenaf Task Force was formed, consisting of both public and private sector representatives. The Task Force conducted trials and evaluations on the technology and production of newsprint.

Work in 1987 includes commercial paper machine and pressroom runs and evaluations which will affirm acceptance of the kenaf newsprint system from seed production to daily newspaper. In the planning stages, potentially for 1987, is construction of a pulping mill in south Texas. Large-scale kenaf farming for newsprint manufacturing is not expected until the 1989 or 1990 growing seasons. Until this time, work will focus on conversion at existing mills, evaluating a second noncompeting market in the felt industry, planting large acreages in selected states, improvement of harvest and fiber handling methods, and development of public/private partnerships towards the commercialization of kenaf.

INDUSTRIAL OILS HIGH ERUCIC ACID CONFERENCE

The Industrial Oils High Erucic Acid Conference, held in December, 1986, is a cooperative effort sponsored by the USDA, Iowa State University, Kansas State University, and the University of Missouri. The focus of the conference was to examine the practicality for developing an industrial supply of erucic acid from domestically produced crambe and winter rapeseed.

Workshop sessions addressed the three key areas of production, marketing, and utilization. Conclusions from the workshops provided firm evidence that current erucic acid oil markets rely primarily on foreign sources but that production technology is sufficiently promising that an economically viable production system should be developed. A report of the conference is being prepared for release.

For 1987, a strategic plan is being developed for directing efforts with private industry, Iowa State University, University of Missouri, and Kansas State University. The market development potential of erucic acid oils justifies these cooperative efforts with USDA to pursue aggressively new product development, such as polyamides of the type of Nylon 13, 13 and other erucic acid derivatives.

Kerr

OFFICE FOR SMALL-SCALE AGRICULTURE

The office for Small-Scale Agriculture was recently established in the U.S. Department of Agriculture. Secretary Richard Lyng announced the move on December 9, 1986 during an appearance at Tuskegee University in Alabama. The creation of the new office is meant to improve the flow of information about small-scale farming to agricultural producers and consumers--the American public. The office is a focal point for the collection and distribution of Department resources on small-scale agriculture.

There are 3 planned initiatives.

Bi-Monthly Newsletter. The office will produce the publication as a means to provide researchers and Extension people with more and better information on small-scale farming systems and related items. Only 4 pages in length, page 1 will address an important issue or topic of significance to people engaged or involved in small-scale agriculture. Pages 2 and 3 will list--in short individual paragraph accounts--topics on agriculture technology of wide interest to small-scale agricultural entrepreneurs. Page 4 is a calendar of national agricultural events that relate to small-scale agriculture.

Assay of On-going USDA Research and Education Endeavors

Precise information on the Department's efforts to benefit small-scale agriculture is not at present available. The completion of such an undertaking will provide government leaders with a new and accurate financial and human resource account and/or measure of the Department's commitment to this particular segment of the American agricultural industry. Further, this new information will permit a better understanding of the limited funds for R&E in the Department.

Monitor and/or Implement Plans for Regional and National Forums or Conferences on Small-Scale Agriculture. In recent months there has occurred several forums or conferences on small-scale, alternative, and diversification opportunities in agriculture. The Department is aware of similar events planned in the near future. The Department's office for Small-Scale Agriculture will track and/or foster the entrepreneurial promotion of these events in the interest of all people interested in this topic--small-scale agriculture.

Paul O'Connell
9/12/86

Opportunities for Private/Public Cooperation in Technology Development and Use

There is a misconception among many people that new ideas flow easily from the bench to the market place. Nothing could be further from the truth. Scientific laboratories and libraries are overflowing with alternative techniques for producing, processing, and marketing goods and services. Some of these techniques are ready for adoption and others are not. Sorting out the most promising ones is a difficult and time consuming task. It is estimated that 90 per cent of the cost of R&D is D. Commercializing a new idea involves product development, market testing, prototype equipment and facilities, industry restructuring, regulation clearances, and license fees. Managers of private companies place priority emphasis on the next quarterly earnings report and the scientists top concern is the next journal article. These opposing incentives do not encourage rapid technology adoption. What can be done to bridge the gap between a creditable scientific community and a globally competitive agricultural industry? Sorting out all the reasons for past performances (successes and failures) is not the purpose of this paper. The objectives are to:

- Identify those government and private arrangements that appear to work best
- Summarize patent and license arrangements currently available and being considered in congress
- Highlight some recent experiences at the National Science Foundation
- Discuss the pro's and con's of a private/public foundation.

Successful Industry/Government Relationships

In the late 1970's Nelson and Langlois (Science, Vol. 219, 1983) conducted an historical investigation of government support of R&D and technical change in seven major American industries--semiconductors, computers, aircraft, health sciences, agriculture, residential construction, and automobiles. They reported their results in four policy categories. Three were successful and one wasn't. The first successful policy is where the government is a heavy user of the technology, e.g., defense, space, and natural resource management. In these areas, the government agencies have knowledge of their own needs, and usually a cadre of trained people who can implement new and more effective techniques.

A second successful area is the so-called "generic technologies" that are a step or two removed from commercial applications. Much of this knowledge is nonpatentable and involves broad design concepts, properties of materials, biological processes, inventories, and testing concepts. In a sense such generic activity falls in between the sort of work that an academic researcher would pursue within the bounds of a standard academic field and the kinds of result-oriented research that would interest most corporate R&D laboratories. Examples of this generic research occur in aviation, computers, semiconductors, health sciences, and agriculture.

When government moves closer to applied research its role becomes less clear. Private firms want to maintain technical advantages over their competitors and consider it a threat when technical advances are freely available to all. One area where this has resulted in a mutual benefit to producers and consumers is in agriculture. The federal-state system of agriculture research evolved in a way that took advantage of the market structure of agriculture, marshaling the support of farmers and giving them an important position in the evaluation and selection of projects. Nelson and Langlois called this third category "Clientel-directed Applied R & D" and considered it a highly successful approach.

The final approach examined was when the government attempted to "pick winners." Examples are energy R & D programs, housing designs, and the SST project. In these situations federal agencies attempted to insert themselves directly into the business of developing technologies for a commercial market in which they had little or no procurement interest and without the full participation of business interests who could help guide allocations. The historical record suggests that the government is not successful at picking winners.

Patent and License Arrrangements Currently Available

Obtaining an exclusive license for patents developed in government laboratories is now possible. The passage of the Uniform Federal Patent Policy Act (1980) and the Stevenson-Wydler Innovation Act (1980), provided the legislative authority for obtaining exclusive licenses. USDA, and several other federal agencies, work with the Office of Federal Patent Licensing, in the Department of Commerce in granting exlusive licenses to private businesses. The primary USDA agencies involved in this activity are the Agricultural Research Service (ARS) and the research branch of the Forest Service (FS).

To obtain an exclusive license an individual company must develop a financial plan for developing the product or process and utilizing it commercially. The duration of the exclusive term is negotiable and is intended to provide adequate incentive for the licensee to successfully commercialize the invention.

The individual scientist can receive awards and a specified percent of the royalities up to a maximum level of $25,000. With OMB approval, the level can reach $35,000. Past policies in public supported research for Agriculture and forestry have not encouraged exclusive licenses for new technologies. However, ARS has recently implemented an aggressive patent program. This program includes the establishment of a national focal point, training throughout the organization, expanded cooperation with Commerce, and distribution of information on how to apply for patents. As a result of this effort more payoffs should occur in the future.

Based on several discussions with industry people the main barrier they see with using government patents is the lack of protection for the significant investment they must make to bring a new idea to market. To a large extent that fear is not valid. Based on discussions with Doug Campion in the Department of Commerce, the protection is similar to those patents licensed from the private sector. Industries that have become familiar with using government developed patents are very comfortable with them. For example, the drug industry uses several patents developed by the National Institutes of Health.

To overcome this fear of government developed technologies the Department of Commerce publishes several useful documents: i.e., recently patented inventions, available assistance in federal laboratories, key contacts in state and federal agencies, and guides for license applications. Twenty-two major categories are covered including agriculture and food, biological sciences, fisheries, and energy. In cooperation with commerce much more could be done to make the current approach more workable.

To strengthen current legislation, the House and Senate recently passed a new version of the 1980 Stevenson-Wydler bill. This revised legislation encourages earlier cooperation between industry and federal scientists and allows for license revenues to be shared by the inventor(s), federal labs, and treasury. This legislation is now in conference committee with passage expected this fall. The Senate bill is S.1914 and the house bill is H.R.-3773.

Experiences at National Science Foundation (NSF)

In recent years NSF has expanded their University/Industry funding mechanisms. Beginning in 1984 they initiated the "Young Investigators Program". That is planned to run five years. In that program new professors apply for a $25,000 research grant in subject areas of most interest to them. Up to $37,500, NSF will match dollar for dollar money that the professor can obtain from private industry. For 1984 and 1985, 70 percent of the potentially available funds were obtained. NSF provides training sessions for successful candiates on how to solicit support from industry. This program is managed by Fred Oettle, who is on leave from Dupont Company

Another successful approach used by NSF is the "Industry/University Cooperative Research Centers". The "Engineering Directorate" of NSF began experimenting with this program in 1973 and funded the first center in 1976. The purpose of these centers is to stimulate interactions between university and industrial communities on scientific and engineering research important to technological innovations and industrial development. NSF provides the primary funds for examing the feasibility of a center and getting it started. However, as time progresses an increasing proportion of a center's support comes from industrial, state and other sources until it reaches self-sufficiency. This change in support occurs over a five year period. Most fully operational centers require funding from ten individual firms to have a sufficient research base. Generally, the research agenda is established by the researchers and firms participationg in the center and is focused on topics important to contributing firms. Centers are based in academic research institutions and often combine talents of more than one university or college. Discovering useful technologies is the primary focus of the centers, but an important associated objective is the training of graduate students who have a broad industrial oriented perspective of research in practice.

Currently, there are 39 operational centers, ranging in subjects from polymer processing to robotics. There are 500 faculty members and 600 graduate students involved, along with 250 companies. In 1978 the support ratio was .7 to 1 of non-federal to NSF funds. In 1986, that ratio is 10 to 1. Current funding support is $15 million from industry, $15 million from states, and $3 million from NSF.

Another program funded by NSF is the "Industry/University Cooperative Research Project Grants." These grants are made to individual firms and universities that have joint interests in shortening the time frame between fundamental knowledge and economic utility. These grants can be used by both university and industry scientists, but a minimum of 50 per cent of the firms cost of participation must be provided by the firm. For small businesses the cost share can be less. For internal management reasons NSF is phazing this program out. However, people involved in running this program felt it was a highly successful approach.

In each of these above models NSF sees itself as a integrater and catalyst to bring new technologies into U.S. industries. Unless some help and direction is provided, there is inadequate incentive by individual firms to incorporate all the potentially available improvements coming out of the nation's public supported laboratories.

Ideas on a Private/Public Foundation

Historically, the institutions that have constituted the U.S. Agricultural Science and Education system have served their purposes well and have been remarkably successful. However, the increased interdependence of global agriculture, farm program policies, and scientific and technial advances suggests a reexamination of institutional arrangements. Linkages between the public and private sectors will be an important part of this future scenario.

In the United States, private and public institutions have often had a arms length mistrust of each other. An entrepreneur sees government as a tax collector, regulator, and not being held accountable for the bottom line. A civil servant sees business as having a short time horizon, focused primarily on making money, and having inadequate concern for broad public interests, i.e., environmental issues. These are stereotype images that are not held by all people, but they are common enough to prevent needed bridge building. What can be done in agricultural R&D to promote the combined strength of private and public institutions and reduce this inherent mistrust?

One possibility is the establishment of a "Foundation" comprised of high level officials from USDA and Production, Processing and Marketing Firms involved in agriculture. The Foundation would be comprised of 9 to 12 members appointed by both the Secretary and Agricultural Commitees in the House and Senate. It's primary function would be enhancing the development of competititve industrial infrastructures that use U.S. grown crops, trees, fish, and livestock. These new ventures would involve U.S. labor and industries in producing the final product. This Foundation would need to have independent status so both government and private interests could readily identify with its overall purpose.

The USDA/University partnership can bring the following assets to such a Foundation:

- Well trained researchers and technology transfer specialists who can provide the longer term view.
- A network of contacts in state and federal government who can reduce regulatory red tape and provide entree to available seed money.
- Help conduct analyses and establish needed infrastructures for profitable product lines.

The industry members of the foundation have strengths in the following areas:

- Knowledge and experience to identify the best market opportunties.

- Identification of the most useful knowledge and technologies that best meet changing competitive conditions.

- An understanding of why private sector initiative provides the most flexible and efficient mechanism for producing, processing, and marketing agricultural goods and services.

A mixture of private and public sector strengths should enhance the competitive posture of U.S. agriculture and reverse the recent trends in export/import trade imbalances. Financing of the foundation can be a combination of government and private funds. Incentives for participation and overall management strategy would need a considerable amount of thought. Once a structure is established and momentum is underway, ideas should be the driving force for obtaining support. Past proposals often asked for government support up front with private sector support coming later. A higher probability of success should occur when both public and private interests initiate a joint venture together.

A legal development that should alleviate anti-trust fears of a joint venture is the recent rulings by the U.S. Justice Department. Recent interpretations encourage government/industry programs. The "Engineering Center" concept at NSF is an example of this acceptance. To clarify current policy, considerable education will be required. To have credibility, the education will require direct involvement of the Justice Department.

Conference on Technology and Agricultural Policy

December 11–13, 1986

Sponsored by

Board on Agriculture,
National Research Council

Kennedy School of Government,
Harvard University

National Center for Food and Agricultural Policy,
Resources for the Future

NATIONAL ACADEMY OF SCIENCES AUDITORIUM
2100 Block of C Street, N.W.
Washington, D.C. 20418

PROGRAM

Thursday, December 11, 1986

7:30 p.m. Introduction
Ralph Landau, *Kennedy School of Government, Harvard University and Vice President, National Academy of Engineering*
Evening address: "A Positive Agenda for Agricultural Policy in Light of Emerging Technologies"
Thomas N. Urban, *Pioneer Hi-Bred International, Inc.*

Friday, December 12, 1986

9:00 a.m. Introduction
William L. Brown, *Chairman, Board on Agriculture*
Robert W. Fri, *President, Resources for the Future*
Challenge to Participants
Ralph Landau

Emerging Biological, Genetic, and Chemical Technologies Significant for Technical Change in Agriculture
Session chair: William L. Brown

9:15 Plant Production
Ralph W. F. Hardy, *Boyce Thompson Institute and BioTechnica International, Inc.*

9:30 Plant Protection
Robert Giaquinta, *Dupont Co.*

9:45 Impact on Crop Productivity
Randolph Barker, *Cornell University*

10:00 Discussion
Philip J. Regal, *University of Minnesota*
Terry B. Kinney, *Agricultural Research Service*
Richard A. Herrett, *ICI Americas, Inc.*
Leslie Butler, *University of Wisconsin*
Steven Schatzow, *Morgan, Lewis, and Bockius*

10:45 Coffee break

11:00 Animal Production
Thomas E. Wagner, *Ohio University*

11:15 Animal Protection
Charles C. Muscoplat, *Molecular Genetics, Inc.*

11:30 Impact on Animal Productivity
Robert Kalter, *Cornell University*

11:45 Discussion
Neal L. First, *University of Wisconsin*
Harold Hafs, *Merck, Sharp & Dohme Research Laboratory*
W. Burt Sundquist, *University of Minnesota*
Jack Doyle, *Environmental Policy Institute*

12:30 p.m. Lunch

1:30 Introduction
Robert W. Fri
Afternoon address: "Overview of Innovation in Agriculture"
Howard Schneiderman, *Monsanto Corp.*

How Public Policies Could Impact Technological Innovation

2:00 Session cochairs: David Kingsbury, *National Science Foundation*, and Alvin Young, *Office of Science and Technology Policy*

2:15 Policy and Innovation
Susan M. Capalbo, *Resources for the Future*

2:30 Pesticide Regulatory Policy: Creating a Positive Climate for Innovation
Charles M. Benbrook, *Board on Agriculture*

2:45 Unique Regulatory and Liability Challenges of the New Biotechnologies
Peter Huber, *Science Concepts, Inc.*

3:00 Can/Will the New Technologies Pay?
Darryl D. Fry, *American Cyanamid*

3:15 Discussion

3:45 Coffee break

Technological Innovation in Agriculture

4:00 Roundtable Discussion
Moderator: William L. Brown
Participants
Michael Phillips, *Office of Technology Assessment*
Maureen Hinkle, *National Audubon Society*
Robert M. Goodman, *Calgene, Inc.*
Mary E. Clutter, *National Science Foundation*
Robert Evenson, *Economic Growth Center, Yale University*

7:30 Introduction
Frank Press, *President, National Academy of Sciences*
Evening address: To be announced

Saturday, December 13, 1986

Global Perspective on Economic Impacts of New Agricultural Technology

9:00 a.m. Session chair
Robert M. White, *President, National Academy of Engineering*

9:15 Technical Change and Its Impact on the International Agribusiness Environment
Tom Parton, *CIBA-GEIGY, Ltd., Switzerland*

9:30 Technical Change and Common Market Agricultural Policy
Guenther Schmitt, *University of Gottingen, FRG*

9:45 Technical Change and Agricultural Production in Developing Countries
G. Edward Schuh, *World Bank*

10:00 Discussion
Dennis Avery, *State Department*
Robert W. Herdt, *Rockefeller Foundation*
Jessica Tuchman Mathews, *World Resources Institute*

10:30 Coffee break

Agricultural and Trade Policy Reform

10:45 Session chair: John R. Block, *National American Wholesale Grocers Association*

11:00 Agricultural and Trade Policy Interactions
Kenneth R. Farrell, *Resources for the Future*
George E. Rossmiller, *Resources for the Future*

11:25 U.S. Agriculture and the World Economy
Vernon W. Ruttan, *University of Minnesota*

11:50 Discussion
Robbin S. Johnson, *Cargill, Inc.*
Alex F. McCalla, *University of California, Davis*

12:15 p.m. Lunch

1:15 Introduction: Dale W. Jorgenson, *Kennedy School of Government, Harvard University*
Afternoon address: "Trade and Agricultural Policy"
Harald Malmgren, *Malmgren, Inc.*

2:30 Adjourn

Conference Objective

The conference focuses on public policy initiatives and their effects on the development of new technologies of potential global significance to agriculture. Three basic goals provide the foundation for discussion:

- Sustaining the economic competitiveness of U.S. agriculture through development of new technologies and enhanced use of existing technologies that will reduce the real cost of agricultural production.
- Assuring that production practices and systems are safe and sustainable and provide consumers here and abroad with products of the highest quality, and
- Providing a technology and policy foundation for increasing the contribution of the U.S. agricultural sector to satisfying global food needs as well as to stimulate the growth of the U.S. gross national product.

The Organizing Committee

The Conference on Technology and Agricultural Policy is sponsored by the Board on Agriculture, National Research Council; the Kennedy School of Government, Harvard University; and the National Center for Food and Agricultural Policy, Resources for the Future.

Organizers are Charles M. Benbrook, *Executive Director, Board on Agriculture;* Dale W. Jorgenson, *Director, Program on Technology and Economic Policy, The Kennedy School of Government, Harvard University;* Kenneth R. Farrell, *Director, National Center for Food and Agricultural Policy, Resources for the Future;* Ralph Landau, *Fellow of the Faculty at Harvard University, Vice President of the National Academy of Engineering, and Consulting Professor of Economics at Stanford University;* and Vernon W. Ruttan, *Board on Agriculture and Regents Professor, Department of Agricultural and Applied Economics, University of Minnesota.*

For additional information on the conference or the proceedings please contact

BOARD ON AGRICULTURE
National Research Council
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C. 20418
Telephone: (202) 334-3062

AQUACULTURE REPORT
TO
THE WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
March 1, 1987

The U. S. Congress appropriated $3 million for the establishment of four Aquaculture Centers in the United States. The funds and program development are the responsibility of CSRS within USDA. An organizational meeting was held in Washington, D. C. on December 15, 1986. Each Center is to include research, extension and industry components and 10% of the equal allocation ($750,000) was to be released for planning and organization.

The Center at the University of Washington was previously established as a consortium of the University of Washington (lead institution), University of California, University of Idaho, Oregon State University and University of Alaska. The Board of Directors, Industry Advisory Council and Technical Committee of the Western Aquaculture Consortium met February 12 and 13 in Seattle, WA. The membership list is attached.

Priority topics to be addressed as research and extension activities were established. Objectives for each topic area are being developed by working groups comprised of members of the Technical Committee and others who have expertise in the particular subject area. Once objectives are approved by the Technical Committee and Board of Directors, projects will be considered and funded. In order to qualify for funding, a project must include cooperative programs among at least two states. Both fresh and salt water species qualify for research funding.

Topical areas are as follows:

(1) Extension programs

(2) IHN Control (Virus)

(3) Broodstock nutrition

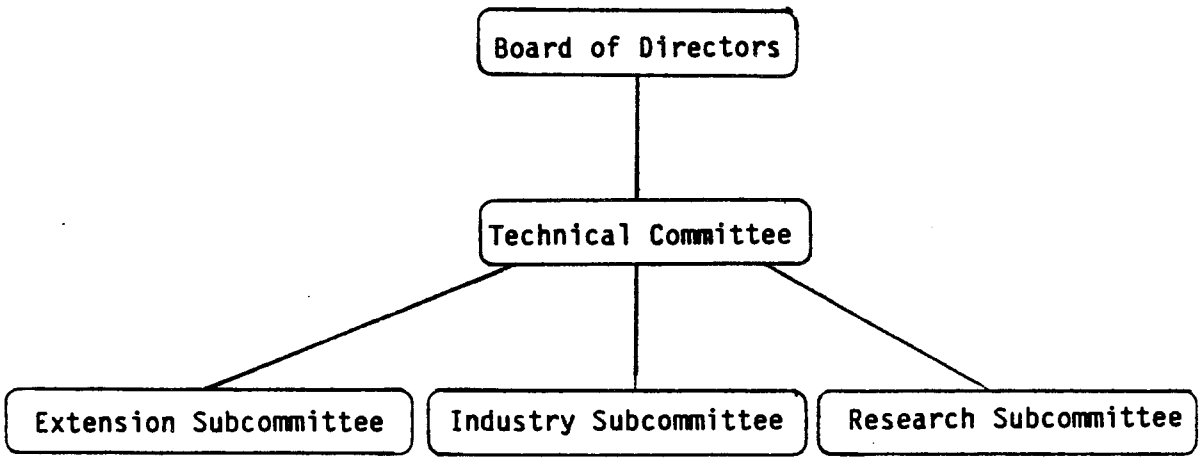
(4) Broodstock genetic improvement

(5) Alternative protein sources in feed

(6) Shellfish habitat improvement

(7) Control of sex and polyploidy

The organizational structure is as follows:



ja-0989E-32-33

WESTERN REGIONAL AQUACULTURE CONSORTIUM
February 12-13, 1987 Meeting
Crowne Plaza Holiday Inn, Seattle, Washington

Board of Directors

Dr. Ernest Ables, Univ. of Idaho	(208) 885-6434
Dr. Robert Fridley, Univ. of California Davis	(916) 752-7601
Dr. James Lannan, Oregon State Univ.	(503) 867-3011
Dr. Ole Mathisen, Univ. of Alaska	(907) 789-4442
Dr. Robert Stickney, Univ. of Washington	(206) 543-4270
Ex-official members:	
Dr. James Barron, WSU-Extension	(509) 335-2811
Dr. Dennis Oldenstadt, WSU-Extension, W. Reg. Assoc. Exp. Station Directors	(509) 335-4563
Dr. O. Ernest Smith, OSU-Extension, W. Reg. Assoc. Extension Directors	(503) 754-2713

Administrative Center

Dr. Kenneth K. Chew, Director, U.W.	(206) 543-4290
Ms. Carla Norwood, Admin. Assist., U.W.	(206) 543-4290

Interim Industry Advisory Council

Dr. Brian Allee, Prince William Sound Aqua. Corp., Cordova, Alaska	(907) 424-7511
Mr. Bob Bower, Ellison Oyster Co., Olympia, WA	(206) 866-7551
Mr. J. David Erickson, Clear Springs Trout, Buhl, Idaho	(208) 543-4316
Mr. Rick Harris, Sealaska Corp., Juneau, Alaska	(907) 586-1512
Mr. Phil Mackey, Mt. Lassen Trout Farm, Red Bluff, California	(916) 597-2222
Mr. Leo Ray, Fish Breeders of Idaho, Buhl, Idaho	(208) 543-6407

Interim Technical Committee (Dr. Fred Conte, Designated Chairman)

A. Research Subcommittee

AK: Dr. Tony Garrett (907) 789-6093
Dr. Bill Smoker (907) 789-4444
CA: Dr. Serge Doroshov (916) 752-7603
Dr. Graham Gall (916) 752-1257
ID: Dr. Mike Falter (208) 885-7123
Dr. Biing-Hwan Lin (208) 885-6047
OR: Dr. John Rohovec (503) 867-4441
Dr. Chris Langdon (503) 867-3011
WA: Dr. Ernest Brannon (206) 543-6546
Dr. Ron Hardy (206) 442-7626

B. Extension Subcommittee

Dr. Donald Kramer (907) 274-9691
Dr. Fred Conte (916) 752-7490
Dr. Al Lingg (208) 885-8943
Dr. Howard Horton (503) 754-4531
Mr. Terry Nosho (206) 543-6600

USDA Representatives

Dr. Meryl Broussard, USDA (202) 447-6014
Mr. Bille Hougart, USDA (202) 535-0960