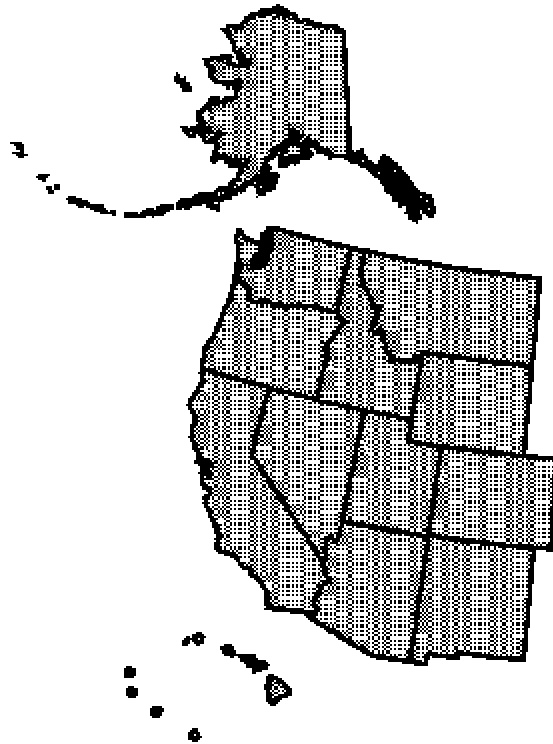


MINUTES OF THE MEETING OF
THE WESTERN ASSOCIATION OF
AGRICULTURAL EXPERIMENT STATION DIRECTORS

ALASKA
AM. SAMOA
ARIZONA
CALIFORNIA
COLORADO
GUAM
HAWAII
IDAHO
MICRONESIA
MONTANA
NEVADA
NEW MEXICO
N. MARIANA ISLANDS
OREGON
UTAH
WASHINGTON
WYOMING



The Hotel Newport
Newport, Oregon

June 26-29, 1990

SUMMARY OF ACTIONS

| | | |
|-----|---|-----|
| 1.0 | Approved the minutes of March 27-28, 1990 meeting | 1 |
| 2.0 | Approved Director-at-Large budget at \$201,516 | 2 |
| 3.0 | Approved the WDA Special Account at \$25,000 | 2 |
| 4.0 | Heard the RIC report and approved recommendations for: | |
| a. | new project | |
| | W- Dietary Fat and Fiber: Knowledge, Perceived Risk and Dietary Practices | 104 |
| b. | revised projects | |
| | W-151 Grazing Animal Behavioral Mechanisms and Nutritional Status of Cow/Calf and Ewe/Lamb | 104 |
| | W-173 Stress Factors of Farm Animals and Their Effects on Performance | 104 |
| c. | deferred or rejected projects or WRCCs | |
| | NRSP- The Planning, Evaluation and Reporting of Cooperative Regional/National Research | 103 |
| | W-134 Quantifying the Nematode Pest Management Decision Process | 103 |
| | WRCC-52 Food Legume Production Improvement | 105 |
| | WRCC-54 Drainage Water Management | 105 |
| | WRCC-64 Improving Data Quality and Methodology in Rural Social Sciences | 106 |
| d. | extended or renewed WRCCs | |
| | WRCC-11 Turfgrass | 105 |
| | WRCC-23 Textiles and Apparel Research Coordination | 105 |
| | WRCC-59 Influence of Water Quality on Poultry Performance | 106 |
| | WRCC-63 Rural Credit Systems in the West | 106 |
| e. | established ad hoc W- | |
| | W- Improving Data Quality and Methodology in Rural Social Sciences | 106 |
| f. | established new WRCC | |
| | WRCC-77 Biology and Control of Winter Annual Grass Weeds in Dryland Winter Wheat | 106 |
| g. | assigned Administrative Advisors for: | |
| | W-166 Characteristics and Feed Value of Barley and Western Protein Supplements for Swine. T. R. Dutson (OR) to replace R. B. Muntifering (MT) | 107 |
| | W-171 Germ Cell and Embryo Development and Manipulation for the Improvement of Livestock. D. M. Briggs (NM) to replace R. B. Muntifering (MT) | 107 |
| | W-178 Water Management and Conservation in Western Irrigated Agriculture. G. Cunningham (NM) to replace D. L. Oldenstadt (WA) | 107 |

| | | |
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| | WRCC-39 Increased Efficiency in Sheep Production and Marketing of Lamb and Mutton. R. Ax (AZ) to replace A. C. Linton (MT) | 107 |
| | WRCC-63 Rural Credit Systems in the West. J. Barron (WA) to replace J. S. Hillman (AZ) | 107 |
| | WRCC-68 International Marketing. M. V. Martin (OR) to replace D. L. Oldenstadt (WA) with the recommendation that WRCC-68 and WRCC-70 meet jointly and consider merging the two WRCCs. M. V. Martin (OR) would serve as Administrative Advisor of the merged WRCC committees | 107 |
| | WRCC-70 Economic Impacts of the U.S.-Canada Trade Agreement. M. V. Martin (OR) to replace D. L. Oldenstadt (WA) | 107 |
| | WRCC-74 Child Development Under Conditions of Maternal Absence: A Focused Examination of Middle Childhood. J. Schulz (AZ) to replace R. Cate (WA) | 107 |
| 5.0 | Approved RIC recommendation to the Committee of Nine to automatically extend rejected or deferred projects for one year | 5 |
| 6.0 | Approved resolution to CSRS that CSRS Form 89 be simplified and a revised version be submitted to each of the regional associations for approval | 6 |
| 7.0 | Approved the <u>Supplementary Manual for Regional Research</u> as modified | 11 |
| 8.0 | Approved that nominations for WDA officers be closed and that the slate of candidates be approved | 17 |
| 9.0 | Approved inclusion of Northern Mariana Islands as an official voting member of the Western Association of Agricultural Experiment Station Directors | 18 |
| 10.0 | Approved motion that Lee and the WDA Treasurer provide an accounting of the expenditures of the Russian wheat aphid assessment | 18 |
| 11.0 | Unanimously approved five resolutions | 18 |

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WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
The Hotel Newport, Newport, Oregon
June 26 - 29, 1990

MINUTES

ATTENDANCE:

| | | | |
|--------------------|------------------------|-------------------------|----------------------|
| ALASKA | G. Allen Mitchell | OREGON | Thayne R. Dutson |
| AMERICAN SAMOA | Pemerika L. Tauiliili | | L. J. (Kelvin) Koong |
| ARIZONA | George W. Ware | | V. Van Volk |
| CALIFORNIA | W. W. (Bill) Allen | UTAH | H. Paul Rasmussen |
| | David E. Schlegel | WASHINGTON | Bob Harwood |
| COLORADO | Helen F. McHugh | | Dennis L. Oldenstadt |
| | Glenn Schmidt | | James J. Zuiches |
| GUAM | Chin T. Lee | WYOMING | Al Gale |
| | R. Muniappan | ARS | William G. Chace |
| HAWAII | Ned Kefford | | Jan van Schilfgaarde |
| IDAHO | Gary A. Lee | CSRS | William D. Carlson |
| MICRONESIA | John J. Carroll | ERS | Milton H. Erickson |
| MONTANA | Russell B. Muntifering | ES | John Michael |
| NEVADA | Ron Pardini | FS | Laurence Lassen |
| NEW MEXICO | Gary Cunningham | DIRECTOR-AT-LARGE (DAL) | L. L. Boyd |
| | Dinus M. Briggs | OWDAL | Harriet Sykes |
| N. MARIANA ISLANDS | Leo Boyer | WRDC | Russell Youmans |

1.0 Call to order

The meeting was called to order by Chair D. E. Schlegel.

2.0 Introductions and Announcements

The attendees introduced themselves.

3.0 Adoption of Agenda

The motion was made and seconded to adopt the agenda. MOTION CARRIED. The Agenda is included as Appendix A, pp. 22-25.

4.0 Approval of Minutes of March 27-28, 1990 Meeting

The motion was made and seconded to approve the minutes of the March 27-28, 1989 meeting. MOTION CARRIED.

5.0 Identification and Orientation of Neophytes

Tailtwister Dutson conducted the preliminary orientation of neophytes to the WDA.

6.0 Report of Chairman/Executive Committee

Schlegel reported that the WDA Executive Committee had met June 25, 1990. Recommendations of the Executive Committee will be made as the topics appear on the agenda.

7.0 Treasurer's Report

The Treasurer's Report was presented by Muntifering and is included as Appendix B, pp. 26-28.

Schlegel reported that the Executive Committee had reviewed the budget and recommended a five percent salary increase for the Director-at-Large and the Administrative Analyst. The current budget for the Director-at-Large office is \$195,016. With the recommended increases, the budget will be \$201,516 of which \$45,000 comes from W-106 regional research funding. The final figure upon which the assessments will be made is \$156,506 and will be reduced by any carryover at the end of the fiscal year. The motion was seconded to approve the recommendation of the Executive Committee that the Director-at-Large budget be \$201,516. MOTION CARRIED.

The WDA Special Account was set at \$25,000 in 1989, recognizing that there was more travel than had been done in the past. The Executive Committee recommends that the WDA Special Account be maintained at \$25,000. The motion was seconded to approve the recommendation of the Executive Committee that the WDA Special Account be funded at \$25,000. MOTION CARRIED.

8.0 Reports from Liaison Representatives

8.1 CSRS Report

The CSRS Report was presented by W. D. Carlson and is included as Appendix C, pp. 29-32.

8.2 ARS Administrator's Report

The ARS Administrator's Report is included in the ARS Western Area Report, Agenda item 8.3.

8.3 ARS Western Area Report

Chace reported that Administrator Plowman had made a decision to become a full time ARS employee. He has made a commitment over the past two years to improve the quality of science in the ARS and to upgrade the facilities.

The biggest effort in ARS is a CRIS type review of the entire program to see if it is focused on target and hitting the high priority areas. This will then lead to some long range planning and a new five year plan will be coming out in the next five or six months.

A large effort has been to put the FY92 budget together. Also, there are some concerns about the 1990 Farm Bill.

For the first time, all of the ARS Research Leaders met in Washington, DC to discuss some of the issues which they are facing.

The report for the Pacific West, Northern Plains and Southern Plains Areas is included as Appendix D, p. 33.

van Schilfgaarde reported that J. R. Welsh, formerly of Montana, will be joining the ARS Northern Plains Area staff in August.

He reported that the Great Plains falls through the crack between the Western Directors and the North Central Directors. It also falls through the crack in almost every organizational structure you look at. Recently, the NPA had the advantage of having some people from the Washington Post write an article regarding the buffalo. This has been used to develop an initiative for funding to solve some of the problems that have been neglected for a long time.

van Schilfgaarde expressed hope that, with the help of the Western Directors and the North Central Directors, the Great Plains program can be rejuvenated.

The National Seed Laboratory funding is four million dollars short for completion of construction. The agency has made the decision that there will not be a contract let until the money is in hand.

8.4 ERS Report

Erickson reported that there has been no change in leadership or location in ERS in the past year.

ERS has been involved in several major areas:

(1) Uruguay round trade negotiations. ERS has been doing research to look at the effects of trade liberalization, measures of support and distortion, and mechanisms for change - rebalancing tariffication.

(2) 1990 Farm Bill. ERS is trying to provide information on the status of the agricultural sector, flexibility of programs, task force participation, conservation, disaster protection, and crop insurance. Background reports are available from ERS upon request.

(3) Water Quality. The President's budget for FY91 would provide ERS with \$2.1 million for pesticide data collection and analysis.

(4) Food Safety. ERS is looking at the impacts of events and alternatives, such as ALAR and a ban on pesticides. National Agricultural Statistics Service (NASS) will be provided \$7.0 million to collect pesticide data which will feed into ERS for analysis. The study will allow an opportunity for a detailed national database on pesticide use for soils, practices, and locations. It will support the research community with a continued analysis of decisions before the EPA.

(5) Rural Development. The Agriculture and Rural Economy Division (ARED) is showing that the linkage between the success of farming and the success of rural communities is weakening. The problem is going from description to prescription. The Organization of Economic Cooperation Development (OECD) is taking a greater interest.

(6) Global Climate Change. ERS continues to look at global climate change but there is no specific funding for a study.

(7) Eastern Europe. In the past year, Eastern Europe has been an unanticipated area of issues and required analysis.

On a day-to-day basis, the following reports continue to be provided: situation and outlook program on commodities, agricultural indicators, annual farm cost return survey. ERS is cooperating in research with the International Agriculture Trade Research Consortium and the OECD. Staff analysis demands have doubled over the last three years.

The President's budget would keep ERS constant in nominal terms, but a lot will depend upon the initiative on water quality.

Approximately \$900,000 is now committed from cooperative agreements and it could exceed \$1,000,000 by the end of the fiscal year.

ERS is seeking qualified black and hispanic economists and is finding few applicants through the traditional recruiting channels.

8.5 Forest Service Report

The Forest Service Report was presented by Lassen and is included as Appendix E, pp. 34-36.

8.6 Western Home Economics Research Administrators Report

The Western Home Economics Research Administrators (HERS) report was presented by Zuiches. Each of the states in the continental United States and Hawaii has an individual who is designated as a home economic research administrator.

The ESCOP Home Economics Research Subcommittee met in Washington, DC on May 21, 1990. The minutes have been circulated to all home economic research administrators. The minutes show that HERS met with CSRS staff and the American Home Economics Association representatives. They reviewed topics such as: the budget, National Initiative, relationships with 1890 colleges. Reports were presented by the representatives to the ESCOP Leadership Subcommittee and the ESCOP Human Nutrition Subcommittee.

The Western Home Economics Research Administrators meet annually. At the last meeting, in September 1989, all the states were represented with the exception of Alaska, Micronesia, Guam and American Samoa.

The Western Directors were urged to be sure that items within the activities of the WDA be distributed to the designated home economic research administrators on each of their campuses.

8.7 Council of Veterinary Deans/Association of American Veterinary Colleges

The Council of Veterinary Deans/Association of American Veterinary Colleges Report was distributed and is included as Appendix F, pp. 37-38.

8.8 National Assoc. of Professional Forestry Schools and Colleges Report

No report was presented.

9.0 ECOP/ESCOP/NASULGC Water Quality Activities

The ECOP/ESCOP/NASULGC Water Quality Report provided by Terry L. Nipp, and presented by Volk, is included as Appendix G, pp. 39-102.

Also included in Appendix G, pp. 46-102, is a notebook which was distributed to all congressional staffers for members of the Agricultural Committee and Appropriations. The notebook gives background on what the resources were, what the history was, what kind of publications are available. Most of the publications cited in the notebook were extension type publications and Volk encouraged the Directors to provide Nipp with some research type publications.

10.0 RIC Report

The RIC Report was presented by Zuiches. The report with related WDA actions is included as Appendix H, pp. 103-112.

Concern was expressed about continuance of projects whose revised outlines were not approved by the Committee of Nine. The motion was made and seconded to recommend to the Committee

of Nine that, for project revisions that are not approved by the Committee of Nine at the September meeting, the predecessor project be automatically extended for one year. MOTION CARRIED.

Zuiches reported on the Committee of Nine Regional Workshop, Agenda Item 15.1.2. RIC recommends that the WDA request the Committee of Nine to reconsider the CSRS Form 89, simplify it, and submit a revised version to the regional associations for approval.

Ware stated that the CSRS Form 89 was compressed from 10 pages to four and was sent out with the idea that it would get its first test during the summer.

Zuiches stated that there are two issues: (1) the regional associations and administrative advisors did not have the benefit of the form for preparation of proposals by committees; and (2) RIC did not have the benefit of the form in time for use in reviews for the summer RIC meeting, and RIC is concerned that the Committee of Nine might reject proposals submitted from the WDA because the form was not used.

The motion was made and seconded that the WDA request the Committee of Nine to reconsider the CSRS Form 89, that CSRS Form 89 be simplified as per Western Regional example, and a revised version be submitted to each of the regional associations for approval. MOTION CARRIED.

11.0 Low Input Agriculture Program Report

Schlegel presented the Low Input Agriculture Program Report, included as Appendix I, pp. 113-114.

A subcommittee might be appointed to provide some policy thoughts and serve as a guide for the Advisory Committee.

12.0 Regional Programs - IPM and PIAP

Schlegel reported that the Integrated Pest Management (IPM) Report which was made in March 1990 and included in the March 1990 WDA minutes provides the current status of the program.

The Pesticide Impact Assessment Program (PIAP) Report was presented by Schlegel and is included as Appendix J, pp. 115-116.

13.0 Research Bases for Extension Programs

Michael reported that he directed a national study "The National Impact Study of Leadership Development in Extension." The study was sponsored by the USDA Extension Service in cooperation with Washington State University Cooperative Extension and the Department of Rural Sociology at Washington State University. The findings are included as Appendix K, pp. 117-140.

14.0 National Grape Importation Facility

The National Grape Importation Facility Report is included as Appendix L, pp. 141-142.

15.0 Reports from Representatives to Regional and National Committees

15.1 Committee of Nine

The Committee of Nine Report was presented by Koong and is included as Appendix M, p. 143.

15.1.1 IR, National Research & National Research Support Project, Off-the-Top Funding Recommendations

Niehaus reported that the Committee of Nine was scheduled to discuss a new National Research Support Project (NRSP), "NRSP-001 Plant Genetic Resources" at the May 1990 meeting. The outline is in limbo because the response from the Committee of Nine has not been circulated.

A National Research Support Project subcommittee was established by the Committee of Nine with Niehaus as chair. A National Research Project subcommittee was also established by the Committee of Nine with Johnson (OK) as chair. Both of the chairs have rotated off the Committee of Nine. The status of the subcommittees is not known.

The NRSP-001 would include the four regional plant introduction centers, as well as IR-001 and IR-002. The W-006 project, which serves as the regional plant introduction center for the West, was extended until September 30, 1991 because of the pending NRSP-001. In order to include both IR-001 and IR-002, the NRSP needs to be broadened in its title and mission. As it is now, the wording for NRSP-001 is for research support and to include only research that supports the project.

The Committee on the NRSP-001 has a dilemma of whether the ARS germplasm people should be written into the outline, or should they be ex-officio members. W-006 currently includes all Western plant germplasm entities, be they ARS, state, or SAES.

If the NRSP-001 outline is written so that only research in support of germplasm activities is conducted, most of the states have none. To make this work and have travel money available, a WRCC will need to be set up to do the research.

15.1.2 Regional Research Workshop

Zuiches reported that a workshop was sponsored May 21-22 by the Committee of Nine. Participants were the Committee of Nine and regional research committee members. The topic of discussion was how to develop standardized review process across the regions. The primary driving force was the idea of transferring to the regions, the responsibility for the conduct of the peer review and a recommendation to the Committee of Nine for the funding and approval of projects. This is not the delegation of their responsibility, it is building a cooperation with the states and regional associations, because we are basically approving funding from our state-based programs. The goal was to bring the states and the regional associations into closer concert across the regions and closer coordination with the Committee of Nine, so that the criteria that the Committee of Nine was using would be used by the regions and that, if we approved and recommended a project, we would not have it returned.

In the Committee of Nine Digest of Minutes, dated June 8, 1990, there is some detailed discussion on CSRS Form 89. This document gives detailed information on the preparation of regional research proposals, their evaluation, and the approval process. One of the concerns that RIC discussed was the fact that, according to the Digest of Minutes, this review form is to be used immediately in the reviewing of regional research projects. RIC did not receive the review form in time to be used.

Out of the National Workshop, the Western Region was identified as the region that had developed a review process in a way that made some sense to us, the faculty members, and the peer reviewers. We recommended to the members of the workshop that we use a simple form similar to the format which had been developed by the Western Region that would ask reviewers to look the key items that are associated with the review process. All of the regional research committees and the Committee of Nine are in agreement that there are really four tests of a regional research project: (1) it should be significant and have regional scope; (2) it should have interdependence across scientific areas; (3) it should be high quality science; and (4) it should be non-duplicative of other work. These four tests become the criteria under which one reviews the document.

At the workshop, the participants from the Western Region submitted a revised Western Regional Review Form that was fairly simple and that addressed the four tests.

15.2 Joint Council

No report was given.

Agenda Items 16.0 through 18.0 were part of the Joint Meeting activities. No minutes are provided.

16.0 Extension/Experiment Station Joint Session

16.1 Communications Procedures and Equipment for Extension and Research

16.2 Research Base for Extension, Especially the Social Sciences

16.1.1 Extension's Needs

16.1.2 Research's Ability to Meet Extension's Needs

16.3 ECOP/ESCOP New Directions

16.4 Open Discussion

- *Jointly administered programs, e.g., sustainable agriculture, water quality, pest control, etc.*
- *Increasing/enhancing joint extension-research efforts*
- *Other issues of importance to participants - please alert one of the two leaders in advance, if possible, of a topic you wish to discuss or have discussed*

17.0 CARET Interaction

18.0 Western CAHA Interaction

19.0 Research Planning Activities

19.1 W. Agricultural Research Committee

Boyd indicated that the Western Agricultural Research Committee had not met and therefore, no report was given.

19.2 National Agricultural Research Committee

The National Agricultural Research Committee Report is included as Appendix N, pp. 143-147.

19.3 National Research Planning Group

The National Research Planning Group Report is included as Appendix O, pp. 148-152.

19.4 National Initiative

Zuiches reported that support for the National Initiative was not strong. There are a couple of senators and members of the House who seem to be taking strong leadership in support of the National Initiative.

There are two lobbying organizations working to try to get the National Initiative passed. The National Initiative is in both the House and Senate Authorization Bills. It is in both the House and Senate budget bills. The next step is to get it in the House and Senate appropriations bills.

20.0 ESCOP Committee Reports

20.1 ESCOP

Schlegel reported that responses on proposed changes in the ESCOP Section By-laws and the ESCOP Procedures and Guidelines are due in to the WDAL Office by late July.

20.2 ESCOP Leadership Development

Dutson reported that the ESCOP Leadership Development Subcommittee had finalized the Leadership Development Program. Phase I of the program will be a workshop that will start in September of 1991. This workshop will be training in general leadership management skills. There will be an additional day for the experiment station system land grant philosophy. Phase II is an in-house training program that will occur at each experiment station where the trainee will spend time with the experiment station director looking at what they do and interacting with the director. A plan is to be developed for what needs to be done in Phase II that will be discussed and approved in Phase I. Phase III is a wrap up with additional instruction and graduation which will occur in 1992.

The announcement is going to go out in January of 1991, along with information and application forms. Application deadline will be in April of 1991. Each experiment station will be allowed one student for institutions with up to 100 FTE, five each for veterinarians, home economics, forestry, and all of the 1890s institutions. The plan is to continue the training program on a yearly basis.

Each experiment station sending a candidate will bear the costs associated with the workshop: registration fee, travel, and a commitment from the experiment station to have some in-house training.

20.3 ESCOP Pest Control Strategies

Ware presented the Report of the ESCOP Pest Control Subcommittee, included as Appendix P, p. 153.

The former ESCOP Pest Control Strategies Subcommittee is now known simply as the ESCOP Pest Control Subcommittee.

Schlegel commented that IR-4 and the PIAP are related and yet never meet jointly. The new Pest Control Subcommittee structure will allow for interaction between all of the groups dealing with pest control.

20.4 ESCOP Research Planning & Budgets Subcommittee

20.4.1 ESCOP FY91 Budget Group

Zuiches reported that the ESCOP FY91 Budget Group is getting a favorable hearing. The best situation will be if the budget deficit gets resolved with the right combination of taxes and cuts.

20.4.2 ESCOP FY92 Budget Group

The report of the ESCOP FY92 Budget Group was presented by Boyd and is included as Appendix Q, pp. 154-162.

20.4.3 ESCOP Special Initiatives

Lee presented the ESCOP Special Initiatives Subcommittee Report, included as Appendix R, p. 163.

21.0 Discussion of Joint Meetings Planning & Other Regional Cooperation Issues

Schlegel requested input from the participants regarding continuation of the joint meeting concept. Arnold indicated that CAHA and Extension approved the concept of joint meetings. Ideas for discussion topics are requested.

Participants felt that scheduling the WDA meeting on noncontiguous days was counterproductive. The suggestion was that the joint meeting be held on the first day of a joint meeting schedule and the following days be used for WDA, CAHA, CARET and Extension meetings.

22.0 Discussion of Full Time ESCOP/SAES/ECOP Representation in Washington, DC

Boyd presented the NASULGC Division of Agriculture Staffing Plan, included as Appendix S, pp. 164-174.

23.0 DAL Report

Boyd presented the DAL Report and the ESCOP Electronic Communications Survey Preliminary Report, included as Appendix T, pp. 175-179. Also included in Appendix T is a request from Van Gundy (CA-R) for members of the WDA to send him available brochures on their science college of experiment station units.

24.0 W. Region Publications Policy

McHugh reported that the requested changes had been made to the publications policy in the Supplementary Manual for Regional Research. The motion was made and seconded to approve the Supplementary Manual for Regional Research as modified. MOTION CARRIED.

25.0 National Meetings Reports

Van Schilfgaarde reported that the Soil Conservation Society meeting is scheduled for July 30 - August 1, 1990 in Salt Lake City, UT.

26.0 Western Rural Development Center

Youmans presented the Western Rural Development Center Report, included as Appendix U, pp. 180-190.

Schlegel reported that McHugh has agreed to replace Heil for a three-year term and Zuiches will continue for an additional one-year term on the WRDC Board of Directors.

27.0 Users Advisory Board

The Users Advisory Board Report is included in the DAL Report, Appendix T, pp. 175-179.

28.0 Animal Care Guidelines Update

No report was presented.

29.0 Interregional Project Activities

29.1 IR-1 Report

The IR-1 Report was presented by Volk and is included as Appendix V, p. 191.

29.2 IR-2 Report

Zuiches reported that the IR-2 Minutes and Annual Report has been circulated to all the WDA Directors.

29.3 IR-4 Report

The IR-4 Report was present by Ware and is included as Appendix W, p. 192.

29.4 IR-5 Report

The IR-5 Report was presented by Briggs and is included as Appendix X, p. 193.

29.5 IR-6 Report

McHugh indicated that the information regarding the last IR-6 meeting was included in the DAL Report, Appendix T, pp. 175-179.

29.6 IR-7 Report

Boyd reported that he had been requested to replace Heil as the WDA representative to IR-7.

30.0 Off-the-top Funding Issues

The off-the-top funding issues were discussed during Agenda Item 15.1.1 and the RIC Report, Appendix H, pp. 103-112.

31.0 State Activities Reports

AMERICAN SAMOA

Tauiliili reported that a hurricane had done substantial damage to American Samoa. Many of the experiment station facilities were destroyed. However, the insurance will allow for replacement. The crops were badly damaged. The first crop of bananas will soon be ready, four months after the hurricane. The other crop that was badly damaged was breadfruit. American Samoa went into a very heavy vegetable production program. The distribution of seedlings for short-term crops helped a great deal.

ARIZONA

Ware reported that, after the retirement of Dewhirst in February 1990, Kaltenbach was appointed Vice Dean of the College of Agriculture as well as being made the Director of the Agricultural Experiment Station. A search is underway for a new dean of resident instruction. The present president of the university has announced plans to leave his position no later than December 31, 1992.

ALASKA

Mitchell reported that the agricultural experiment station is scheduled to merge with Extension. The budget is static due to the price of oil. There have been three faculty retirements and one resignation. One position will be filled with an environmental law policy officer for a net loss of two positions.

CALIFORNIA

Allen reported that California has a governor who will not raise taxes and there is a serious budget shortfall. There is talk of a seven to seventeen percent cut, and there is also talk of a five-year buy out to get rid of the older people and downsize to meet the budget.

There is still a problem with the med fly. There are initiatives for alternatives to pesticides, but it is unclear where the money will come from to fund them.

The planning of the new campus in the San Joaquin Valley is underway. A Proposition 111 was tied to a gasoline tax bill to put in highways and also allowed an increase in taxes to get money to the University. One of the problems is that there are many mandated programs built in.

The reorganization of the University Division of Agriculture is continuing and working well.

The Berkeley campus has completed a new plant biology building and ten new greenhouses. Because of the push for alternatives to pesticides, a laboratory of biological control is being established at Berkeley which would fit into a state-wide program in biological control.

COLORADO

McHugh reported that there were a lot of uncertainties at Colorado State University. A new president, Albert Yates, will arrive on campus in July.

Robert D. Heil has moved to the University of Wyoming to become Dean and Director of the College of Agricultural Sciences and the Agricultural Experiment Station. Glenn Schmidt has been appointed as the Acting Associate Director on a half-time basis. Kenneth Bolen is leaving his position as Director of Cooperative Extension to go to Nebraska.

Planning money for the north agricultural campus which will relocate the Agronomy Farm has been received.

GUAM

Muniappan reported that, since Dr. Guerrero had previously been the Director of the Agricultural Experiment Station, there was a good relationship with the University of Guam's President's office.

HAWAII

Kefford reported that approximately ten years ago, Hawaii had created an Institute which amalgamated research and extension. Circumstances required that it be done top down. Ten years later, the amalgamations work very well for clientele but faculty have not been kept up with the advisors. As a result, a totally participatory strategic planning process is underway in the college which will take the Institute into account, as well as all other activities.

IDAHO

Lee reported on four items relating to the Idaho Agricultural Experiment Station: (1) Dick Heimsch had been promoted to Associate Director of the Agricultural Experiment Station; (2) a notification has been received from the State Board of Regents that, through a competitive process, the College of Agriculture has been granted \$1,000,000 to start a new bio-remediation center which will develop means of remediation of pesticide and toxic spills in land-fills and bombing ranges; (3) the potato storage research center at Kimberly, Idaho is well underway; (4) consolidation of the Animal Sciences and Veterinary Sciences Departments is under review.

MONTANA

Muntifering reported that Montana had been informed by the governor's office that there was an impending \$100 million revenue shortfall in FY1991. Things continue to be unsettled in Montana. William Tietz has announced his plans to step down from his position as President of Montana State University, effective December 31, 1990. He will maintain his affiliation through FY1991.

One item of business that he has accomplished is the commission of an extended studies committee that has been charged with the responsibility of inventorying and making recommendations on how to more effectively manage the whole gamut of outreach activities for the University as a land-grant institution.

The governor has assembled a task force known as "The Commission on Education in the 1990s and Beyond" that is to take a look at the possibility of gaining some profit or economy in closing one of the institutions of the Montana University system. There may be some radical recommendations from that group.

Muntifering is leaving August 10, 1990 for an administrative assignment in the Alabama Agricultural Experiment Station in the Office of the Vice President for Research at Auburn University.

NEW MEXICO

Cunningham indicated that the legislature had appropriated 2.8 percent for salary increases and the Board of Regents had mandated 6.0 percent raises. There is increased interaction in research activities between the College of Agriculture and the College of Engineering, particularly research programs focusing on waste management problems. CSRS has completed an equal opportunity employment review.

The university has a new ranch of 28,000 acres at Corona, New Mexico. The ranch lies in the transition area between short grass steppe and desert grassland.

OREGON

Dutson reported that Oregon is in the process of preparing for the next biennium. This has prompted state-wide meetings to promote the college's long-range plan. An announcement for a fiscal and business officer-Assistant Director of the Experiment Station has been circulated. Facilities improvement at the branch stations is continually underway. A new governor will be in place in 1991 which will create a whole new system. The Wheat Marketing Center in Portland is complete. It is in an old building which was remodeled, creating an office complex for agriculture marketing related interests. The soil science/crop science merger has taken place pending Board approval. The poultry science program is under review. The agricultural engineering program was reviewed due to loss of 200 graduate majors. The resident instruction program is looking at a total restructuring of the degree programs and moving from a large number into six major areas with a reduction in total degree programs from 17 to 10. Groundbreaking for a new Agricultural Science Building II is scheduled for July 5, 1990.

UTAH

Rasmussen reported that the university had been given authorization from the state to build a new diagnostics laboratory. There was a CSRS site visit at the new Biotechnology Building. When the building was bid, the available funds were short by \$4,000,000, and the university has been working with CSRS to get the building completed. An ag mechanization building will be started very soon, which is primarily a state funded teaching facility.

The second Land-Grant Days is scheduled. The focus will be on food safety.

WASHINGTON

Zuiches reported that Bob Harwood had joined the Agricultural Research Center as Assistant Director on a half-time basis. The other half-time is devoted to extension, research and teaching. He is responsible as liaison for sustainable agriculture, the pesticide residue laboratory, and the Russian wheat aphid projects. The other personnel change is that Dennis Oldenstadt will be retiring effective January 1, 1991. Two of the superintendents have retired or will be retiring, Faulkner and Hoyt.

The Food Science and Human Nutrition Building, Phase II, has broken ground. Phase II will incorporate the Western Wheat Quality Laboratory and much of the impetus for the development of this funding came from the wheat industry in the Northwest. The Entomology Department, the Creamery and the Telecommunications Center will be housed there.

Over the past year, fifteen town hall meetings had been held. The Dean created four task forces to get input from the people of the state on the directions that the research/extension/teaching programs should pursue in the future. Over 1600 people participated in the town hall meetings. The task force reports have been completed and a program has been developed titled "Leading with Knowledge" which focuses on food, families, the environment, and economic vitality in the state. It addresses the questions that were heard from the people on: food safety; food quality; environmental quality; environmental management; management of economic growth; improvement of growth in rural areas; management of excessive growth in the more urbanized areas of western Washington; the concerns from throughout the state associated with family, children and community well-being. The task force has submitted the package to the University and one of the University's initiatives to the state legislature will be for the College of Agriculture and Home Economics, primarily for a major enhancement in research and extension.

WYOMING

Gale reported that Wyoming had settled their potato certification lawsuit with a settlement for \$2.4 million. The university had certified some potatoes that turned up with some ring rot problems. Part of the problem was incomplete record keeping.

The University is undergoing a reallocation process. Every program, college and department have had to put together reports which go to an academic resource committee. Part of the reasoning behind the reallocation process is that the university for the first time received a total block grant from the legislature. Some departments have been built up over the years which may have only five faculty members, so there may be some departments combined. The College is considering combining their seven departments into four units.

The Stock Farm facility is completed and will be dedicated in September. The farm has the largest feed mill in Wyoming. The dairy farm in Laramie was closed out. The cows were sold to the honor farm in Riverton.

A contract has been signed with Con-Tel Weather Wire Service to obtain national weather service information. The information will be networked to the county extension offices daily at 6:00am.

32.0 Election of Officers

The Executive Committee, acting as a nominating committee, recommended the following candidates for office in 1991:

| | |
|------------------------------|-----------------------|
| Chair | Gary A. Lee (ID) |
| Chair-Elect | Thayne R. Dutson (OR) |
| Secretary | Alvin F. Gale (WY) |
| At-Large Executive Committee | Helen F. McHugh (CO) |
| At-Large Executive Committee | Dinus M. Briggs (NM) |

The motion was made and seconded that nominations be closed and that the slate of candidates be approved. MOTION CARRIED.

Other appointments will be named at the WDA meeting in November 1990.

33.0 Future Meetings

The Fall meeting of the WDA will be held November 11, 1990 in Kansas City, MO with the Annual NASULGC meeting.

The Spring meeting of the WDA will be held April 2-5, 1991 at the Hacienda del Sol in Tucson, AZ. RIC and the Executive Committee meetings will be held April 2, with the WDA meeting April 3-4. April 5 will be reserved for a tour of the Maricopa Center.

34.0 Other Business

34.1 N. Mariana Islands

Boyd reported that Santos of N. Mariana Islands had indicated a desire to become a member of the WDA and pay an annual fee of \$600 for official membership. The WDA By-Laws will need to be amended to include reference to N. Mariana Islands. The motion was made and seconded to include Northern Mariana Islands as an official voting member of the Western Association of Agricultural Experiment Station Directors. MOTION CARRIED.

34.2 Russian Wheat Aphid Report

Lee stated that, for the past two years, each of the Agricultural Experiment Stations had been assessed \$1,000 to support a research program, primarily for the exploration for and rearing of biological control agents for the Russian Wheat aphid. Since the disposition of

the federal budget in support of the program is unknown, the WDA was polled for interest in continuing the assessment. The assessment was managed by the WDA Treasurer's Office at Montana State University.

Since the program was started, ARS, APHIS and Western IPM grants have contributed significantly to support. Lee indicated that, unless there is some contribution from the agricultural experiment stations, none of the organisms from the joint programs of ARS and APHIS will be made available to the Experiment Station scientists.

Zuiches recommended that a summary of how funds were spent would be helpful. The motion was made and seconded that Lee and the WDA Treasurer provide an accounting of the expenditures of the assessment. **MOTION CARRIED.**

35.0 Resolutions

The motion was made, seconded and **UNANIMOUSLY CARRIED to approve the following resolutions:**

RESOLUTION #1

WHEREAS James R. Welsh, Dean of the College of Agriculture at Montana State University and Director of the Montana Agricultural Experiment Station, for the past ten years has been a member of the Western Association of Agricultural Experiment Station Directors, and

WHEREAS Dr. Welsh has served this Association in a variety of capacities including Administrative Advisor, Treasurer, and Chairman, and

WHEREAS Dr. Welsh has represented this Association as a member of the Experiment Station Committee on Organization and Policy (ESCOP), and to other related groups, and

WHEREAS Dr. Welsh is completing his tenure at Montana State University in a few weeks, and will be joining the Agricultural Research Service of the USDA; now therefore, be it

RESOLVED, that the Western Association of Agricultural Experiment Station Directors, meeting at Newport, Oregon in June 1990, express its appreciation to James R. Welsh for his leadership within the agricultural community and especially this Association; and extend its best wishes to Dr. Welsh in his future endeavors; and be it further

RESOLVED, that the original of this resolution be transmitted to Dr. Welsh and a copy be placed with the minutes of this meeting.

RESOLUTION #2

WHEREAS the accounts of the Western Association of Agricultural Experiment Station Directors are held at Montana State University under the jurisdiction of the Montana Agricultural Experiment Station, and

WHEREAS Darlene Wruck, Administrative Assistant to the Dean and Director of Montana State University's College of Agriculture, has throughout her tenure provided staff support to the custodian of these accounts, and

WHEREAS Ms. Wruck has assisted in the judicious maintenance of these accounts and the periodic preparation of reports which have been noted for their accuracy and timeliness; now therefore, be it

RESOLVED, that the Western Association of Agricultural Experiment Station Directors, meeting at Newport, Oregon in June 1990, express its appreciation to Darlene Wruck for her committed and extraordinary service to the Association through her assistance with the account records; and be it further

RESOLVED, that the original of this resolution be transmitted to Ms. Wruck, and a copy be included in the minutes of the June 1990 meeting.

RESOLUTION #3

WHEREAS Russell B. Muntifering, Associate Director of the Montana Agricultural Experiment Station, has served the Western Association of Agricultural Experiment Station Directors as its Treasurer throughout his tenure at Montana State University, and

WHEREAS Dr. Muntifering has provided accurate, informative and timely accounting for the funds in his custody, and

WHEREAS Dr. Muntifering has advised wisely the scientists participating in regional research projects W-166 and W-171, and

WHEREAS Dr. Muntifering will assume new responsibilities as Associate Director, Alabama Agricultural Experiment Station on or about September 1, 1990 and thus will depart the western region; now therefore, be it

RESOLVED, that the Western Association of Agricultural Experiment Station Directors, meeting in Newport, Oregon in June 1990, express its appreciation to Russell B. Muntifering for his contributions to this Association and express its best wishes to Dr. Muntifering in his new position and in his future endeavors, and be it further

RESOLVED, that the original of this resolution be transmitted to Dr. Muntifering and that a copy be placed with the minutes of this meeting.

RESOLUTION #4

WHEREAS Dennis L. Oldenstadt has served some 20 years as Associate Director of the Agricultural Research Center at Washington State University in Pullman, and

WHEREAS during his tenure at Washington State University, Dr. Oldenstadt has been an active and significant participant in the Western Association of Agricultural Experiment Station Directors, and

WHEREAS Dr. Oldenstadt has served the Association in many capacities, including administrative advisor to various regional research and coordinating committees, co-chair of RPG-6, member of the Executive Committee, Secretary, Chairman-elect and Chairman, and

WHEREAS Dr. Oldenstadt has served as a member and chairman of the region's Research Implementation Committee (RIC) and as one of the region's representatives to the USDA's Committee of Nine, and

WHEREAS Dr. Oldenstadt has been designated as the region's representative to other bodies and organizations within the agricultural research community, including co-chair of the Western Agricultural Research Committee which simultaneously carried representation of this Association on the Western Regional Council and of the region on the National Agricultural Research Committee, and

WHEREAS Dr. Oldenstadt has represented the region on the Experiment Station Committee on Organization and Policy (ESCOP) and numerous of its standing and ad hoc committees, including most recently the ESCOP committee to review the National Beef Board's provision for research agreements related to that Board's check-off program, and

WHEREAS Dr. Oldenstadt has elected to retire from his position at Washington State University and, thus, discontinue his participation in this Association; now therefore, be it

RESOLVED, that the Western Association of Agricultural Experiment Station Directors, meeting at Newport, Oregon in June 1990, extend its appreciation and gratitude to Dennis L. Oldenstadt for his extensive and significant service to agricultural research and to this Association; and extend to Dr. Oldenstadt best wishes for his future endeavors; and be it further

RESOLVED, that the original of this resolution be conveyed to Dr. Oldenstadt, and that a copy be included in the minutes of this June 1990 meeting.

RESOLUTION #5

WHEREAS the Western Association of Agricultural Experiment Station Directors has met in Newport, Oregon in June 1990, and

WHEREAS the site of and arrangements for the meetings have contributed immeasurably to the ambience and facilitated the conduct of the program and business of this Association, and

WHEREAS the opening reception, the tour of the Hatfield Marine Science Center, the Oregon wines social, the dinner cruise, salmon barbecue as well as special activities arranged for spouses and guests of participants have added special dimensions to these summer meetings, and

WHEREAS Dean Roy Arnold, Director Thayne Dutson, Associate Directors Ling-Jung Koong and V. V. Volk, their spouses and support staff devoted countless hours to the planning of and arrangements for these meetings; now therefore, be it

RESOLVED, that the Western Association of Agricultural Experiment Station Directors, meeting at Newport, Oregon in June 1990, express its appreciation to Dean Roy Arnold, Director Thayne Dutson, Associate Directors Ling-Jung Koong and V. V. Volk, their spouses and support staff for their extraordinary efforts that brought such positive results; and be it further

RESOLVED, that this resolution be transmitted to Dean Arnold, Director Dutson and Associate Directors Koong and Volk, and that a copy be included with the minutes of the June 1990 meeting.

36.0 Adjournment

The motion was made and seconded to adjourn the meeting. MOTION CARRIED.

Wednesday, June 27, 1990

8:00 Joint Meeting - All groups

12:00 LUNCH

1:00 16.0 Extension/Experiment Station Joint Session L. Luft/D. E. Schlegel

1:10 16.1 Communications Procedures and Equipment for Extension
and Research J. Poley/K. Gamble

16.2 Research Base for Extension, Especially the Social Sciences

2:00 16.1.1 Extension's Needs P. Larsen

2:30 16.1.2 Research's Ability to Meet Extension's Needs J. J. Zuiches

3:00 BREAK

3:15 16.3 ECOP/ESCOP New Directions F. Poston/D. E. Schlegel

4:15 16.4 Open Discussion L. Luft/D. E. Schlegel

- Jointly administered programs, e.g., sustainable agriculture, water quality, pest control, etc.

- Increasing/enhancing joint extension-research efforts

- Other issues of importance to participants - please alert one of the two leaders in advance, if possible, of a topic you wish to discuss or have discussed

5:00 ADJOURN FOR DAY

Thursday, June 28, 1990

8:00 17.0 CARET Interaction L. Pedrett/D. E. Schlegel

9:45 BREAK

10:15 18.0 Western CAHA Interaction D. J. Matthews/D. E. Schlegel

12:00 LUNCH

19.0 Research Planning Activities

1:00 19.1 W. Agricultural Research Committee R. D. Heil

1:10 19.2 National Agricultural Research Committee L. L. Boyd

1:20 19.3 National Research Planning Group L. L. Boyd

1:30 19.4 National Initiative J. J. Zuiches/L. L. Boyd

20.0 ESCOP Committee Reports

1:40 20.1 ESCOP R. D. Heil

1:50 20.2 ESCOP Leadership Development T. R. Dutson

2:00 20.3 ESCOP Pest Control Strategies G. W. Ware

20.4 ESCOP Research Planning & Budgets Subcommittee

2:10 20.5.1 ESCOP FY91 Budget Group J. J. Zuiches/Ken Farrell

2:20 20.5.2 ESCOP FY92 Budget Group H. F. McHugh/L. L. Boyd

2:30 20.5.3 ESCOP Special Initiatives G. A. Lee/D. E. Schlegel

2:40 21.0 Discussion of Joint Meetings Planning & Other Regional
Cooperation Issues D. E. Schlegel

3:00 BREAK

3:30 22.0 Discussion of Full Time ESCOP/SAES/ECOP
Representation in Washington, DC D. E. Schlegel/L. L. Boyd

3:45 23.0 DAL Report L. L. Boyd

4:15 24.0 W. Region Publications Policy H. F. McHugh

4:25 25.0 National Meetings Reports Volunteers

5:00 ADJOURN FOR DAY

Friday, June 29, 1990

| | | | |
|-------|------|--|----------------------------|
| 8:00 | 26.0 | Western Rural Development Center | R. Youmans |
| 8:15 | 27.0 | Users Advisory Board | L. L. Boyd |
| 8:25 | 28.0 | Animal Care Guidelines Update | C. C. Kaltenbach |
| | 29.0 | Interregional Project Activities | |
| 8:35 | 29.1 | IR-1 Report | V. V. Volk |
| 8:45 | 29.2 | IR-2 Report | J. J. Zuiches |
| 8:55 | 29.3 | IR-4 Report | G. W. Ware |
| 9:05 | 29.4 | IR-5 Report | D. M. Briggs |
| 9:15 | 29.5 | IR-6 Report | H. F. McHugh |
| 9:25 | 29.6 | IR-7 Report | R. D. Heil |
| 9:35 | 30.0 | Off-the-top Funding Issues | D. E. Schlegel/J. R. Welsh |
| 9:45 | | BREAK | |
| 10:00 | 31.0 | State Activities Reports | |
| 10:30 | 32.0 | Election of Officers | |
| 10:45 | 33.0 | Future Meetings | |
| 11:00 | 34.0 | Other Business | |
| 11:30 | 35.0 | Resolutions | |
| 11:45 | 36.0 | Adjournment | |

APPENDIX B

WESTERN DIRECTORS' SPECIAL ACCOUNT
FINANCIAL REPORT
ASSESSMENTS AND INCOME
FY 1990

22-Jun-90

| ITEM | ASSESSMENT | INCOME | EXPENSE | BALANCE |
|----------------|------------|-----------|---------|-----------|
| JULY 1 BALANCE | | | | 6,151.99 |
| ALASKA | 793.40 | 793.40 | | 6,945.39 |
| ARIZONA | 1,415.94 | 1,415.94 | | 8,361.33 |
| CALIFORNIA | 2,198.18 | 2,198.18 | | 10,559.51 |
| COLORADO | 1,588.36 | 1,588.36 | | 12,147.87 |
| GUAM | 772.53 | 772.53 | | 12,920.40 |
| HAWAII | 1,037.52 | 1,037.52 | | 13,957.92 |
| IDAHO | 1,253.50 | 1,253.50 | | 15,211.42 |
| MONTANA | 1,326.10 | 1,326.10 | | 16,537.52 |
| NEVADA | 1,019.37 | 1,019.37 | | 17,556.89 |
| NEW MEXICO | 1,056.58 | 1,056.58 | | 18,613.47 |
| OREGON | 1,608.33 | 1,608.33 | | 20,221.80 |
| UTAH | 1,347.88 | 1,347.88 | | 21,569.68 |
| WASHINGTON | 1,542.99 | 1,542.99 | | 23,112.67 |
| WYOMING | 1,189.07 | 1,189.07 | | 24,301.74 |
| TOTAL | 18,149.75 | 18,149.75 | | 24,301.74 |

| DATE | TRANSACTION | INCOME | EXPENSE | BALANCE |
|-----------|-------------------------------------|--------|----------|-----------|
| | BALANCE | | | 24,301.74 |
| 01-SEP-89 | ZUICHES-DIV OF AG BUDGET MTG. | | 1,055.08 | 23,246.66 |
| 01-SEP-89 | G.LEE ESCOP-ORLANDO,D.C.,FAIRBANKS | | 3,330.70 | 19,915.96 |
| 22-SEP-89 | MUNTIFERING-ESCOV SPEC. INITIATIVES | | 567.35 | 19,348.61 |
| 22-SEP-89 | DREW-ESCOV-ORLANDO | | 1,143.21 | 18,205.40 |
| 18-OCT-89 | KOONG-ESCOV-DENVER | | 749.95 | 17,455.45 |
| 18-OCT-89 | ZUICHES-ESCOV BUDGET MTG-DENVER | | 732.35 | 16,723.10 |
| 16-NOV-89 | JULY INTEREST | 104.52 | | 16,827.62 |
| 16-NOV-89 | AUGUST INTERST | 100.50 | | 16,928.12 |
| 16-NOV-89 | SEPTEMBER INTEREST | 93.80 | | 17,021.92 |
| 16-NOV-89 | OCTOBER INTEREST | 103.18 | | 17,125.10 |
| 18-DEC-89 | NOVEMBER INTEREST | 95.14 | | 17,220.24 |
| 18-JAN-90 | DECEMBER INTEREST | 91.12 | | 17,311.36 |
| 02-FEB-90 | MC HUGH-ESCOV-D.C. | | 606.69 | 16,704.67 |
| 02-FEB-90 | ZUICHES-ESCOV-FAIRBANKS | | 1,521.00 | 15,183.67 |
| 14-FEB-90 | JANUARY INTEREST | 101.84 | | 15,285.51 |
| 14-FEB-90 | MUNTIFERING-ESCOV - ORLANDO | | 1,127.98 | 14,157.53 |
| 22-FEB-90 | ZUICHES-ESCOV-D.C. | | 757.66 | 13,399.87 |
| 13-MAR-90 | FEBRUARY INTEREST | 84.42 | | 13,484.29 |
| 26-MAR-90 | COLORADO STATE-MC HUGH TRAVEL | | 846.88 | 12,637.41 |
| 16-APR-90 | MARCH INTEREST | 91.12 | | 12,728.53 |
| 14-MAY-90 | WASH STATE-ZUICHES TRAVEL | | 1,568.18 | 11,160.35 |
| 14-MAY-90 | U OF ALASKA-DREW ESCOP TRAVEL | | 1,588.35 | 9,572.00 |
| 01-JUN-90 | APRIL INTEREST | 93.80 | | 9,665.80 |
| 01-JUN-90 | MAY INTERST | 93.80 | | 9,759.60 |
| 07-JUN-90 | CSU-HEIL TRAVEL-ESCOV-ALASKA,HAWAII | | 2,482.11 | 7,277.49 |
| 07-JUN-90 | IDAHO-GARY LEE-ESCOV | | 1,938.73 | 5,338.76 |
| | JUNE INTEREST | | | |

TOTALS

1,053.24

20,016.22

5,338.76

WESTERN DIRECTORS' AT LARGE ACCOUNT
FINANCIAL REPORT
ASSESSMENTS AND INCOME
FY1990

June 22, 1990

| ITEM | ASSESSMENT | INCOME | BALANCE |
|-------------------|----------------|----------------|----------------|
| JULY 1 BALANCE | | | 34,569.46 |
| AM.SAMOA | 500.00 | 500.00 | 35,069.46 |
| MICRONESIA | 500.00 | 500.00 | 35,569.46 |
| ALASKA | 6,406.03 | 6,406.03 | 41,975.49 |
| ARIZONA | 11,488.52 | 11,488.52 | 53,464.01 |
| CALIFORNIA | 17,874.84 | 17,874.84 | 71,338.85 |
| COLORADO | 8,696.17 | 8,696.17 | 80,035.02 |
| GUAM | 6,235.62 | 6,235.62 | 86,270.64 |
| HAWAII | 8,399.00 | 8,399.00 | 94,669.64 |
| IDAHO | 10,162.31 | 10,162.31 | 104,831.95 |
| MONTANA | 10,755.03 | 10,755.03 | 115,586.98 |
| NEVADA | 8,250.84 | 8,250.84 | 123,837.82 |
| NEW MEXICO | 8,554.60 | 8,554.60 | 132,392.42 |
| OREGON | 13,059.18 | 13,059.18 | 145,451.60 |
| UTAH | 10,932.83 | 10,932.83 | 156,384.43 |
| WASHINGTON | 12,525.72 | 12,525.72 | 168,910.15 |
| WYOMING | 9,636.29 | 9,636.29 | 178,546.44 |
| SUB TOTAL | 143,976.98 | 143,976.98 | 178,546.44 |
| COLORADO RENT | 4,200.00 | | |
| TOTAL | 148,176.98 | 143,976.98 | 178,546.44 |

INTEREST AND EXPENDITURES

| DATE | TRANSACTION | INCOME | EXPENSE | BALANCE |
|-----------|-------------------------------|----------|------------|------------|
| | BALANCE | | | 178,546.44 |
| 04-OCT-89 | TRANSFER OF FUNDS TO COLORADO | | 32,500.00 | 146,046.44 |
| 16-NOV-89 | TRANSFER OF FUNDS TO COLORADO | | 32,500.00 | 113,546.44 |
| 16-NOV-89 | JULY INTERST | 266.76 | | 113,813.20 |
| 16-NOV-89 | AUGUST INTEREST | 256.50 | | 114,069.70 |
| 16-NOV-89 | SEPTEMBER INTEREST | 239.40 | | 114,309.10 |
| 16-NOV-89 | OCTOBER INTEREST | 263.34 | | 114,572.44 |
| 18-DEC-89 | NOVEMBER INTEREST | 242.82 | | 114,815.26 |
| 18-JAN-90 | DECEMBER INTEREST | 232.56 | | 115,047.82 |
| 14-FEB-90 | JANUARY INTEREST | 259.92 | | 115,307.74 |
| 26-MAR-90 | TRANSFER OF FUNDS TO COLORADO | | 32,500.00 | 82,807.74 |
| 18-MAR-90 | MARCH INTEREST | 336.06 | | 83,143.80 |
| 15-APR-90 | APRIL INTEREST | 554.40 | | 83,698.20 |
| 15-MAY-90 | MAY INTEREST | 554.40 | | 84,252.60 |
| 07-JUN-90 | TRANSFER OF FUND TO COLORADO | | 32,500.00 | 51,752.60 |
| TOTALS | | 3,206.16 | 130,000.00 | 51,752.60 |

WESTERN DIRECTORS' AT LARGE ACCOUNT
FINANCIAL REPORT
ASSESSMENTS AND INCOME
FY1990

June 22, 1990

| ITEM | ASSESSMENT | INCOME | BALANCE |
|----------------|------------|------------|------------|
| JULY 1 BALANCE | | | 34,569.46 |
| AM. SAMOA | 500.00 | 500.00 | 35,069.46 |
| MICRONESIA | 500.00 | 500.00 | 35,569.46 |
| ALASKA | 6,406.03 | 6,406.03 | 41,975.49 |
| ARIZONA | 11,488.52 | 11,488.52 | 53,464.01 |
| CALIFORNIA | 17,874.84 | 17,874.84 | 71,338.85 |
| COLORADO | 8,696.17 | 8,696.17 | 80,035.02 |
| GUAM | 6,235.62 | 6,235.62 | 86,270.64 |
| HAWAII | 8,399.00 | 8,399.00 | 94,669.64 |
| IDAHO | 10,162.31 | 10,162.31 | 104,831.95 |
| MONTANA | 10,755.03 | 10,755.03 | 115,586.98 |
| NEVADA | 8,250.84 | 8,250.84 | 123,837.82 |
| NEW MEXICO | 8,554.60 | 8,554.60 | 132,392.42 |
| OREGON | 13,059.18 | 13,059.18 | 145,451.60 |
| UTAH | 10,932.83 | 10,932.83 | 156,384.43 |
| WASHINGTON | 12,525.72 | 12,525.72 | 168,910.15 |
| WYOMING | 9,636.29 | 9,636.29 | 178,546.44 |
| | | | |
| SUB TOTAL | 143,976.98 | 143,976.98 | 178,546.44 |
| | | | |
| COLORADO RENT | 4,200.00 | | |
| | | | |
| TOTAL | 148,176.98 | 143,976.98 | 178,546.44 |

INTEREST AND EXPENDITURES

| DATE | TRANSACTION | INCOME | EXPENSE | BALANCE |
|-----------|-------------------------------|--------------------|------------|------------|
| | BALANCE | | | 178,546.44 |
| 04-OCT-89 | TRANSFER OF FUNDS TO COLORADO | | 32,500.00 | 146,046.44 |
| 16-NOV-89 | TRANSFER OF FUNDS TO COLORADO | | 32,500.00 | 113,546.44 |
| 16-NOV-89 | JULY INTERST | 266.76 | | 113,813.20 |
| 16-NOV-89 | AUGUST INTEREST | 256.50 | | 114,069.70 |
| 16-NOV-89 | SEPTEMBER INTEREST | 239.40 | | 114,309.10 |
| 16-NOV-89 | OCTOBER INTEREST | 263.34 | | 114,572.44 |
| 18-DEC-89 | NOVEMBER INTEREST | 242.82 | | 114,815.26 |
| 18-JAN-90 | DECEMBER INTEREST | 232.56 | | 115,047.82 |
| 14-FEB-90 | JANUARY INTEREST | 259.92 | | 115,307.74 |
| 26-MAR-90 | TRANSFER OF FUNDS TO COLORADO | | 32,500.00 | 82,807.74 |
| 18-MAR-90 | MARCH INTEREST | 336.06 | | 83,143.80 |
| 15-APR-90 | APRIL INTEREST | 554.40 | | 83,698.20 |
| 15-MAY-90 | MAY INTEREST | 554.40 | | 84,252.60 |
| 07-JUN-90 | TRANSFER OF FUND TO COLORADO | | 32,500.00 | 51,752.60 |
| | | | | |
| TOTALS | | 215.46 3,206.16 | 130,000.00 | 51,752.60 |
| | | 3,421.62 | | 51,968.06 |

APPENDIX C

Cooperative State Research Service
Report to theWestern Agricultural Experiment Station Directors Meeting
June 26-29, 1990
Newport, Oregon

1. Strategic Planning Seminar: On June 19, 1990, leaders of the State Agricultural Experiment Station System assembled in the Longworth Building meeting room of the House Agriculture Committee. The occasion was a seminar about the ESCOP/CSRS strategic plan "Research Agenda for the 1990s." Formal presentations were made in the morning about the plan and what it means to agriculture and the Nation. In late afternoon, there was a reception with informal one-on-one interaction between members of Congress, staff, and research leaders. It was well attended by SAES leadership, Congressional staffers, and a considerable number of Congress members came to the reception. Dr. Neville P. Clarke and ESCOP are to be congratulated for all of their efforts that made this event a great success.
2. 1991 Budget. The White House and Congress are continuing to hold "Budget Summit" discussions to decide on how the Gramm-Rudman-Hollings target for 1991 can be met. There is a possibility that some across-the-board cut will be needed but it is too soon to speculate on this. Some of the House Appropriations Subcommittees have started to mark up the appropriations bills, however, the Agriculture Appropriations Subcommittee has not yet scheduled a mark-up session. The Senate has not taken action on any appropriations bills and will likely wait for House action.
3. The National Research Initiative. The Department's Program Plan for the Initiative was sent to all Directors in January 1990. Assistant Secretary, Charles E. Hess, has established a Board of Directors within the Department of Agriculture to assist in carrying out the program. It includes the Administrators of the Science and Education Agencies plus the FS and ERS, the Chief Scientist of the Competitive Grants office and the Associate Administrator for the Office of Grants and Program Systems. Dialogue with leaders in the Congress indicates a high level of awareness and support. Continuing dialogue on the Initiative with your faculties, State constituents, and Congressional delegations are essential to its success. It is a great total system effort!
4. 1992 Budget. The CSRS budget request for 1992 is due in the USDA Budget Office on July 5 and a formal presentation to the Deputy Secretary is scheduled for July 26. The Department will then submit its budget request to OMB on September 1.

5. Secretary's Honor Awards. We are all proud of the outstanding individuals who represented the State Agricultural Experiment Station System in this year's USDA Honor Awards at the June 13, 1990, ceremony. Secretary Yeutter presented 6 awards that honored 15 individuals from this system. Our thanks to all who contributed to the 35 outstanding nominations we received.

6. 1990 Farm Bill. The full House Agriculture Committee finished mark-up of the 1990 Farm Bill in mid-June. The Senate Agriculture Committee finished its work on the Science and Education title in April. Some important changes in the Senate version are a new statement of purpose, a requirement for a regulation to enforce the purpose, a Joint Council dominated by Federal members, a new technology review board, and a second level of review for competitive research grants. Floor action may begin in the House this month, but is not expected in the Senate until July.

7. OMB Site Visits. Leaders from OMB joined Assistant Secretary Charles E. Hess and me on visits to Mississippi State University and the University of Florida June 14 and 15. We were looking at forestry research programs and the relationships among McIntire-Stennis, State, Forest Service, Industry and Competitive Research Grant funding and programs. Our hosts made excellent presentations of their forestry research efforts.

8. Water Quality Research. Four merit review panels evaluated 266 proposals in national competition. For final ranking, and to ensure equal regional distribution of funds, top-scoring proposals from each panel were evaluated by a final panel (comprised of members from the previous panels) selected to equitably represent subject areas. Forty-six proposals were recommended for funding. All P.I.s including those not selected have been contacted and the successful P.I.s are proceeding, while the awards processing is being completed. A summary of distribution follows:

North Central (9) - Iowa, Illinois, Indiana, Michigan (2), Missouri, Ohio, Wisconsin (2);

Northeast (11) - Connecticut, Delaware, Massachusetts, Maryland, New York (4), Pennsylvania (2), West Virginia;

South (13) - Arkansas, Florida, Georgia, Kentucky, Louisiana (2), Mississippi, North Carolina (2), Tennessee, Texas, Virginia (2);

West (13) - Arizona, California (4), Colorado (2), Hawaii (2), Idaho, Oregon, Utah, Washington.

- 3 -

Most are multi-disciplinary and many are multi-State and multi-institutional. Over 40% of the selections include non-traditional collaborators with two being non-profit and private. Funding in each region was \$1,153,880 with the North Central amount being a part of the Midwest Initiative. A listing of selected projects has been sent to all Directors.

A CSRS-ARS joint Request for Proposals from the North Central region for the Midwest Initiative on Water Quality produced 13 proposals for Management Systems Evaluation Areas (MSEA). Five were recommended for funding by a panel comprised of scientists from land-grant institutions, ARS, USGS, and EPA (all outside the NC region). MSEAs were selected to cover a range of crop, soil, climate, geologic materials, aquifer conditions, and multi-agency collaboration. FY 1990 grants for the five MSEAs will be \$320,000 each, with \$55,500 going to support a CSRS/SAES representative (Dr. William Larson, University of Minnesota). Funding of the MSEA research is being shared by States, CSRS, ARS, and USGS, with EPA hoping to contribute by FY 1992. The Extension Service, CES, and SCS are planning cooperative activities. Investigators have had two meetings involving all agencies and are now developing detailed plans. Drs. Larson, Chuck Onstad (ARS), and Mike Burkhart (USGS) comprise the Midwest Management Team and will ensure cooperation in planning and implementation, and compatibility in sampling, and analytical procedures. The overall structure for coordination will include State, Federal, and private representation.

9. Science Ethics. The Office of Science and Technology Policy has convened a government-wide committee to address issues of ethics in science. We are participating to gain insight on how other Federal agencies are approaching concerns in this area. All of the Federal agencies with significant research programs are involved. CSRS has established a committee to define policies and procedures for its programs in the area of science ethics. ESCOP has named Dean and Director James R. Fischer (SC) and Distinguished Professor of Plant Breeding, Dr. K. J. Frey (IA), as representatives to this committee.

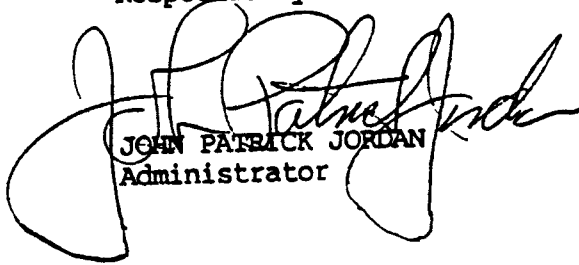
10. Personnel. Dr. Tihira Hira returned to Iowa State University on June 1, 1990, after a six-month stay with CSRS as Home Economist. Applications for the permanent position have been received and a panel is to meet in late June.

Dr. George E. Cooper has joined the CSRS Plant and Animal Science Staff as Principal Animal Scientist under an IPA agreement with Alabama A&M University. Dr. Cooper is Professor of Ruminant Nutrition and has had extensive experiences in research, international program development and program administration in the land grant university setting. His

employment experiences have included Tuskegee University where he served as a faculty member and Dean; Winrock International where he served as ruminant nutritionist; and Alabama A&M University where he served as Vice President for Academic Affairs and Executive Assistant to the President. He received his B.S. from Florida A&M University, M.S. from Tuskegee University and Ph.D. from the University of Illinois.

Dr. Henry T. Tyrrell has recently joined the CSRS Plant and Animal Science Staff as Principal Ruminant Nutritionist. Dr. Tyrrell comes from the ARS Ruminant Nutrition Laboratory in Beltsville, Maryland, where he has conducted research on energy metabolism of dairy and beef cattle. He received his BS degree from Iowa State University followed by M.S. and Ph.D. from Cornell University. He was a member of the faculty of the Department of Animal Science at Cornell prior to joining ARS.

Respectfully submitted,



JOHN PATRICK JORDAN
Administrator

APPENDIX D

WESTERN DIRECTORS MEETING
REPORT FROM THE AGRICULTURAL RESEARCH SERVICE
Pacific West, Northern Plains and Southern Plains Areas
June 1990

PACIFIC WEST AREA:

Dr. Ralph Nave will join the Pacific West Area office in late July as the Assistant Area Director. Ralph is currently on the National Program Staff as the National Program Leader for Engineering and Production Systems. He spent much of his research career at Urbana, Ill as a member and Research Leader of the Soybean Breeding and Production Research Unit. During this time, he developed improved soybean planting equipment and has investigated reduced tillage systems for soybeans and corn.

Dr. Wendell Snow has been detailed to the Acting Lab Director position of the Tropical Fruit and Vegetable Lab in Hawaii while we recruit for a Lab Director. Wendell is currently the Lab Director of the Southeastern Fruit and Tree Nut Research Lab in Byron, Georgia.

Major changes have been made in leadership and the organization at the Water Conservation Lab at Phoenix. Dr. Al Dedrick has become the Lab Director. The Lab now has two research units with Dr. Bruce Kimball the Research Leader of the Environment and Plant Dynamic Research Unit and Dr. Al Clemmens the Research Leader of the Irrigation and Water Quality Research Unit. Dr. Herman Bouwer and Dr. Ray Jackson, the two supergrades at the Lab will be assigned as Chief Engineer and Chief Scientist, respectively.

SOUTHERN PLAINS AREA:

The Range Management Unit at the Jornada Experimental Range, Las Cruces, NM, is producing a video tape on concepts and applications of the unit research program. This 10 minute tape will target a decision-maker audience, but will have the potential to be edited for general public and academic audiences. The general goal is to effectively communicate the values and utilities of rangeland research. A specific goal is to illustrate the positive role of managed production deadline is the fall, 1990.

NORTHERN PLAINS AREA:

We believe it is time to take the initiative regarding soil, water, crop and range research for the Great Plains. We have been working with scientists, ARS and State Experiment Stations, ranchers and farmers to get a pilot program underway. This Proposed research will emphasize sustainability and profitability and require farmer-rancher involvement as well as the participation of several State and Federal agencies including the Soil Conservation Service and the Extension Service. We feel strongly that a revitalization of the overall Great Plains research on crops and rangeland is essential and overdue.

APPENDIX E

U. S. FOREST SERVICE RESEARCH REPORT TO
 WESTERN ASSOCIATION OF AGRICULTURAL EXPERIMENT STATION DIRECTORS
 Newport, Oregon
 June 25-29, 1990

The four Western Forest Service Research Stations report the following.

INTERMOUNTAIN RESEARCH STATION--Ogden, UT (ID, MT, NV, UT, western Wyoming)

The Intermountain Station has sent its strategic plan out for review. The plan lists research activity in three areas in which the Station has some unique capabilities, and which will continue to receive emphasis. They are: 1.) fire management, 2.) rangeland ecology, and 3.) wilderness management.

Other research problem areas targeted for emphasis are:

1. Ecological values (As pressures for balanced multiple use and preservation increase, new research is needed to address the new perspectives the Forest Service wishes to address in its resource management programs.)
2. Global change
3. Water quality
4. Threatened, endangered, and sensitive species
5. Survey and monitoring ("Survey" refers to inventorying forest resources. "Monitoring" refers to determination of trends and evaluation of forest practices.)

ROCKY MOUNTAIN RESEARCH STATION--Fort Collins, CO (AZ, CO, KS, ND, NE, NM, SD, WY)

Strategic planning within the Rocky Mountain Station has tentatively identified seven research program thrusts: Water, Wildlife, Range, Recreation and other amenities, Conservation Forestry, Landscape Diversity, and Forest and National Planning. These research program areas will specifically address forest and rangeland management problems in the Central Rocky Mountains, Great Plains, and Southwestern United States.

We have proposed the establishment of a center for semiarid agroforestry research, development, and technology transfer under the direction of the U.S. Forest Service at Lincoln, Nebraska. The umbrella program, involving USDA agencies, Great Plains universities, and state forestry agencies will accomplish the following:

- Develop semiarid agroforestry systems that will minimize topsoil loss and water contamination while stabilizing and maintaining crop productivity and farm income.
- Adapt, demonstrate, document, and model the effectiveness of agroforestry on a variety of sites within the Great Plains.

- Develop genetically stress-resistant and pest-resistant trees for windbreaks that will have a longer effective lifespan.
- Develop conservation forestry technologies to lessen drought impacts, conserve soil and water, protect environmental quality, and enhance wildlife habitat and biodiversity.
- Increase farmer and public acceptance and use of vegetative soil and water conservation systems.

Through the Center's coordinated program of research, development, demonstration, technology transfer, promotion, and internal exchange, we estimate that the 20-year program, in combination with existing cost-share programs, could convert 12 million of the 48.2 million acres of highly wind-erodible land in the Great Plains to agroforestry, with an average benefit:cost ratio of 170 and net present value (4 percent) of \$10.88 billion. The program would cost \$5.5 million per year from years 1-10 and \$3.85 million per year from years 10-20.

Program elements would include: In-house research, extramural research, demonstrations, technology transfer, promotion, and international exchange.

PACIFIC NORTHWEST RESEARCH STATION--Portland, OR (AK, OR, WA)

PNW Research Station has laid ground work for three program emphasis in response to emerging issues. These include New Perspectives in Forestry: An Ecological Path for Forest Management, Pacific Northwest Social Values Consortium, and Blue Mountains Natural Resources Institutes.

New Perspectives in Forestry is the Pacific Northwest's new program of research, development, demonstration and applications using an interdisciplinary approach to develop alternative ways to manage forest lands. The incorporation of ecological and social values into stand and landscape level practices is expected to reduce future conflicts among competing economic, social, and environmental interests.

The Blue Mountains Natural Resources Institute. The State of Oregon and the Forest Service program development for a Blue Mountains Natural Resources Institute is to be headquartered at the Forest Service's Forestry and Range Sciences Laboratory in La Grande, Oregon. The RD&A Program will be spearheaded by the Blue Mountains Natural Resources Institute. The Institute will provide information for resolution of natural resource issues in northeastern Oregon and southeastern Washington, as well as providing initial leadership in development and implementation of the wider Interior Forest and Rangeland RD&A Program.

The Pacific Northwest Social Sciences Consortium has been established to address two areas of emphasis. One is to determine the values a cross section of society holds related to natural resource use and management of public and private lands. The second is to devise efficient and effective ways to directly involve representatives of all interest into policy development and management of public lands.

PACIFIC SOUTHWEST RESEARCH STATION--Berkeley, CA (CA, HI)

The Station has identified six areas for research emphasis in its 10 year strategic plan. These include: Global Change, Tropical Forestry, Water Resources and Aquatic Habitat, New Perspectives in Forestry, Social Aspects of Wildland Management, and Basic Natural Science. Implementation plans are currently being developed for each area with outside input including universities.

Within these areas we plan to expand our research on:

- Effect of temperature and CO₂ increases on forest and range communities.
- Restoration of native tropical forest ecosystems.
- Cumulative watershed effects, especially on fish.
- Alternatives to clearcut timber harvesting and their impacts.
- Protection of long term site productivity.
- Ensuring biological diversity.
- Coping with people in the wildland/urban interface.

Concurrently, we will be reducing our emphasis on forest protection.

The Station has been making a concerted effort to diversify our work force and currently has 54 percent females and 25 percent minorities. We still need higher qualified women and minorities and here universities can help through encouraging advanced degrees for these people. In many cases, the Forest Service can help finance their research programs.



LAURENCE E. LASSEN
Forest Service Representative to WDA

Office of the Dean
College of
Veterinary Medicine



Corvallis, Oregon 97331-4802

(503) 737-2098

ANIMAL HEALTH AND DISEASE

Western Association of Agricultural Experiment Station Directors

Loren D. Koller
AAVMC Representative
June 27, 1990

- o American Association of Veterinary Medical Colleges supports the National Initiative for Research on Agriculture, Food, and Environment

\$150 million (FY 91 CARAFE request)

- o Research Priorities

Animal Well-Being

Better understanding of the determinants of animal well-being and their interrelationships with animal health is needed to optimize the comfort, performance and productive lifetimes of agricultural, companion, wild and research animals.

Food Safety

Improved methodology is needed to identify and control contaminants at food animal (livestock, poultry and fish) production points and throughout the food chain, including surveillance, risk assessment and strategic interdiction of disease spread.

Molecular and Cellular Biology

Knowledge of basic biologic processes and pathophysiological mechanisms is an essential foundation for applied research on diagnosis, treatment and control of animal diseases.

Population Health

To develop cost effective means of prevention and control, research is needed to establish and analyze data for identification of factors which impact the health and well-being of animals and the economics of livestock production.

Veterinary Medical Research on Animal Health, Food and Environment

The Association of American Veterinary Medical Colleges (AAVMC) and the American Veterinary Medical Association (AVMA) strongly support the National Initiative for Research on Agriculture, Food and Environment. They support both the *Presidential Initiative* and the *CARAFE* recommendation of \$30 million for Competitive Research on Animal Systems in FY-1991.

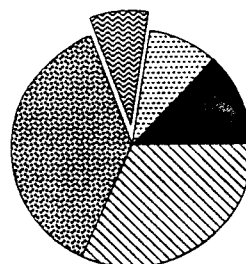
Importance of Animal Systems Research

- 35% of Energy and 67% of Protein in Human Diet Comes from Animals and Their Products.
- Half of the U.S. Agriculture Incomes Comes From Livestock and Livestock Products
- Animal Health Problems Cost American Agriculture a Minimum of \$15 Billion Loss Each Year

Veterinary Medical Research Contributes To:

- Improved Animal Health and Animal Well-Being
- Control and Prevention of Disease in Both Individual Animals and Populations of Animals
- Control of Animal Diseases Transmissible to Humans
- Safe Foods and Protection of the Environment
- Increased Profitability of American Agriculture
- Improved International Markets for American Livestock
- Advances in Biomedical Sciences and Biotechnology

Federal Support of Agricultural Animal Research is Very Low (7.6% of Total Veterinary Medical Research)

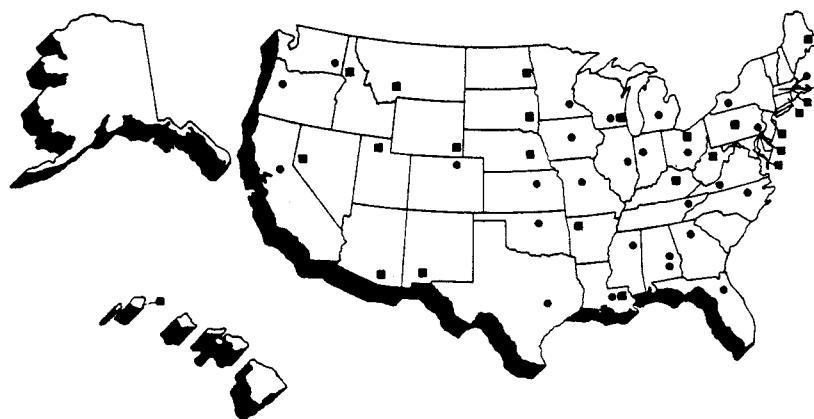


| | | |
|--|--------------------------|-------|
| | Federal Agriculture | 7.6% |
| | Federal Non-Agriculture | 37.7% |
| | State Sponsored | 28.8% |
| | Non-Government Sponsored | 14.5% |
| | Other | 11.4% |

Major Veterinary Medical Research Priorities

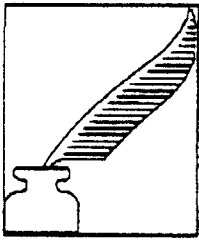
- Cost effective Prevention and Control of Animal Disease
- Understanding of Basic Biologic Processes and Mechanisms of Disease
- Knowledge of Determinants of Animal Well-being and Their Relationships With Animal Health
- Improved Food Safety Through Containment of Contaminants and Control of Disease Agents
- Knowledge of Impact of Environmental Change on Animal Populations, Causes and Vectors of Disease and Interaction of Animal Ecosystems

Primary Locations of University-based Veterinary Medical Research



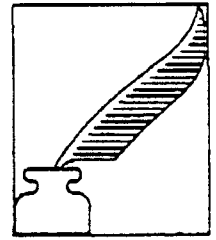
- Colleges or Schools of Veterinary Medicine
- Departments of Veterinary or Animal Science

APPENDIX G



MEMO

June 22, 1990



TO: DIRECTORS, WESTERN AGRICULTURAL
EXPERIMENT STATIONS
FROM: TERRY L. NIPP
DIRECTOR, WATER QUALITY, NASULGC
TOPIC: WATER QUALITY UPDATE: LEGISLATION AND
APPROPRIATIONS

WATER QUALITY

FARM BILL

Senate

- * The Senate Agriculture Committee completed mark-up on the Research and the Conservation components of the Farm Bill a month or so ago. They would have finished the complete bill, but they got stuck on commodity support programs. They were about 1% away from their budget target, but several Senators would not compromise and they returned to "square 1" on their negotiations. They completed the mark-up on the commodity programs last night (Thursday, June 21, 1990). They are planning to get the Farm Bill through the Floor in several days, after the July 4th recess.
- * The water quality component in the Research Title was reorganized slightly, but essentially stayed in tack. The original language paralleled that in Congressman Grandy's groundwater bill. The Subtitle on research included a list of topical areas that need to be studied. This list essentially summarizes the ESCOP/ECOP Task Force on Groundwater Quality report: **Groundwater Quality & Management (1985)**. It requires that each State develops a prioritized Research agenda, but it essentially utilizes the structures available through CSRS. The language authorizes that not less than \$20 million a year shall be spent through CSRS to the States on water quality, a similar amount is available through ARS.
- * A number of mandates are provided for the Extension Service to develop national education programs, including the areas of: water quality management, consumer education, dealer education, pesticide management and nutrient management. Authorizations for not less than \$56 million is provided for these new programs. In addition, State Water Quality

MEMO: June 22, 1990

Terry L. Nipp

coordinators are established. An extension service position would be funded in each state, to facilitate coordination, communication, and outreach programs. \$10 million is authorized. The coordinators would not have legal authority over other agencies, nor would they get in the way of other agencies, such as SCS. At one point, USDA expressed a preference for the State coordinator to be an SCS person, sense they have "direct line" authority in SCS.

- * A voluntary "Water Quality Incentive" program was introduced by Senator Harkin. It provides several thousand dollars to a producer to adopt technologies that will protect water quality. The requirements are a little vague.

House

- * The House Subcommittee (DORFA) essentially completed mark-up on the Research Title. The components dealing with sustainability and water quality were left open, pending the outcome of mark-up of the Conservation Title. Full Committee mark-up of the Research and Conservation Titles was delayed by debates over the commodity programs. The commodity subcommittees came to the full Committee with a programs that were collectively \$13 billion or so over budget. The Chairman insisted that they get under budget, out of concern for what would happen on the Floor if they didn't.
- * Meanwhile, considerable difficulty and confusion developed over the Conservation Title. Just before the Conservation Subcommittee went to mark-up the draft they had been working on, the Chairman of the full Committee introduced an alternative bill that would effectively superceded the subcommittee's bill. While the staffs were desperately attempting to sort out the two bills, the environmental community made it clear that they were not at all happy with either and a third version was drafted behind closed doors. The environmentalists repeatedly threatened a floor fight, were they would have greater influence. The commodity groups responded in kind. In the ensuing fight and confusion, the draft vehicle was not completed until 4:00 a.m. the day of mark-up. The Committee went into a closed-door caucus so that staff could bring the members up-to-speed on the negotiations, mark-up was supposed to begin two hours latter. Four hours latter they had gotten to page 6! Debate was intense. Members and staff worked late into the night for the next several days. The final mark-up was completed at 2:00 a.m. last week.
- * In the midst of all of this, the original Grandy language on water quality that came out of the Subcommittee was substantially altered, in part to make it fit with developments in the Conservation Title. I was able to work (argue) extensively with staff as the new language was developed. The

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research component for water quality was abbreviated, but not substantively changed. The section providing mandates for the Extension Service to develop national education programs disappeared. However, we were able to go back in and put in sentences here and there that provided the essential mandate for each type of program, and then regain the description of the programs in the report language.

- * The groundwater "czar" that was in the Grandy language was changed. Grandy had a coordinator reporting to the Deputy Secretary on groundwater policy. Chairman de la Garza picked up the Grandy language, replaced "groundwater" with "environment" and created an "Environmental Emperor" that reports directly to the Secretary. The Emperors responsibilities are a little vague.
- * At this point, the final approved version of the draft has not been released. I hope to have a final "clean" draft from staff at the beginning of next week (June 25th). At that time I will do a "side-by-side" of the House and Senate versions on water quality. I will work with Jim Anderson, Ben Jones, John Woeste, Bob Christensen and other appropriate individuals to get a background piece out to the Directors. This should be available before the bills go to the respective floors, and before they begin the Farm Bill Conference. I believe that we will want to make specific recommendations on how the Senate and House versions are integrated, and staff are already asking for our input.

OTHER LEGISLATION

- * As if all of the Farm Bill activities were not enough, Senator Burdick has been moving his water quality legislation through hearings and the Committee. This is an omnibus bill that addresses USGS, EPA and USDA. I will need to take another look, but the last version did not have anything onerous to our communities. It will have to work through a number of other Committees so its life expectancy is not too high at this time.

APPROPRIATIONS

- * At the request of some of the appropriations staff, I put together a notebook containing background information on the water quality initiative. The notebook basically had 6 parts --
 - Some facts and talking points on water quality, to serve as references and as background material for speeches, answers to constituent questions, etc.
 - A short history of the water quality initiative, as it started in

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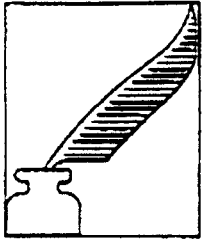
Terry L. Nipp

the States to the President's Initiative.

- A synopsis of the new water quality funds that have been available to State researchers and extension agents.
- A description of the logic underlying the allocation of these new appropriations, along with specific breakdowns by States.
- A sampler of some of the Extension materials being developed in the States, to serve as a reference and an example of products.
- If available, some specific samples of products being developed in the Member's home state.

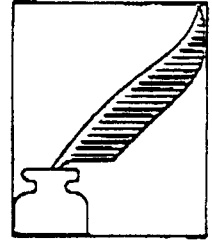
An abbreviated version of the notebook is being sent to each of the Directors.

- * I provided a copy of the notebook to each staff person working on agricultural appropriations. I walked them through the notebook. The response was very favorable. I left room in the notebook for more materials and let them know that I would be back with supplements as they were available. Fortunately, I able to catch a number of the staff as they were writing their member's request letters to their Committee chairmen.
- * The House Appropriations Committee received their budget allocations last week. There have been repeated rumors that they might go to mark-up any day. One of Whitten's staff finally said, "We'll go to mark-up before the July 4th mark-up, or afterwards!" When pressed, he wouldn't rule-out mark-up during the holiday. So, we'll have to keep watching. Senate staff plan to mark-up a few weeks after the House does, whenever that is.



MEMO

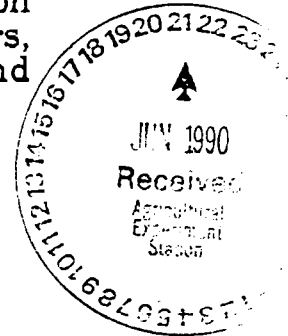
June 18, 1990



TO: State Agricultural Experiment Station
and Extension Service Directors,
Agriculture Administrators and
members of CARET

FROM: Terry L. Nipp
Director, Water Quality, NASULGC

TOPIC: Water quality appropriations



A number of Congressional appropriations staff requested background information on the water quality initiative. The most perennial questions included the familiar: What did you get last year? What did you do with the money you got last year? What will you do with new money if you get it? Consequently, I put together a notebook that tried to address these fundamental questions. The notebook basically had 6 parts --

- Some facts and talking points on water quality, to serve as references and as background material for speeches, answers to constituent questions, etc.
- A short history of the water quality initiative, as it started in the States to the President's Initiative.
- A synopsis of the new water quality funds that have been available to State researchers and extension agents.
- A description of the logic underlying the allocation of these new appropriations, along with specific breakdowns by States.
- A sampler of some of the Extension materials being developed in the States, to serve as a reference and an example of products.
- If available, some specific samples of products being developed in the Member's home state.

For your reference, I am including a copy of the basic contents of this notebook. To reduce copying, I am providing only the cover pages of the resource documents that were included. There was some variation from office to office, as I had to use what was available at the time I was going into visit different staff members. The enclosed bumper sticker was trimmed and attached to the side of the notebook so that staff would have no trouble relocating it in their piles. Staff seemed amused, but appreciative.

One expects staff to make generically favorable comments, but the response to the notebooks has seemed genuinely enthusiastic. Many of the staffers have pointed out that they get a flood of information, the problem is finding the information when they need it. The staff have been attentive and asked pertinent questions as I've walked them through the notebooks. Not surprisingly, they have always been particularly interested in any inclusions that were developed in their home states.

I would like to thank those that sent me materials, as always, with very short notice. I would request that those of you who have materials that you think should be included in the next go around to get copies to me. I need about 25 originals. Room was left in the notebooks! And I explained that I would be back with more material as it was available. Please pass along your comments and suggestions. And please, remember to remind your members of the importance of State research and extension efforts to protect water quality.

Water Quality Proposals Not Funded After Ranking by the Final Review Panel*
Summarized by Research Problem Area and by Region - [dollar amount and (number of proposals)]

| Research Problem Area | NE | NC | S | W | Totals |
|---|---------------------|---------------------|-------------------|-------------------|---------------------|
| Source, Assessment, Prevention - soil testing, interpretation and recommendation, N sources and management, sampling - measurement and evaluation, storage, handling, application | \$189,000 (2) | \$430,000 (4) | 0 | 0 | \$ 619,000 |
| Persistence, Disappearance, Transport - transformation and transport models; pesticide and nutrient mobility, transport, plant uptake, degradation | 150,000 (2) | 442,000 (5) | 330,000 (3) | 469,000 (5) | \$ 1,391,000 |
| Agricultural Management/Water Quality - soil and water management, models, systems | 579,000 (5) | 250,000 (2) | 449,000 (3) | 298,000 (3) | \$ 1,576,000 |
| Remediation of Contaminated Soils and Water - transformations, microorganisms, biodegradation, interceptor strips, crop removal | 0 | 210,000 (2) | 164,000 (2) | 0 | \$ 374,000 |
| Sociological and Economic Implications - economic costs and returns | 100,000 (1) | 38,000 (1) | 0 | 0 | \$ 138,000 |
| Totals | \$ 1,018,000 | \$ 1,370,000 | \$ 943,000 | \$ 767,000 | \$ 4,098,000 |

* 266 proposals were submitted for the FY 1990 Special Grants Water Quality Program; of those, 86 proposals were of sufficient quality to be forwarded to the final panel. The final panel prioritized these 86 proposals. Funds were available to fund 46. The 40 summarized above were not funded.

WATER QUALITY

State Agricultural
Research and Extension Efforts
to Protect our Nation's
Water Resources

Dr. Terry L. Nipp

Director, Water Quality

Office: (202) 675-4511
Fax: (202) 675-4512

515 4th Street, SE
Washington, D.C. 20003

*A project sponsored by the States' Experiment and Extension Service
Committees on Organization and Policy (ESCOP and ECOP), through the
National Association of State Universities and Land Grant Colleges*

Why this notebook?

The intent of this notebook is to provide background information on what is being done by the State Agricultural Experiment Stations and the State Extension Services to protect water quality. Why? Congressional staff get flooded with information, why one more package? Despite the data deluge, some staff have suggested that some of their more fundamental questions remain unanswered. This notebook is an attempt to pull together, in one place, some answers to popular questions like --

- How much money did you get last year?
- What did you do with the money you got last time?
- What will you do if you get more money?

The notebook includes some "fun facts" and talking points on water quality, a brief history on the Water Quality Initiative, a breakdown on past and proposed appropriations, a description of how the funds are being used, and some samples of some of the research and extension efforts that are underway. And, there's room for some of the other stuff that you've been collecting on water quality!

Terry L. Nipp

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| 6 | What's Going on Back Home |
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Tab 1

Fun Facts and Talking Points

Fun Facts and Talking Points

There is cause to be concerned about the movement of agricultural chemicals into ground and surface waters. The Department of Agriculture included the following statements in a background document for the 1990 Farm Bill discussions.

- As progress has been made in cleaning up point sources of pollution, the relative importance of nonpoint sources, including agriculture has increased.
- Data reported by State water agencies indicate that agricultural nonpoint sources cause 64 percent of all river degradation and 57 percent of all lake degradation.
- Pesticide contamination was reported to adversely affect 4,916 water body segments in 609 counties.
- Significant nutrient contamination was reported in 5,246 water body segments in 859 counties.
- Data indicate that, as of 1988, 46 pesticides have been documented as having entered ground water in 26 states as a result of normal field practices. Of the pesticides detected, 18 were at levels higher than the Environmental Protection Agency (EPA) health advisory level; seven of these have already been severely restricted or canceled.
- Data document that nitrate concentrations in 1,254 public water systems, which supplied water for about 1.7 million people, exceeded the maximum contaminant level during the period 1983 to 1988.
- EPA estimates that 1,921 of the 3,137 counties in the U.S. are highly or moderately vulnerable to groundwater contamination. Of these vulnerable counties, 340 are in areas of high agricultural pesticide use.



WATER RESOURCES

In cooperation with the Maryland Water Resources Research Center

Water Resources 18

Citizens' Guide to Environmental Terminology

William L. Magette
Extension agricultural engineer
Department of Agricultural Engineering

Introduction

In recent years, environmental issues have received considerable media coverage. Yet, because of the technical terms that often accompany such stories, it is sometimes difficult to analyze these reports.

This guide will provide you with a concise reference to many environmental terms used in the news, especially those referenced with water pollution issues. It is hoped that with this guide, you will be able to more objectively view not only popular press news items, but also technical reports that may be prepared at the local, state or national level.

Glossary

A

Absorption. The process of taking up one substance into the body of another, such as a sponge absorbing water.

Adsorption. Attraction and holding of one substance on the surface of another; this often involves the attraction of molecules in gases and liquids to the surface of a solid.

Acid Mine Drainage. Drainage of water from areas that have been mined for coal or other mineral ores; the water has a low pH, sometimes less than 2.0 (is acid), because of its contact with sulfur-bearing material; acid mine drainage is harmful because it often kills aquatic organisms.

Acid Rain. Precipitation that has a low pH (less than pH 5.6, which is normal for "natural" precipitation);

the precipitation becomes acidic when moisture in the air reacts with sulfur and nitrogen pollutants in the atmosphere; because of its low pH, acid rain has a harmful effect on some plants, soils and surface waters, buildings and, indirectly, on some organisms that live in surface waters.

Aerobic. Living or active only in the presence of oxygen (atmospheric air).

Aerobic Decomposition. To decay by aerobic microorganisms.

Aggregate. A mass or cluster of soil particles, often having a characteristic shape.

Agrochemical. Synthetic chemicals (pesticides and fertilizers) used in agricultural production.

Algae. Nonvascular plants, usually aquatic and capable of using carbon dioxide by photosynthesis; algae can also survive in damp soil.

Algal Bloom. Large, readily visible, masses of algae (usually green algae), found in bodies of water (usually lakes or ponds) during warm weather.

Algicide. Any substance that will kill or control algal growth.

Alkalinity. The capacity of water to neutralize acids by its content of bicarbonates, carbonates or hydroxides (alkaline substances).

Ammonium. One form of nitrogen that is usable by plants.

Anaerobic. Living or active in the absence of oxygen.

Anaerobic Decomposition. Reduction of organic matter by anaerobic microorganisms in an oxygen-free environment.



Cooperative Extension System

Drinking Water Standards

Water Quality Fact Sheet 1

Judith C. Stewart
Extension support aide

Ann T. Lemley
associate professor
College of Human Ecology
Cornell University

Sharon I. Hogan
communications consultant

Richard A. Weismiller
soil and water resource specialist
Department of Agronomy
The University of Maryland

When you fill a glass with water from your tap, you expect to drink water that is safe and pure. However, gases, minerals, bacteria, metals or chemicals suspended or dissolved in your water can affect your health and influence the quality of your water.

Drinking water supplied by municipal water systems is monitored for many contaminants. As authorized by the 1974 Safe Drinking Water Act and its amendments, the U.S. Environmental Protection Agency (EPA) has established limits on the concentration of certain drinking water contaminants allowed in public water supplies. These limits, or standards, are set to protect your health and ensure that your water is of good quality. In addition, your state has probably issued limits for specific drinking water contaminants.

Drinking Water Standards

Primary Drinking Water Standards

The EPA standards for drinking water fall into two categories—**Primary Standards** and **Secondary Standards**. Primary Standards are based on health considerations and are enforced by the EPA. They protect you from three classes of toxic pollutants: pathogens, radioactive elements and toxic chemicals. Primary Standards set a limit, called the **Maximum Contami-**

nant Level (MCL), on the highest allowable concentration of a contaminant in drinking water supplied by municipal water systems. The MCL is usually expressed in milligrams per liter (mg/L). Table 1 lists the current primary drinking water standards.

Secondary Drinking Water Standards

Secondary Standards regulate contaminants that cause offensive taste, odor, color, corrosivity, foaming and staining. The concentration limit is called the **Secondary Maximum Contaminant Level (SMCL)**. Secondary Standards are not enforced. They are guidelines for water treatment plant operators and state governments attempting to provide communities with the best quality water possible. Table 2 lists the current secondary drinking water standards.

How Standards Are Set

EPA regulators develop Primary Standards for drinking water contaminants based on three criteria:

- The contaminant causes adverse health effects.
- It is detectable in drinking water.
- It is known to occur in drinking water.

In setting Primary Standards for a drinking water contaminant, the government first looks at all the toxicolog-



Cooperative Extension System

Health Effects of Drinking Water Contaminants

Water Quality Fact Sheet 2

Judith C. Stewart
Extension support aide

Ann T. Lemley
associate professor
College of Human Ecology
Cornell University

Sharon I. Hogan
communications consultant

Richard A. Weismiller
soil and water resource specialist
Department of Agronomy
The University of Maryland

Chemical contaminants occur in drinking water supplies throughout the United States, ranging from barely detectable amounts to levels that could possibly threaten human health. Determining the health effects of these contaminants is difficult, especially since researchers are still learning how chemicals react in the body to damage cells and cause illness.

Possible Chronic Health Effects

Toxic doses of chemicals cause either acute or chronic health effects. An acute effect usually follows a large dose of a chemical and occurs almost immediately. Examples of acute health effects are nausea, lung irritation, skin rash, vomiting, dizziness and even death.

The levels of chemicals in drinking water, however, are seldom high enough to cause acute health effects. They are more likely to cause chronic health effects—effects that occur long after exposure to small amounts of a chemical. Examples of chronic health effects include

cancer, birth defects, organ damage, disorders of the nervous system, and damage to the immune system.

Evidence relating chronic health effects to specific drinking water contaminants is limited. In the absence of exact scientific information, scientists predict the likely adverse effects of chemicals in drinking water using laboratory animal studies and, when available, human data from clinical reports and epidemiological studies. The possible chronic health effects of the chemicals listed in this fact sheet are conservative estimates, rarely based on documented human health effects.

Setting Standards

In setting standards for drinking water contaminants, regulators estimate the concentration of a contaminant that a person can drink safely over a lifetime. These calculations are based on all available toxicological information and allow a generous safety margin. The following chart lists contaminants currently regulated by U.S.

Tab 2

Background History

Background History

Several years ago, the agricultural research and extension communities recognized that water quality protection would become an important social concern. Scientists, administrators and agents at the State Agricultural Experiment Stations, the Land Grant Universities, and the Cooperative Extension System prepared to develop the research and education outreach programs that would be necessary. In 1985 the Experiment Station Committee on Organization and Policy (ESCOP) and the Extension Service Committee on Organization and Policy (ECOP) jointly published a report entitled Groundwater Quality and Management: Research and Extension, which states:

Few doubt that contamination of groundwater is a growing problem. The impact of agricultural quality and quantity is an issue of major national importance. Proper management of agricultural systems to maintain acceptable groundwater quality is increasing in importance. Research efforts need to be focused on physical, chemical and biological processes that influence groundwater quality...There is an immediate need for increased research on source and prevention, fate, remedial, impact and institutional issues.

...Technology transfer through Cooperative Extension is proposed to transmit benefits of research investment to the public. Issues of training and numbers of personnel are key constraints to Extension's programming in groundwater quality.

During the 100th Congress, more than 3 dozen bills were introduced that addressed the need to protect groundwater from agricultural production practices. During the many Congressional hearings that ensued, EPA, USDA, and USGS were required to testify before a number of separate Congressional hearings. In response to the need to develop a coordinated federal response to Congressional and public concerns about groundwater quality, the Office of Management and Budget (OMB) initiated an Interagency Task Force on Groundwater in 1987, to study agency programs to protect groundwater quality. OMB has since worked with Federal agencies to develop a coordinated intra-agency groundwater protection strategy. In 1988, an interagency working group within USDA began developing the working plans for a Departmental response to OMB's request for a Department-wide initiative. Since then, numerous committee meetings, with input from the State Agricultural Experiment Stations, resulted in the development of the Water Quality Program Plan to Support the President's Water Quality Initiative. These efforts culminated in the President's Water Quality Initiative for fiscal year 1990. In this Initiative, EPA, USDA and USGS were identified as having primary responsibilities for groundwater protection. However, in the President's budget proposal,

most of the proposed funding increases of over \$40 million dollars were directed to USDA. It was argued that agricultural research, education and outreach programs needed to be in place, before a more regulatory approach was initiated through EPA.

The Water Quality Program Plan to Support the President's Water Quality Initiative states that the USDA Water Quality Program will be carried out through three major, integrated and interdependent functional components: (1) education and technical assistance, (2) research and development, and (3) database development and evaluation. The following "Output and Program Support Activities" were identified: Building National and State databases on agrichemical use and related farm practices; providing digitized geographic information systems for State and Federal evaluation of alternative policies and program strategies; developing methods for sampling, measuring, and evaluating groundwater contamination; conducting fundamental research to provide the basis for improved management of chemicals in agriculture; improving agrichemical management and agricultural production systems; expanding USDA and CES staff capacity to deliver educational and technical assistance to producers for effective agrichemical and waste product management and environmental stewardship; demonstrating and delivering technologies and management systems for voluntary farmer, rancher and forester adoption and implementation; meeting State water quality requirements through education and technical assistance; and, evaluating economic, social and technical effects and impacts of new and improved management practices and systems. The USDA working plan has continued to evolve and develop. The research and extension programs within the States have developed rapidly in response to growing federal support through USDA.

Tab 3

Appropriations

Appropriations

The following table summarizes the new federal funds that were available to the States for research and extension through USDA. Research dollars are directed through the Cooperative State Research System (CSRS). State Extension funds are directed through the Extension Service (ES). Other offices within USDA have also received new funding, including: the Soil Conservation Service, the Agricultural Research Service and the Economic Research Service.

| <u>USDA</u> | <u>FY 1989</u> | <u>FY 1990</u> | <u>FY 1991</u> |
|-------------|----------------------|----------------|----------------|
| | (Approp.) | (Approp.) | (Budget) |
| | ----- millions ----- | | |
| CSRS | \$ 1.8 | \$ 6.7 | \$ 10 |
| ES | \$ 1.5 | \$ 5.2 | \$ 15 |

New allocations for university groundwater quality research became available in the fiscal year (FY) 1989 budget. The numbers shown for FY's 1989 and 1990 are the appropriated amounts, prior to the Graham-Rudman reductions. Of the \$3 million appropriated for water quality money through the Cooperative State Research Service (CSRS), approximately \$1.2 million was directed funding, leaving approximately \$1.8 million nationally for new research projects.

The amounts shown for FY 1991 are proposed in the President's budget. Proposed funding for State water quality research in FY 1991 declined relative to Extension. Apparently this was because the Administration felt that some research funds for water quality research would be available through the proposed agricultural research initiative, funds which would not be equally available to the State Extension Services.

Water Quality Appropriations in the States

Congressional staff are often interested in what the States are contributing to water quality protection from agricultural chemicals. An internal study was done by USDA to determine the amount of money and personnel being devoted to water quality at the State Agricultural Experiment Stations. As the first step in the study, a search for water quality projects was conducted on the computerized Current Research Information System (CRIS). Because there is no category that explicitly identifies research projects relevant to water quality protection, potentially relevant projects were identified using a *word search* that located projects with water quality related terms in their descriptions. Each identified project was then individually reviewed and assigned, if appropriate, to one of ten classification categories. These categories included, separately for ground and surface water: Pesticides, organic compounds, and heavy metals; nutrient and waste materials; water management. Additional categories included: Soil and crop management; impact on biological systems; and geologic background. Projects that were considered relevant, but indirect to water quality research were categorized separately. Many projects were relevant to several categories and personal judgement had to be utilized to determine what percent of the total project effort would be assigned to individual categories.

Aggregating for the nation, it was determined that for fiscal year 1987, \$16.3 million dollars were spent through the Cooperative State Research Service. These funds were allocated over some 818 projects that included water quality components. State and other non-federal funds amounted to \$85.7 million, allocated over some 4,305 projects. Collectively, the States and local entities are spending more than 5 times the amount invested by Federal government. Studies of fiscal years 1988 and 1989 are still underway.

Tab 4

Program Allocations

Program Allocations

FY 1989

The approximately \$1.8 million in new funds for State research was divided evenly between the four research regions of the country: Northeast, North Central, South, and West. Leading scientists within each region met to identify and prioritize water quality research issues within their regions. Some 238 research proposals were submitted, of which 23 were funded. Over a hundred of the proposed studies were of sufficient quality to have received funding, had funds been available.

For the Extension Service, the approximately \$1.5 million in new funds were directed to three high priority areas --

- (1) The interactions of pesticides, soils, and water quality;
- (2) The interactions of nitrogen fertilizers, soils, and water quality; and
- (3) The testing and treatment of rural water supplies.

Each State was invited to submit proposals to address these issues; each project could cost up to \$25,000 per State, but the Federal funds had to be matched by funds from the counties or State.

FY 1990

The new CSRS (\$6.7 m) funds generated 266 research proposals nationwide, which were evaluated by four merit review panels and a final review panel. Forty-six proposals were recommended for funding. Most of these proposals are multi-disciplinary, multi-State and multi-institutional. It is notable that over %40 of the awarded grants included non-traditional collaborators. Each of the four regions received approximately \$1.15 million in funding. The remaining CSRS funds were invested in the CSRS-ARS joint request for proposals in the North Central region, as part of the Midwest Initiative on Water Quality. Some 13 proposals were submitted for "Management Systems Evaluation Areas" (MSEA). Of the 13, five were recommended for funding by a panel comprised of scientists from land-grant institutions, ARS, USGS, and EPA. All of the reviewing scientists were from outside the North Central region. These MSEAs were selected to cover a range of crop, soil, climate, geologic materials, aquifer conditions, and multi-agency collaboration. Grants for the five MSEA's will be \$320,000 each.

Of the new money appropriated to the Extension Service in FY 90, approximately \$1.7 million has been directed to strengthen institutional capacities within each State, address well-head protection from pesticides and nutrients, and integrate environmental impact concerns with production considerations in pesticide recommendations. Most of the remainder of the funds have focused on intensive site-specific programs. Eight demonstration sites have been selected across the country, to display water protecting technologies, including: California, Florida, Maryland, Minnesota, Nebraska, North Carolina, Texas and Wisconsin. Eight more demonstration sites are being identified for next year. In addition, Extension is working with SCS to address water quality problems in 37 hydrologic units identified in 37 States. These hydrologic units were selected from State '319' plans, having been identified as problem areas by the States. Both the demonstration projects and the hydrologic projects focus on agricultural practices and systems that can mitigate or eliminate negative impacts of agricultural chemicals on the environment. In addition, some special projects are underway, including the development of new nitrogen testing programs, and the development of expert systems for pesticides and nutrients.

FY 1991

Even with the increased investments by the federal government, the States are still spending a much higher amount of money on water quality research. This has implications for the development of programs and policy, and argues strongly for an increasing level of federal support to match the increasing federal interest in directing and coordinating ongoing State research and extension efforts. The Administration recognizes the need for increased federal support. The President's proposed budget for FY 1991 includes \$10 million for CSRS and \$15 million for Extension.

**CSRS-USDA GROUNDWATER QUALITY AWARDS PROGRAM
1989 Proposal Selections**

The 1989 process consisted of a solicitation for proposals of research on selected groundwater quality categories determined by committees of scientists and administrators in each of the four CSRS regions. Available CSRS funds of \$1,754,820 were equally divided among regions. There were 23 proposals funded from a total of 237. The quality was very good, and there could have been many more awards had there been more funds. The following is a list of the successful titles, investigators, departments, institutions, general types of research and disciplines.

NORTH CENTRAL-- 6 Awards

19-077 Illinois/North Dakota. **Evaluation of Natural Abundance ^{15}N Techniques for Groundwater Nitrate Studies.** Vanden Heuvel and Mulvaney, Agronomy Department, University of Illinois; Prunty and Montgomery, Soil Science Department, North Dakota State University. Comparison of ^{15}N techniques for N identification in lysimeter and field studies. Disciplines: Soil Fertility, Soil Chemistry, Soil Physics, Soil Management. \$46,005.

19-006 Iowa. **Availability of Organic Carbon for Denitrification of Nitrate in Subsoils and Groundwaters.** Bremner, Agronomy Department, Iowa State University. Organic carbon and denitrification of nitrate in subsoils. Discipline: Soil Biochemistry. \$78,000.

19-098 Minnesota/Nebraska. **Integration of N Management Alternatives to Minimize Groundwater Contamination.** Malzer, Moncrief, and Robert, Soil Science Department, and Easter and Levins, Agricultural Economics Department, University of Minnesota; Hergert, and Schepers(ARS), Agronomy Department, and Martin, Agricultural Engineering, University of Nebraska. Produce software for adviser and producer use that is site and weather specific for N-Management recommendations, considering agronomic, environmental, and economic effects. Disciplines: Soil Fertility, Soil Management, Pedology, Resource/Environmental Economics, Extension Farm Management. \$63,892.

19-129 Missouri. **Movement and Persistence of Pesticides in Highly Aggregated Soils.** Gantzer, Buyanovsky, Anderson, and Kapila, Agronomy Department, University of Missouri. Transport and degradation of pesticides in soils of high shrink-swell characteristics. Disciplines: Soil Management, Soil Microbiology, Soil Physics, Biochemistry. \$65,220.

19-091 Ohio/Michigan. **Effect of Sorption on Fate of Pesticides in Subsurface Environments.** Traina, Sims, and Logan, Agronomy Department, Ohio State University; Boyd, Crop and Soil Sciences Department, Michigan State University. Biodegradation of pesticides and their persistence in soils and water. Disciplines: Soil Chemistry, Soil and Water Pollution, Soil Microbiology. \$107,590.

19-074 Wisconsin. **Atrazine and Alachlor Movement Through the Unsaturated Zone: Model Calibration and Validation.** Daniel, Lowery McSweeney, Soil Science Department, University of Wisconsin. Field and column validation of selected models for prediction of pesticide movement. Disciplines: Soil and Water Pollution, Soil and Water Management, Pedology. \$78,000.

NORTHEAST-- 5 Awards

29-057 Delaware. **Leaching, Sorption and Bio-degradation of Herbicides in Subsoils of a Coastal Plain Watershed.** Sims, Sparks, and Fuhrmann, Plant Science Department, University of Delaware. Mobility, kinetics of sorption, and mineralization of pesticides in subsoils. Disciplines: Soil Fertility, Soil Chemistry, Soil Microbiology. \$71,000.

29-068 Pennsylvania. **Nitrogen Fertilizer Rate and Manure Effects on Nitrate Leaching.** Fox and Fritton, Agronomy Department, University of Pennsylvania. Nitrate leaching and model evaluation from fertilizer and manure applications at economic optimum rates. Disciplines: Soil Fertility, Soil Physics. \$77,750.

29-037 Pennsylvania. **Use of Microorganisms or Enzymes for Decontamination of Pesticide-Polluted Soil.** Bollag and Shu-Yen Liu, Agronomy Department, Pennsylvania State University. Develop method for microbial detoxication of the herbicide metolachlor in soil and water. Discipline: Soil Microbiology. \$77,750.

29-026 New York. **Mapping Groundwater Contamination Potential Using Integrated Simulation Modeling and GIS.** Wagenet, Bryant, DeGloria, Hutson, and W. Waltman, Agronomy Department, Cornell University; Perritt, and S. Waltman, SCS, NY. Develop protocol to integrate GIS, simulation models, and soils maps, and make regional maps to show risk of pesticide leaching. Disciplines: Soil Physics/Solute Transport/Modeling, Soil Genesis/Classification, Soil Science. \$80,000.

29-099 Vermont. **Effects of Different Corn Management Systems on Nitrate Leaching Potential.** Magdoff and Jokela, Plant and Soil Science Department; Clausen, Water Resources Research Center, University of Vermont. Nitrate leaching under best management practices, tillage, residues, manure, fertilizers and model validation. Disciplines: Soil Fertility, Hydrology. \$76,706.

29-040 West Virginia **Bacterial Quality of POU Filters for Treatment of Rural Groundwater Supplies.** Bissonnette and Anderson, Plant and Soil Sciences West Virginia University. Bacteriological quality of rural water supplies with different management of activated carbon filters. Discipline: Agricultural Microbiology, research and extension. \$55,500.

WEST-- 6 Awards

49-207 Arizona. **Management Practices and Preferential Flow Transport of Agricultural Chemicals.** Warrick and Watson, Soil and Water Sciences Department, Chernicky, Crop Science Department, and Lomen, Engineering Mathematics. University of Arizona. Determine and develop predictive capability on the influence of preferential flow on movement of herbicides and reactive chemicals through soils. Disciplines: Soil Physics, Extension Water Quality, Weed Science, Mathematics/Modeling. \$78,000.

49-222 Montana **Validation of Transport Models for Predicting Movement of Agrichemicals Through Soils.** Inskip, Ferguson, Lockerman, Bauder, and Jacobsen, Plant and Soil Science Department, Montana State University. Mobility of agrichemicals in the field and in soil columns and, for soil mapping units, validate solute transport models for assessing chemical movement to groundwater. Disciplines: Soil Chemistry, Soil Physics, Plant Physiology, Extension Water Quality and Soil Fertility. \$80,000.

49-208 Oregon. **Non-point Source Pollution and Agricultural Practices.** Boersma and Lindstrom, Soil Science Department, and Mason, Survey Research Center, Oregon State University. Develop a practical and scientifically sound data base system for application of agricultural chemicals over time, relate to soil properties, and describe fate and transport of chemicals in the soil mixing zone. Soil Physics, Mathematics/Modeling, Sociology. \$76,110.

49-211 Utah. **Optimizing Irrigation Management for Pollution Control and Sustainable Crop Yields.** Dudley, Hanks, and Tindall, Soils and Biometeorology, and Peralta and Willardson, Agricultural and Irrigation Engineering, Utah State University. Interface numerical expression of chemical reactions in soils to water-solute transport model, including constraints on salinity and other contaminant movement below the root zone, and transfer irrigation management schemes to users. Disciplines: Soil Chemistry, Soil Physics, Extension Soils, Water Management, Irrigation Engineering. \$78,000.

49-201 Washington. **Development of a Spatial Decision System for Farm Management of Nitrogen Fertilizer Applications.** Mulla and Campbell, Agronomy and Soils Department, Washington State University. Develop a decision aid for water and nitrogen movement under irrigated corn and potatoes, with the potential of variable N application for parts of fields. Discipline: Soil Physics and Biophysics, Soil Microbiology/Fertility. \$78,200.

49-197 Washington/Oregon. **Managing Nitrate--Groundwater Pollution from Agriculture in the Pacific Northwest.** Whittlesey, Agricultural Economics Department, Washington State University; Adams and Perry, Agricultural and Resource Economics, and Istok, Agricultural Engineering, Oregon State University. Develop water quality assessment framework for crop and water management; evaluate changes in farm management strategies and net farm income from changed N fertilizer use in response to environmental concerns. Disciplines: Production and Resource Economics, Soil and Water Engineering. \$48,397.

SOUTH-- 5 Awards

39-237 Arkansas A GIS to Analyze Nitrate Contamination by Land Application of Poultry Litter. Scott, Agronomy Department, Limp, Anthropology, and Cochran, Agricultural Economics, University of Arkansas. Develop GIS to integrate spatial relationships of soil hydraulic characteristics and chicken litter application on nitrate accumulation in soils and groundwater; assess economic impact of voluntary adoption of management practices or regulations. Soil Physics, Archeology(GIS applications), Resource Economics. \$79,884.

39-160 Arkansas Optimizing On-Farm Disposal of Pesticide Rinsates. Lavy, Mattice, Wolf, and Talbert, Agronomy Department, University of Arkansas. Develop and test pesticide waste disposal methods designed for farmer use. Disciplines: Pesticide Chemistry Research and Extension, Soil Microbiology, Weed Science. \$69,000.

39-166 Oklahoma/Florida Agricultural Chemical Impact Evaluation and Management System. Nofziger, Agronomy Department, Haan, Agricultural Engineering, Nelson and Norris, Agricultural Economics, and Miller, Forestry; University of Oklahoma; Hornsby, Soil Science Department, University of Florida. Interface chemical transport model and weather data with GIS for selected hydrologic units in Oklahoma and Florida, and demonstrate its use. Two Institutions/States; Disciplines: Soil Physics, Hydrologic Modeling, Environmental Chemistry and Soil Physics. \$102,000.

39-163 South Carolina/Kentucky Groundwater Quality as Affected by Preferential Flow in Structured Soils. Quisenberry and Smith, Agronomy and Soils Department, Clemson University; Phillips, Agronomy Department, University of Kentucky. Macropore characteristics in soils, soil structure, and solute transport through the vadose (unsaturated) zone. Soil Physics, Soil Classification/Land Use. \$102,000.

39-142 South Carolina/North Carolina Terrain Conductivity to Quantify Impact of Farm Lagoons Upon Groundwater Quality. Brune and Hegg, Agricultural Engineering Department, and White, Agricultural Engineering and Systems Engineering Departments, Clemson University; Westerman, Safley, Huffman, and Barker, Biological and Agricultural Engineering Department, North Carolina State University. Relate soil characteristics, variable pollutant levels, and specific conductivity to pollutant levels in soils and ground water, using electromagnet terrain conductivity(EM), (research is in collaboration with SCS). Disciplines: Water Quality and Environmental Engineering, Natural Resources Engineering, Groundwater Hydrology, Extension Water Quality and Waste Management. \$85,823.



Summary

Cooperative Extension System's

1989 State Water Quality Projects

May 1990

Water Quality Initiative Team
Extension Service
U.S. Department of Agriculture



SPECIAL GRANTS ON WATER QUALITY CSRS FY 1990

| State | Title | Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Duration (yr) | AWARD |
|-------|---|--|---|---|---|--|--|---------------|--------------|
| AR | Modeling Water Quality Impacts of Surface-Applied Broiler Litter to Identify BMPs | Tommy C. Daniel, Dept. of Agronomy, U. of Arkansas, Fayetteville | Deayne R. Edwards, Dept. of Biological & Agri. Engineering, U. of Arkansas | William L. Bland, Blackland Research Center - TX Ag Exp Station, Texas A&M U. | Ray H. Griggs, Blackland Research Center - TX Ag Exp Station, Texas A&M U. | | | 2 | \$137,000.00 |
| AZ | Molecular Methods for Evaluation of Microbial Quality of Groundwater | Ian L. Pepper, Dept. of Soils, Water & Engineering, U. of Arizona, Tucson | Charles P. Gerba, Dept. of Microbiology & Immunology, U. of Arizona | Suresh D. Pillai, Department of Soil and Water Science, U. of Arizona | | | | 2 | \$70,516.00 |
| CA | Dissolved Organic Matter in Water and Its Role in Tracing Pesticide Degradation | Andrew C. Chang, Dept. of Soil & Environmental Sciences, U. of California, Riverside | Albert L. Page, Dept. of Soil & Environmental Sciences, U. of California - Riverside | | | | | 2 | \$84,000.00 |
| CA | A Water Decolorification Process Using Accelerated Microbial Production | William T. Frankensberger, Dept. of Soil & Environmental Sciences, U. of California, Riverside | Elizabeth T. Thompson-Engle, Dept. of Soil and Environmental Sciences, U. of California - Riverside | | | | | 2 | \$95,000.00 |
| CA | Field Test of a Stochastic, Organic Solute Transport Model | Dennis E. Rolston, Dept. of Land, Air & Water Resources, U. of California, Davis | M. Levent Kavvas, Dept. of Civil Eng., U. of California - Riverside | James W. Biggar, Dept. of Land, Air & Water Resources, U. of California - Davis | Bruce D. Hemmoch, Dept. of Entomology & Environ. Toxicol., U. of California - Davis | Kate M. Snow, Dept. of Land, Air & Water Resources, U. of California - Davis | | 3 | \$97,000.00 |
| CA | Economic Incentives to Reduce Agricultural Pollution of Water Resources | James E. Wilson, Dept. of Agricultural Economics, U. of California, Davis | Catherine L. Kling, Dept. of Agricultural Economics, U. of California - Davis | D. Wichems, Dept. of Resource Economics, U. of Rhode Island | A. C. Chang, Dept. of Soil & Environmental Sciences, U. of California - Riverside | | | 2.5 | \$125,000.00 |
| CO | Crop Management Expert System for Reducing Groundwater Contamination | Jim C. Lofth, Dept. of Agricultural & Chemistry Engineering, Colorado State U., Ft. Collins | Israel Broner, Dept. of Agricultural & Chemical Engineering, Colorado State U. | Richard C. Perata, Dept. of Agr. and Irrigation Engineering, Utah State U. | Parvis N. Soltanpour, Dept. of Agronomy, Colorado State U. | R. J. Henke, Dept. of Soil Science and Biometeorology, Utah State U. | | 3 | \$123,000.00 |
| CO | Predicting Pesticide Leaching from Spatial Variability of Transport Properties | Jim C. Lofth, Dept. of Agricultural & Chemical Engineering, Colorado State U., Ft. Collins | David B. McWhorter, Dept. of Agricultural and Chemical Engineering, Colorado State U. | Greg Butters, Dept. of Agronomy, Colorado State U. | Deanna S. Durnford, Dept. of Agr and Chem. Eng., Colorado State U. | Roger E. Smith, USDA-AHS | Harold R. Duke, USDA AHS, Colorado State U | 2 | \$95,000.00 |

SPECIAL GRANTS ON WATER QUALITY CSRS FY 1990

| State | Title | Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Duration (yr) | AWARD |
|-------|--|--|--|---|---|--|--|---------------|--------------|
| CT | Degradation of Pesticide Wastes and Contaminated Media | Joseph J. Fignatello, Dept. of Soil and Water, The Connecticut Ag. Experiment Station, New Haven | Reginaldo A. Soriano, Dept. of Soil & Water, U. of Connecticut, Ag. Expt. Station | | | | | 3 | \$100,000 00 |
| DE | Nitrate Leaching from Soybeans and Subsequent Contamination of Groundwater | Jeffrey J. Rubman, Dept. of Plant Science, U. of Delaware - Newark | J. Scott Angle, Dept. of Agronomy, U. of Maryland | Bruce L. Vaeles, Dept. of Plant Science, U. of Delaware - Newark | | | | 3 | \$149,872 00 |
| FL | Degradation of Telone II and Fenamiphos in Subsoils and Groundwater, and by Microorganisms | Li-Tee Ou, Dept. of Soil Science, U. of Florida, Gainesville | | | | | | 3 | \$90,000 00 |
| GA | Role of Winter Cover Crops in Reduction of NOD Leaching | Jerry W. Johnson, Dept. of Agronomy, U. of Georgia, Griffin | William L. Hargrove, Dept. of Agronomy, U. of Georgia | James E. Box, USDA, ARS - Georgia | Paul L. Raymer, Dept. of Agronomy, U. of Georgia | | | 3 | \$83,000 00 |
| HI | Liquid Chromatographic Methods for Pesticides in Water | Carl J. Miles, Dept. of Agricultural Biochemistry, U. of Hawaii, Honolulu | | | | | | 2 | \$84,000 00 |
| HI | Application of Fractal Geometry for Estimating Soil Hydraulic Properties | Coreo Uehara, Dept. of Agronomy & Soil Science, U. of Hawaii, Honolulu | Gordon V. Tsuji, Dept. of Agronomy & Soil Science, U. of Hawaii | Apendra Singh, International Fertilizer Development Center, Muscle Shoals, AL | | | | 2 | \$79,620 00 |
| IA | Groundwater Recharge and Chemical Transport in Two Glacial Till Confining Units in Iowa | Rameshwar S. Kanwar, Dept. of Agricultural Engineering, Iowa State U. Ames | William W. Simpfendorfer, Dept. of Geology and Atmospheric Sciences, Iowa State U. | George R. Hallberg, Public Policy Institute, U. of Iowa | J. L. Baker, Dept. of Agricultural Engineering, Iowa State U. | L. C. Jones, Dept. of Civil Engineering, Iowa State U. | R. L. Handy, Dept. of Civil Engineering, Iowa State U. | 3 | \$147,000 00 |
| ID | Microbial Detoxification of Pesticide Containers and Residues | Ronald L. Crawford, Dept. of Bacteriology & Biochemistry, U. of Idaho, Moscow | D. C. Thill, Dept. of Weed Science, U. of Idaho | H. W. Horman, Dept. of Entomology, U. of Idaho | | | | 2 | \$71,000 00 |

SPECIAL GRANTS ON WATER QUALITY CSRS FY 1990

| State | Title | Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Duration (yr) | AWARD |
|-------|--|--|---|--|---|--|--|---------------|--------------|
| IL | Water Flow and Herbicide Transport Through Soil Macropores | F. William Simmons, Dept. of Agronomy, U. of Illinois, Urbana | Edward L. McCoy, Department of Agronomy, Ohio State U. | Charles W. Boast, Dept. of Agronomy, U. of Illinois | | | | 3 | \$143,605.00 |
| IN | Decision Support Systems for Evaluating Groundwater Quality Programs | Bernard A. Engel, Dept. of Agricultural Engineering, Purdue U., W. Lafayette | David B. Beasley, Dept. of Agricultural Engineering, U. of Georgia - Tifton | Joseph D. Elgel, Dept. of Agricultural Engineering, Purdue U. | Don D. Jones, Dept. of Agricultural Engineering, Purdue U. | Ralph A. Leonard, USDA-ARS, U. of Georgia - Tifton | Ethan J. Monte, Dept. of Agricultural Engineering, Purdue U. | 2 | \$124,762.00 |
| KY | Effects of Riparian Vegetation on Water Quality Modeling and Experimental Studies | Billy J. Berfield, Dept. of Agricultural Engineering, U. of Kentucky, Lexington | Robert L. Blavins, Dept. of Agronomy, U. of Kentucky | V. P. Everedou, Dept. of Agronomy, U. of Kentucky | Daniel I. Carey, Dept. of Ag. Engineering, Kentucky Geological Survey, U. of KY | | | 3 | \$83,880.00 |
| LA | Atrazine and Metabolite Transport in the Soil Root Zone and Quality of Ground Water of Shallow Water-table Soils | H. Magdi Salim, Dept. of Agronomy, Louisiana State U., Baton Rouge | Guy H. Wills, Soil and Water Research Unit, USDA-ARS, Louisiana State U. | Lloyd M. Southwick, Soil and Water Research Unit | | | | 2 | \$71,000.00 |
| LA | Perceptions of Water Quality Problems Among Rural Residents of Southwest Louisiana | E. Jane Luzzar, Dept. of Agri. Economics and Louisiana State U., Baton Rouge | G. W. Wilkerson, CADDIS Research Lab, Louisiana State U. | | | | | 2.5 | \$60,000.00 |
| MA | Dairy Manure on Alfalfa to Reduce Overapplication and N Loss from Corn Fields | Stephen J. Herbert, Dept. of Plant & Soil Science, U. of Massachusetts, Amherst | Peter L. M. Veneman, Dept. of Plant & Soil Science, U. of Massachusetts | L. Joseph Moffitt, Dept. of Agricultural & Resource Economics, U. of Massachusetts | | | | 2 | \$89,934.00 |
| MD | Prediction of Groundwater Contamination from Genetically Engineered Microbes | J. Scott Angle, Dept. of Agronomy, U. of Maryland, College Park | Robert L. Hill, Dept. of Agronomy, U. of Maryland | | | | | 2 | \$88,930.00 |
| MI | Stratification and Fate of N Within Soil Profiles: Management-induced Changes | Francis J. Pierce, Dept. of Crop and Soil Science, Michigan State U., E. Lansing | James R. Crum, Dept. of Crop and Soil Science, Michigan State U. | Bernard D. Knezek, Dept. of Crop and Soil Science, Michigan State U. | Charles W. Ribb, Dept. of Agronomy, Kansas State U. | Ray E. Leonard, Dept. of Agronomy, Kansas State U. | Michel D. Ransom, Dept. of Agronomy, Kansas State U. | 3 | \$140,910.00 |

SPECIAL GRANTS ON WATER QUALITY CSRS FY 1990

| State | Title | Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Duration (yr) | AWARD |
|-------|---|--|--|---|--|--|---|-------------------|---------------|--------------|
| MI | Assessment and Modeling of Nitrate Leaching Under Conventional and Organically Managed Corn | Eldor A. Paul, Dept. of Crop & Soil Sciences, Michigan State U., E. Lansing | Peter R. Grace, Dept. of Crop & Soil Sciences, Michigan State U. | Rhonda R. Janka, Cropping Systems Dept., Rodale Research Center | Min S. Knoll, Systems Analysis Dept., Rodale Research Center | Joe T. Riche, Dept. of Crop & Soil Sciences, Michigan State U. | Oran B. Westerman, Dept. of Crop & Soil Sciences, Michigan State U. | Glendon H. Harris | 3 | \$149,902 00 |
| MO | Role of Plant Rhizosphere and Associated Microbes in Pesticide Degradation | Gregory A. Buyanovsky, Dept. of Agronomy, U. of Missouri, Columbia | Robert J. Kremer, Dept. of Agronomy, USDA-ARS, U. of Missouri | George H. Wagner, Dept. of Agronomy, U. of Missouri | | | | | 2 | \$97,001 00 |
| MS | Cotton Irrigation and the Effects on Herbicide Movement, Persistence, and Carryover | Charles E. Snipes, Delta Branch Experiment Station, Mississippi State U., Stoneville | Herens C. Pingle, Delta Branch Experiment Station, Mississippi State U., Agricultural & Forestry Expt. | Thomas B. Moorman, USDA-ARS Southern Weed Pesticide Lab | | | | | 2.5 | \$68,000 00 |
| NC | Groundwater Contamination Potential Using Models, GIS, and Remote Sensing | Slamak Khorram, Computer Graphics Center, North Carolina State U., Raleigh | Rodney Hultman, Computer Graphics Center, North Carolina State U. | J. W. Gilliam, Soil Science Dept., North Carolina State U. | Hugh A. Devine, Jr., Geographic Inf. Systems Research Prgm., North Carolina State U. | | | | 2 | \$93,000 00 |
| NC | Effects of Water Table Management on Groundwater Quality | R. W. Staggs, Dept. of Biological and Agricultural Engineering, North Carolina State U., Raleigh | J. W. Gilliam, Dept. of Soil Science, North Carolina State U., College of Ag. and Life Sciences | Thomas J. Sheets, Pesticide Laboratory, North Carolina State U. | | | | | 3 | \$96,000 00 |
| NV | Electrochemical Treatment of Pesticide Wastewater | Ann T. Lemley, Dept. of Textiles & Apparel, Cornell U., Ithaca | | | | | | | 2 | \$61,495 00 |
| NV | Interaction of Preferential Flow and Biodegradation in Heterogeneous Soils | Tammo S. Sreenivasulu, Dept. of Agricultural & Bio. Engineering, Cornell U., Ithaca | M. Alexander, Dept. of Agronomy, Cornell U. | | | | | | 3 | \$98,000 00 |
| NV | Protecting Groundwater from Nitrate on Dairy Farms in the Northeast | Robert J. Wagenet, Dept. of Agronomy, Cornell U., Ithaca | Suzi D. Klausner, Dept. of Agronomy, Cornell U. | Robert A. Milligan, Dept. of Agronomy, Cornell U. | Stephen R. Kalita, Sunny Valley Foundation | V. Rao Kennegeti, Sunny Valley Foundation | | | 3 | \$149,271 00 |

SPECIAL GRANTS ON WATER QUALITY CSHS FY 1980

| State | Title | Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Duration (yr) | AWARD |
|-------|---|--|--|--|--|--|---|-----------------|---------------|--------------|
| NV | Reducing Groundwater Pollution: A Systems Analysis Including Transport and IPM | Christine A. Shoemaker, Dept. of Environmental Engineering, Cornell U., Ithaca | Ward M. Tingey, Dept. of Entomology, Cornell U. | David M. Ferro, Dept. of Entomology, U. of Massachusetts | | | | | 2 | \$108,500.00 |
| OH | Assessing and Modeling Water Quality Benefits of Water Table Management Systems | Andrew D. Ward, Dept. of Agricultural Engineering, Ohio State U., Columbus | Terry J. Logan, Dept. of Agronomy, Ohio State U. | E. Scott Bak, Dept. of Civil Engineering, Ohio State U. | | | | | 3 | \$100,000.00 |
| OR | Fate and Cycling of 15N-labelled Dairy Manure | David D. Myrold, Dept. of Soil Science, Oregon State U., Corvallis | James A. Moore, Dept. of Agricultural Engineering, Oregon State U. | Michael J. Gamroth, Dept. of Animal Science, Oregon State U. | | | | | 3 | \$84,147.00 |
| PA | Microencapsulation and Alleviated Effects on Herbicide Leaching and Persistence | Jon K. Hall, Dept. of Agronomy, Pennsylvania State U., University Park | Ralph O. Mumma, Dept. of Entomology, Pennsylvania State U. | Nathan L. Herwig, Dept. of Weed Science, Pennsylvania State U. | Lynn D. Hoffman, Dept. of Agronomy, Pennsylvania State U. | | | | 3 | \$99,954.00 |
| PA | Soil Management of Residual Manure Nitrogen Affecting Nitrates in Ground Water Within Limestone Terrain in Lancaster Co., PA. | Dale E. Baker, Dept. of Agronomy, Pennsylvania State U., University Park | Allen T. Phillip, Dept. of Molecular & Cell Biology, Pennsylvania State U. | Donald M. Robinson, Eastern Lancaster County School District | C. J. Duffy, Civil Engineering, Pennsylvania State U. | | | | 2 | \$100,000.00 |
| IN | Effects of Tillage and Cropping Systems on Transport of Nitrates Through Heterogeneous Soils | Glen V. Wilson, Dept. of Plant & Soil Science, U. of Tennessee, Knoxville | Donald D. Tyler, Dept. of Plant & Soil Science, U. of Tennessee | Grant W. Thomas, Dept. of Agronomy, U. of Kentucky - Lexington | Robert L. Blewins, Dept. of Agronomy, U. of Kentucky - Lexington | Jeanne Logan, Dept. of Plant & Soil Science, U. of Tennessee | | | 3 | \$140,000.00 |
| TX | Hydraulic Conductivity and Macropore Flow in Relation to Soil Structure | Kevin J. McInnes, Dept. of Soil and Crop Sciences, Texas A&M U., College Station | Lawrence P. Wilding, Dept. of Soil & Crop Sciences, Texas A&M U. | C. T. Hallmark, Dept. of Soil and Crop Sciences, Texas A&M U. | William L. Bland, Blackland Research Center, Texas A&M U. | M. I. Wolfe, Blackland Research Center, Texas A&M U. | | | 3 | \$94,000.00 |
| UT | Economic Incentives for Managing Non-point Pesticide Pollution of Groundwater: A Prototype Application | Terrence F. Glover, Dept. of Economics, Utah State U., Logan | Herbert H. Fullerton, Dept. of Economics, Utah State U. | Richard C. Perala, Dept. of Agr. and Irrigation Engineering, Utah State U. | Diane G. Nelson, Dept. of Biology, Utah State U. | Howard Deer, Dept. of Animal, Dairy & Vet. Sci., Utah State U. | Robert D. Ramsey, Dept. of Geography, Utah State U. | | 2 | \$88,000.00 |

SPECIAL GRANTS ON WATER QUALITY CSRS FY 1990

| State | Title | Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Co-Investigator | Duration (yrs) | AWARD |
|-------|---|---|--|---|---|-----------------|-----------------|----------------|--------------|
| WA | Soil Nitrogen as a Predictor of Nitrogen Fertilizer Needs of Winter Wheat | Mark M. Alley, Dept. of Crop & Soil Science, Virginia Polytechnic Institute & State U. | Peter C. Scharf, Dept. of Crop and Soil Science, Virginia Polytechnic Institute and State U. | | | | | 2 | \$60,000.00 |
| WA | Composting as a Means to Dispose of Pesticide Waste | Duane P. Berry, Dept. of Crop & Soil Science, Virginia Polytechnic Institute & State U., Blacksburg | Donald E. Mullins, Dept. of Entomology, Virginia Polytechnic Institute & State U. | Glen H. Heitzel, Dept. of Agricultural Engineering, Virginia Polytechnic Institute & State U. | | | | 2 | \$78,000.00 |
| WA | Managing Nitrate Groundwater Pollution from Agricultural in the Pacific Northwest (second year funding) | Norman K. Whittlesley, Department of Agricultural Economics, Washington State U., Pullman | Richard M. Adams, Agricultural and Resource Economics, Oregon State U. | Gregory M. Perry, Agricultural and Resource Economics, Oregon State U. | | | | 1.3 | \$48,397.00 |
| WI | Safe, On-farm Disposal of Dilute Pesticide Wastes | Gordon Cheever, Water Resources Center, U. of Wisconsin, Madison | John M. Hartin, Soil Science & Water Resources, U. of Wisconsin | | | | | 2 | \$97,835.00 |
| WI | Using Ground Penetrating Radar to Predict and Monitor Preferential Flow in Sandy Soils | K.-J. Samuel Kung, Dept. of Soil Science, U. of Wisconsin, Madison | Tamara S. Steenhuis, Dept. of Agricultural & Bio. Engineering, Cornell U. | Jean-Yves Parlange, Dept. of Agricultural & Bio. Engineering, Cornell U. | Roland T. Chin, Dept. of Electrical and Computer Engineering, U. of Wisconsin | | | 2 | \$143,865.00 |
| WV | Nematicide Mobility and Biodegradation Effects of Orchard Soil Management | James B. Kolton, Div. of Plant & Soil Science, West Virginia U., Morgantown | Alan J. Berzons, Div. of Plant & Soil Science, West Virginia U. | David M. Glenn, Appalachian Fruit Research Station, USDA-ARS | | | | 2 | \$89,924.00 |

Tab 5

Some Samples of What's Happening

Some Samples of What's Happening

Basics

- What is Groundwater?
- Where to Have Your Water Tested
- Your Water Test Report: What do the numbers mean?

Safe wells

- Good Wells for Safe Water
- Safeguarding Wells and Springs from Bacterial Contamination

Nitrates

- Nitrates in Groundwater
- Nitrate in Drinking Water
- Fertilizer Nitrogen Best Management Practices
- Effects of Agricultural Runoff on Nebraska Water Quality
- Adjusting Nitrogen Fertilizer for Corn Based on Nitrate Levels in Soil and Irrigation Water
- Using Legumes in Crop Rotations

Pesticides

- Pesticides in Groundwater
- The Pesticide Label
- Pesticide Laws and Regulations
- Disposal of Pesticide Containers
- Protection of Groundwater from Fertilizers and Pesticides
- Hazardous Waste Management Requirements for Pesticide Applicators
- Disposal of Excess Pesticides and Related Wastes
- Laundering Pesticide Contaminated Clothing
- Urban Storage and Disposal of Pesticides and Containers

Animal Management

- Water Quality for Livestock and Poultry
- Groundwater Quality Protection for Livestock Feeding Operations

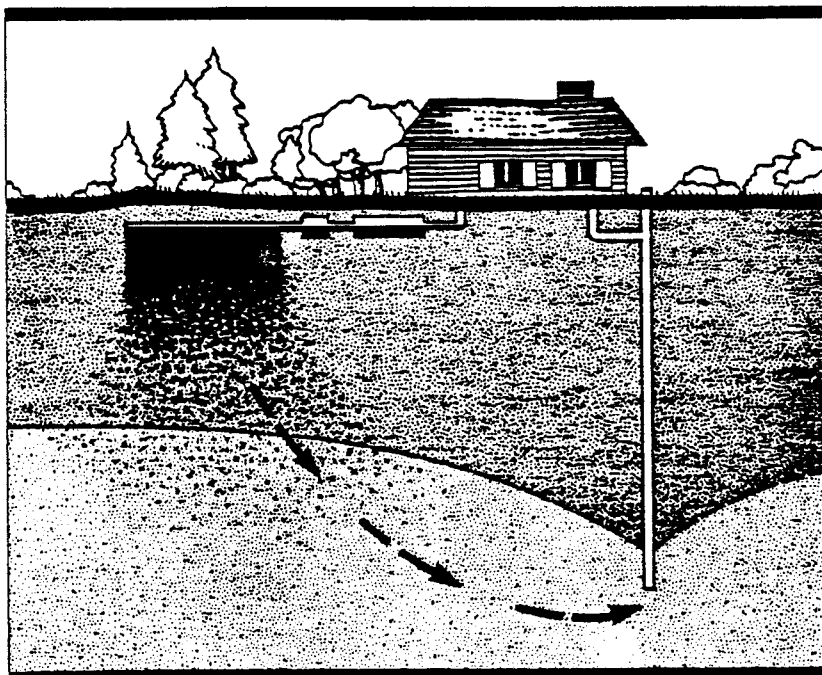
BULLETIN NO. 2

NOVEMBER 1988

GROUNDWATER CONTAMINATION

LYLE S. RAYMOND JR.

NEW YORK STATE WATER RESOURCES INSTITUTE
CENTER FOR ENVIRONMENTAL RESEARCH
CORNELL UNIVERSITY

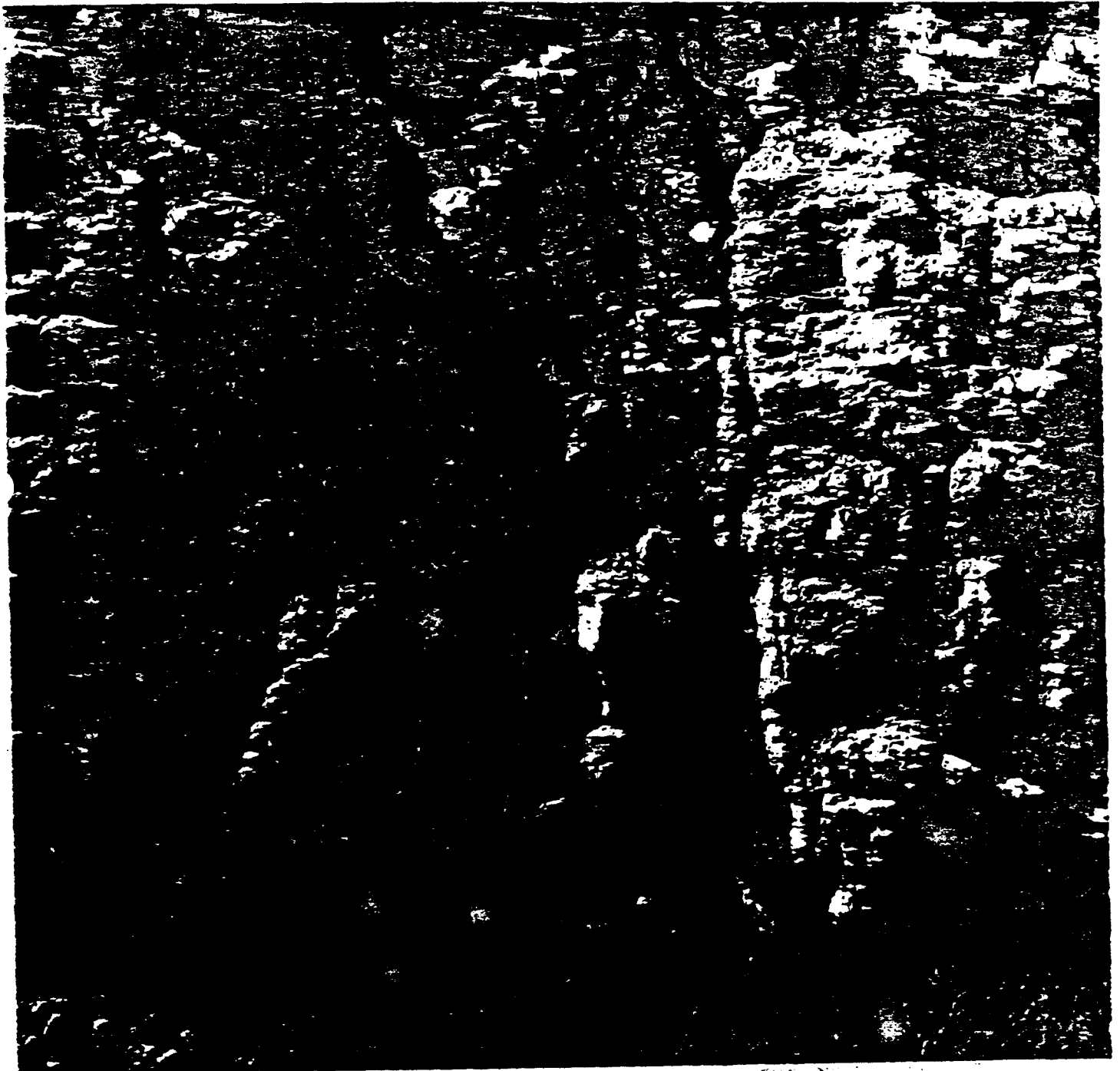


Become a groundwater contamination detective!

.....
What are the clues to potential contamination?
.....

How can contamination be prevented?

Groundwater Contamination in Northeastern Iowa



Highly fractured bedrock, capped with little or no soil cover, allows pollutants to migrate into shallow bedrock aquifers in northeastern Iowa.

Cooperative Extension Service
Iowa State University
Ames, Iowa 50011



G89-907

Water Testing Laboratories

DeLynn R. Hay, Extension Specialist, Water Resources and Irrigation
Gregory D. Jennings, Graduate Research Assistant
Kenneth D. Frank, Extension Soils Specialist

Information on water testing and testing laboratories in Nebraska is found in this NebGuide.

Increasing public concern about water quality often leads to such questions as "what is in my water?" or "is my drinking water safe?"

All water from natural sources contains dissolved substances. These substances often are called contaminants when the amounts present are at harmful levels.

The substances present in water can result from natural processes or from man's activities. At low concentrations, many of these substances do not cause known harmful effects and may, in fact, be beneficial. Research has shown that some substances above given concentrations may be harmful.

The only way to know if the water you use for drinking and cooking contains substances that are potentially harmful to human health is to have your water tested. The water must be analyzed to determine what substances are present and their concentration levels.

To determine safety, the contaminant concentrations are compared to maximum contaminant or health advisory levels established by the Environmental Protection Agency (EPA) for public drinking water supplies.

The Nebraska Department of Health is the state agency that addresses water quality in relation to human health. Within the Department, the Division of Environmental Health and Housing Surveillance regulates public water supply systems and all water well drilling activity. This Division also may be contacted about problems with private water supplies. Division staff can suggest appropriate water analyses to be performed. The Division of Laboratories performs water analyses and certifies other laboratories for testing of public water supplies.

Public Water Supplies

A public water supply is defined as a system that pro-

vides piped water for human consumption to at least 15 service connections, or regularly serves at least 25 individuals. All *public* water supplies are required by Nebraska law to be tested on a scheduled basis for potentially harmful contamination. The Safe Drinking Water Act administered by EPA has specific requirements for the frequency of testing and the contaminants that must be checked.

Even though public water supplies are routinely analyzed for contaminants, the water delivered to homes sometimes may be contaminated through contact with the piping system. One example is the potential for the water to contain lead when lead pipes or lead solder piping connections have been used. In general, lead contamination has not been a problem in Nebraska.

If your water comes from a public system, contact the water system for information on the quality of the water that is delivered to you. The Department of Health Division of Environmental Health and Housing Surveillance can advise you if any additional testing is needed.

Private Water Supplies

In most cases the testing of private water supplies is an individual decision. Testing of private water supplies is not required by any current regulations except in special cases where state licensing may be required for a specific activity.

However, many lending agencies now require that private water supplies meet Department of Health standards prior to making real estate loans. To meet the standards, the water must be analyzed for nitrate and bacterial contamination and must not exceed the maximum contaminant levels.

In most cases, the well also must meet Department construction standards before the lending agency will approve the loan. Proper well construction especially is important to protect against bacterial contamination.

Water can be tested for many substances, but the cost

Disposal of Household Hazardous Waste

Cornell Cooperative Extension, New York State College of Human Ecology

Many products found in your kitchen, bathroom, garage, or garden shed are potentially hazardous substances. Because of their chemical nature they can poison, corrode, explode, or burst into flame when handled improperly. When discarded, they are household hazardous wastes.

Motor oil, paints, pesticides, antifreeze, wood preservatives, batteries, and some household cleaners contain solvents, petroleum products, heavy metals, or other toxic chemicals. When these products are dumped in the trash or poured down the drain, their hazardous chemicals can injure other people or contaminate drinking water sources.

To Prevent Drinking Water Contamination

- NEVER** bury household waste.
- NEVER** dump waste along the side of the road.
- NEVER** pour waste into a street drain or storm sewer.
- USE** only the amount of a product that is absolutely necessary.
- USE** hazardous household products as infrequently as possible.

What is the best way to dispose of potentially hazardous household products?

The best advice is, DON'T. If you cannot use up the product, think of someone who can. A neighbor, school, youth group, church, or service organization may be very pleased to share your leftover cleaning solution, paint, fertilizer, gasoline, or insect spray. When shopping, buy only the house, yard, and automobile products you need, and purchase these products in quantities that you will use up. Finally, consider less toxic alternatives for products that are potentially hazardous. References for nontoxic alternatives are included at the end of this fact sheet.

If you must dispose of a household product, consider the following guidelines:

- USE COLLECTION DAYS** for household hazardous waste whenever possible.
- DO NOT** mix wastes: this could create a violent reaction or form a more hazardous product.
- DO NOT** put liquid waste in the trash.
- DO NOT** discard large quantities of household waste at one time—for example, a shelf of old paints or several gallons of used antifreeze.

Remember: recycle a product or hold it for a collection day whenever possible!



AGRICULTURAL ENGINEERING EXTENSION PROGRAMS

590 WOODY HAYES DRIVE • COLUMBUS, OHIO 43210

Where to Have Your Water Tested

Water Testing Laboratories - Approved Ohio Department of Health/ Ohio Environmental Protection Agency

Karen Mancl

Waste Management Specialist, Agricultural Engineering

There are several labs throughout Ohio that will test private water supplies for bacteria. Some labs also analyze drinking water for metals, minerals, pesticides and other organic substances.

The county health department in each county offers a water testing service. The services offered and the cost vary from county to county. The samples collected by the county sanitarians are analyzed at state health labs or at certain private laboratories under contract with the county health department. Check with the county sanitarian for details.

The Ohio State University offers water testing through the Research-Extension Analytical Laboratory (REAL). Although not certified for

drinking water, the laboratory offers a complete range of water analyses for horticultural and animal production enterprises. Sample test kits can be obtained from county Extension offices or from REAL, Ohio Agricultural Research and Development Center, Wooster, OH 44691 (Phone number: 216-263-3760).

Many private laboratories in Ohio will analyze water from public and private water supplies. The Ohio Department of Health and the Ohio Environmental Protection Agency has established a list of approved laboratories. In this publication they are organized by county. The list includes the names, addresses, phone number and type of testing approved. This list is updated as warranted.

Definitions of water testing services

Bacteria: Tests for total coliform bacteria. Some of these labs may also have facilities for running other bacteria tests.

Wet Chemistry: Tests for a limited number of metals and minerals, such as nitrate, fluoride, pH, chloride, iron, manganese, copper, alkalinity, hardness, and phosphate. It is best to ask which tests they can perform.

Inorganic: Tests for an extensive set of metals and minerals.

Organic: Tests for herbicides, pesticides, volatile organics, and trihalomethanes.



Ohio Cooperative Extension Service
The Ohio State University

Special Circular 270

YOUR WATER TEST REPORT

What do the numbers mean?

The Pennsylvania State University
College of Agriculture, Extension Service,
University Park, Pennsylvania

Good Wells for Safe Water

Nearly 800,000 people in Iowa rely on private water supplies for their domestic water needs. Wells are the primary source of water for nearly all of these private water systems.

In the average household supplied by a private water system, daily water use is 50 to 60 gallons per person. This means that Iowans draw about 50 million gallons of water per day from private wells for domestic purposes. An additional 94 million gallons per day are pumped for livestock.

Some Well Water is Unfit to Drink

Contaminated private water supplies are a common problem in Iowa. A recent voluntary well survey in two western Iowa counties showed that 50 to 80 percent of the wells tested had an unacceptable bacteria content and approximately 20 percent of the wells exceeded the recommended maximum concentration for nitrate. Similar reports from other counties indicate that equally high proportions of the wells in other parts of the state are contaminated. These data present a serious public health concern for rural Iowans.

"Unsafe" Water—What does it mean?

Water test results (fig. 1) can be confusing if you are unfamiliar with their purpose. Water that tests *unsafe* will not necessarily cause disease. In many cases, unsafe wells are used for years with no apparent illness. This can happen because the tests commonly used to judge the sanitary quality of water are only *indicators* of a possibly dangerous condition.

The most commonly used indicators of potentially unsafe drinking water are the presence of nitrate or coliform bacteria. Some general background on the origin of these indicators is helpful in understanding their significance in drinking water.

Nitrate originates in nature from decaying wastes. Septic tanks and absorption fields, livestock wastes, sanitary landfills and similarly concentrated sources of degradable waste are sources of nitrate. In addition, nitrogen fertilizers are a source of nitrate in our environment. High nitrate content is abnormal for most groundwater, but high nitrate levels can occur whenever nitrate from concentrated sources of waste is leached into the ground by rainfall or flushed into groundwater supplies through poorly constructed, deteriorated or improperly abandoned wells.

High nitrate concentrations in drinking water are a concern for two reasons. The nitrate chemical itself is a direct hazard to the health of very young children. Nitrate concentrations exceeding 45 milligrams per liter ((mg/l) can cause methemoglobinemia, a serious temporary blood disorder

that has caused infant death in some cases. Acute nitrate toxicity is generally confined to infants less than 4 months old and rarely affects healthy adults or older children. Additionally, since nitrate commonly originates in decaying wastes, it is often accompanied by bacteria, some of which may cause disease. For this reason, the presence of nitrate in drinking water warns of a potential source of pollution nearby and indicates that dangerous contamination can enter the water supply.

Only certain types of waterborne bacteria and viruses cause disease in man. These disease-causing microorganisms (pathogens) are generally found in the intestines of infected humans or animals and, as a result, are found in waters that are polluted with sewage. Numerous kinds of pathogens can survive in water. Common waterborne diseases are typhoid fever, gastroenteritis, hepatitis and shigellosis.

The methods available to detect *specific* viruses or bacteria that cause disease in humans and animals are elaborate, costly and time-consuming and, as a result, it is impractical to test water for every type of waterborne disease and bacteria that might be present. Instead, public health officials rely on tests for indicator organisms. An indicator organism can be any microorganism that is easily detected by simple laboratory tests in a relatively short time. A good indicator organism is always present in sewage polluted waters and is generally found in much greater numbers than the disease-causing organisms that are of concern.

The indicator organism most commonly used in judging the bacterial quality of drinking water is coliform bacteria. They are found in the intestinal tracts of humans and all warm-blooded mammals. Although the presence of coliform bacteria in drinking water does not guarantee that disease-causing organisms are present or that illness will result from consumption of the water, the possibility of this is very real because coliforms are associated with fresh sewage or contaminants found in the topsoil.

To sum up the situation, the presence of nitrate or coliform bacteria in a well water supply is strong evidence of a nearby pollution source. Much like the old saying, "Where there's smoke, there's fire," the presence of coliform bacteria or nitrate in drinking water is the warning smoke which may indicate that the more destructive *fire* (disease-causing bacteria and viruses) is also present.

While a water test is a valuable tool for evaluating the safety of a water supply, it should be recognized that this tool alone does not provide the complete picture. For example, wells that are obviously deteriorated or lacking the important protective sanitary features that are discussed in

Prepared by Tom Gianville, Extension Water Specialist

Cooperative Extension Service
IOWA STATE UNIVERSITY

Ames, Iowa 50011



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The Pennsylvania State University
College of Agriculture
Cooperative Extension Service
University Park, Pennsylvania

Safeguarding Wells and Springs from Bacterial Contamination





NebGuide



G85-763
(Revised April 1989)

Nitrate-Nitrogen in Drinking Water

DeLynn R. Hay, Extension Specialist, Water Resources and Irrigation, Delno Knudsen, Extension Soils Specialist, Kenneth D. Frank, Extension Soils Specialist

This NebGuide discusses the acceptable levels of nitrate-nitrogen in drinking water for humans and livestock, and the hazards of concentrations above these levels.

Many Nebraskans have questions about the impact of nitrate in their drinking water. Water quality monitoring shows that ground water nitrate levels are increasing in some areas of Nebraska.

Nitrogen is a basic part of our environment and is essential for living things. It is the nutrient most used for crop production. However, excessive concentrations of nitrate-nitrogen can be hazardous to the health of both humans and livestock. Nitrate-nitrogen in ground water may result from point sources such as sewage disposal systems and livestock facilities, from nonpoint sources such as fertilized cropland, or from naturally occurring sources of nitrogen.

Testing for Nitrate

Tests for nitrate can be performed by several reputable laboratories (see *NebGuide G89-907, Water Testing Laboratories*, for a partial listing). The Nebraska

State Department of Health Laboratory, 3701 South 14th Street, P.O. Box 2755, Lincoln, Nebraska, 68502, routinely provides chemical and bacteriological testing of drinking water for a minimal fee. A special kit with a sample bottle and sampling instructions is available from the Health Department Laboratory for nitrate-nitrogen testing. Your Nebraska Cooperative Extension office can assist you in obtaining a kit or directing you to another laboratory.

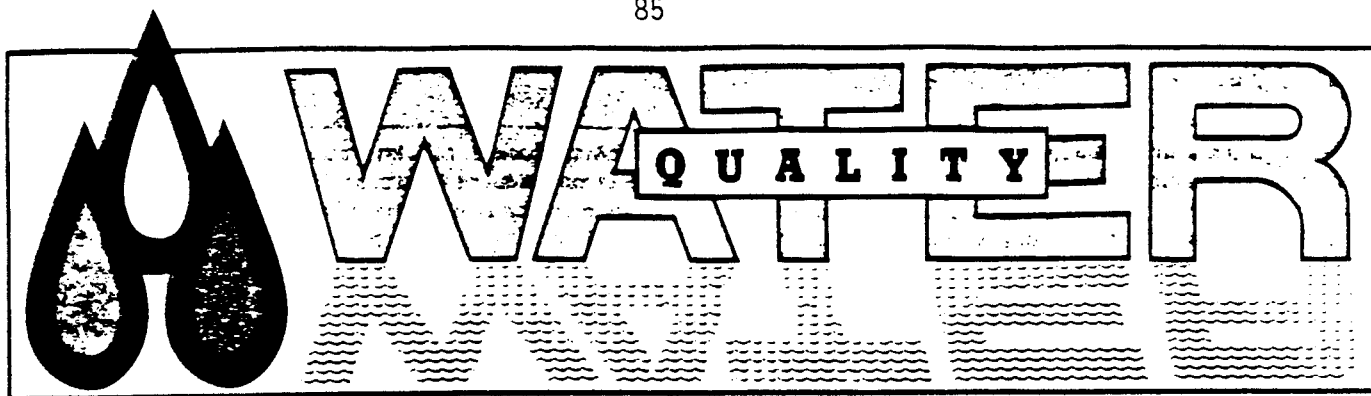
The sample bottle for nitrate-nitrogen testing contains a few drops of an acid preservative to prevent any loss of nitrate-nitrogen in the sample. This sample bottle should be used only for samples intended for nitrate-nitrogen analysis. It must be used within a 30-day period to insure the validity of the analysis.

The sampling instructions provide information on how to collect the sample from the faucet, hydrant or pump. Follow these instructions carefully to avoid contamination and to obtain a representative sample.

For a domestic water system, let the cold water tap run for a minimum of three minutes before sampling. Open the bottle and fill it to the neck area, leaving an air space. Recap the bottle securely and place it in the

| | | | |
|---|--|--|---|
| COMPLETE INFORMATION BELOW: | | WATER CHEMISTRY | STATE LAB NO. 15 |
| REPORTED | DATE COLLECTED <u>11 15 1985 9 AM</u> | CHECK TESTS REQUESTED | |
| | SAMPLE COLLECTED BY <u>JOHN DOE</u> | <input type="checkbox"/> ALL TESTS BELOW | <input type="checkbox"/> PH _____ |
| RECEIVED | SAMPLE LOCATION <u>Household Faucet, Anywhere NE</u> | <input type="checkbox"/> CALCIUM _____ mg/l | <input type="checkbox"/> MANGANESE _____ mg/l |
| | NAME AND ADDRESS OF PERSON TO RECEIVE COPY REPORT | | <input checked="" type="checkbox"/> NITRATE-N <u>9</u> mg/l |
| PLEASE PRINT COMPLETE ADDRESS THIS LAB REPORT IS TO BE MAILED TO: | | <input type="checkbox"/> CHLORIDE _____ mg/l | <input type="checkbox"/> SODIUM _____ mg/l |
| <u>JOHN DOE</u> | | <input type="checkbox"/> FLUORIDE _____ mg/l | <input type="checkbox"/> SULFATE _____ mg/l |
| <u>112 Mulberry Lane</u> | | <input type="checkbox"/> IRON _____ mg/l | <input type="checkbox"/> TOTAL ALKALINITY _____ mg/l as CaCO ₃ |
| <u>Anywhere, NE 68618</u> | | <input type="checkbox"/> TOTAL HARDNESS _____ mg/l as CaCO ₃ | <input type="checkbox"/> TOTAL DISSOLVED SOLIDS _____ mg/l |
| STATE OF NEBRASKA DEPARTMENT OF HEALTH LABORATORIES 3701 SOUTH 14TH, LINCOLN, NE 68502 | | NOT TESTED BECAUSE OF: <input type="checkbox"/> DAMAGE | |
| | | <input type="checkbox"/> INSUFFICIENT AMOUNT <input type="checkbox"/> IMPROPER CONTAINER | |
| | | TESTS BY: _____ | |
| | | FOR DEPARTMENTAL USE ONLY: | |
| | | FOR ACCOUNTING USE ONLY | |

Figure 1. Nitrate test information and result form



Nitrates and Groundwater

Groundwater supplies about 50 percent of the drinking water in the United States. In rural areas, as much as 85 percent of the drinking water is from groundwater. Nearly 70 percent of Kansans rely on groundwater as their source of drinking water. Consequently, protection of groundwater from contamination by any substance that might cause health problems is a serious concern.

One potential contaminant of groundwater is nitrate (NO_3). A recent survey of rural water wells in Kansas found 28 percent of the wells with nitrate levels higher than the National Public Health Service drinking water standard.

This fact sheet addresses nitrates and their effect on groundwater including: human and livestock health concerns, extent of nitrates in groundwater, sources of nitrates in groundwater, and ways to minimize the risk of nitrate contamination of groundwater.

Health Concerns

Human: Humans ingest nitrates in food and water, and nitrates are absorbed readily from the digestive tract. In older children and adults, nitrates are ingested, absorbed, and excreted promptly in the urine. Healthy human adults can consume fairly large amounts of nitrate with little known short-term effect. The health effects of chronic, long-term consumption of high levels of nitrates are uncertain and are the subject of current research.

Infants under 3 to 6 months old are susceptible to nitrate poisoning because of bacteria present in their digestive systems at birth. Because newborn infants have little acid in the digestive tract, they depend on these bacteria to help digest food. Generally, by the age of 3 to 6 months, hydrochloric acid levels in the baby's stomach increase and kill most of the bacteria that convert nitrate to nitrite.

The primary health concern of nitrates is due to the reduced form of nitrate called "nitrite." The bacteria in the digestive tract of young infants can change nitrate into nitrite, which is toxic. The nitrite is absorbed and enters the bloodstream where it reacts with the oxygen-carrying hemoglobin, forming a compound called "methemoglobin." High levels of methemoglobin interfere with the blood's ability to carry oxygen.

As oxygen levels decrease, subjects may show signs of suffocation. This condition is called "methemoglobinemia."

The major symptom of methemoglobinemia is bluish skin color, most noticeably around the eyes and mouth. Death can occur when 70 percent of the hemoglobin has been converted to methemoglobin. Methemoglobinemia can be treated successfully with an injection of methylene blue, which changes methemoglobin back to hemoglobin. Treatment must occur quickly, however.

Infant deaths from methemoglobinemia, sometimes called "blue baby," are rare but have been documented; some have been linked to high levels of nitrate in well water. Doctors now recommend using bottled water to make formula when nitrate levels exceed the U.S. Public Health Service drinking water standard of 44 parts per million (ppm). With one possible exception, no breast-fed infants have developed methemoglobinemia—an observation attributed to rapid nitrate excretion by the mothers.

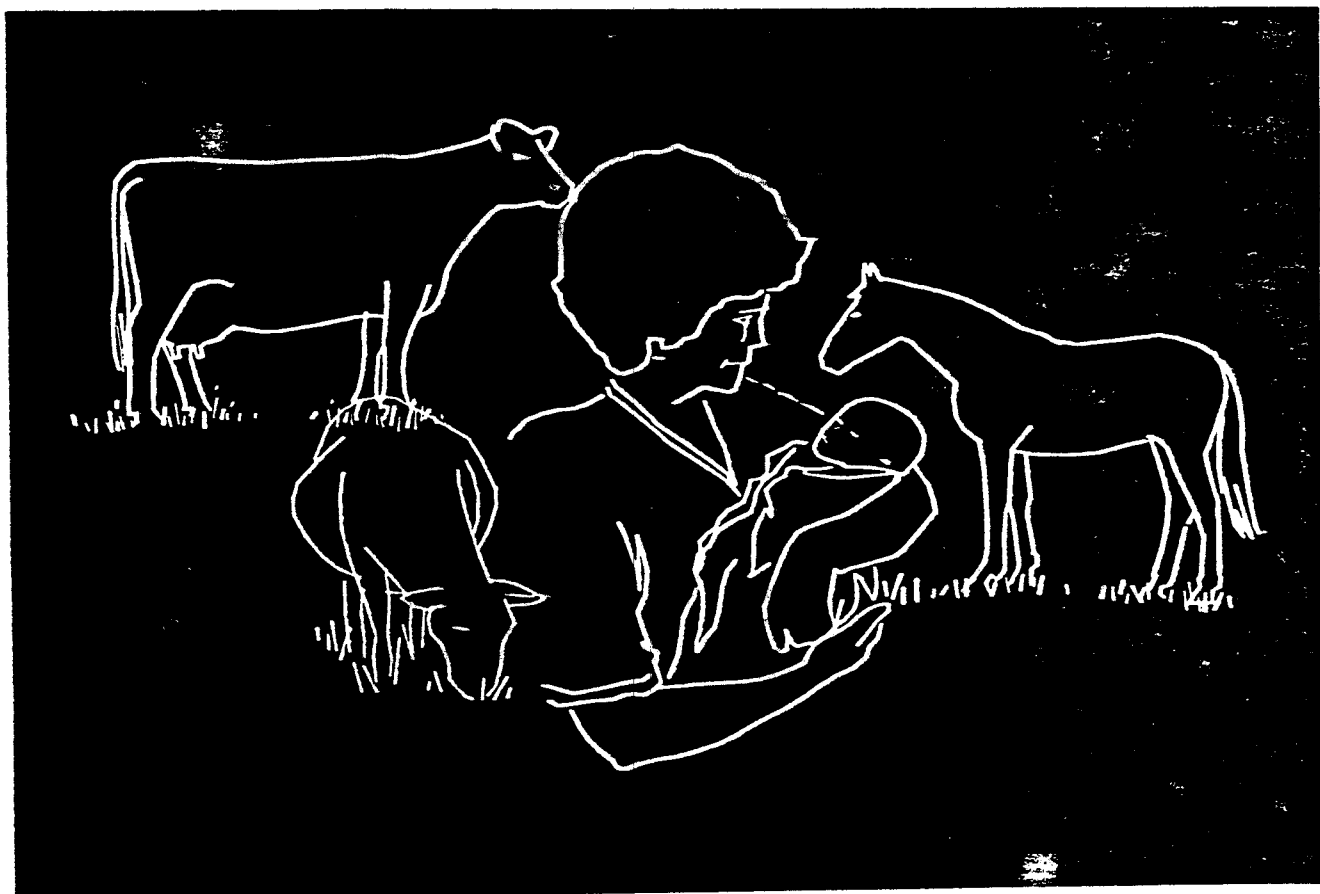
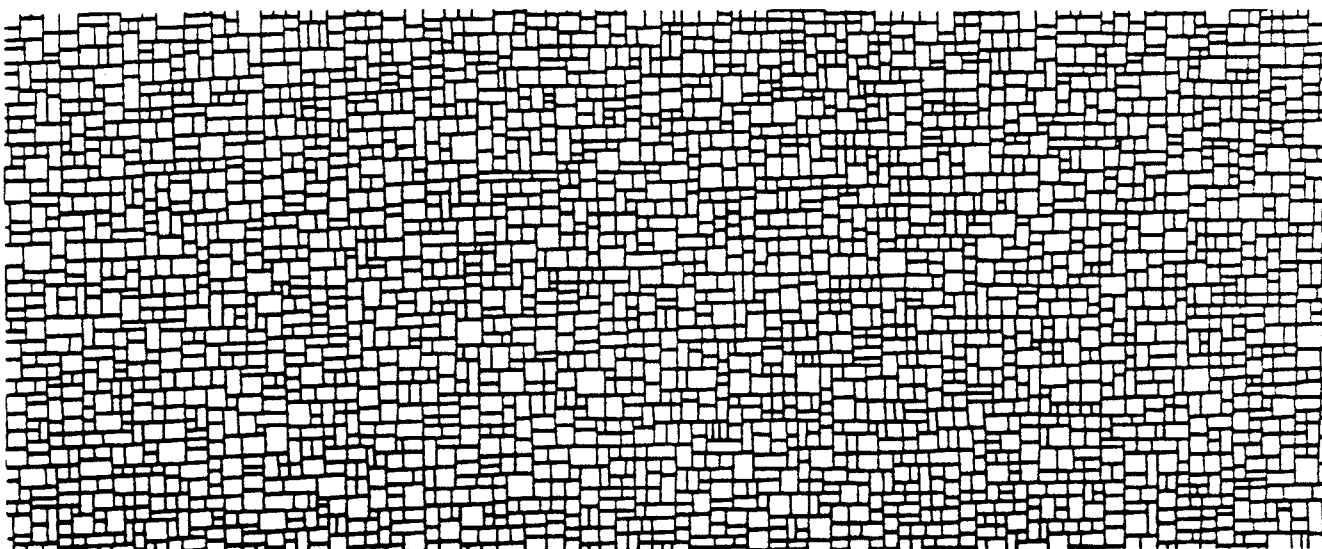
Another health concern with nitrates is a possible interaction with organic compounds (secondary amines) to form N-nitrosoamines, known to be active carcinogens. There are many organic compounds which could link with nitrates to form N-nitrosoamines, including some pesticides. This may be especially noteworthy since wells with high nitrate levels are often vulnerable to pesticide contamination. Immediate and chronic health concerns of N-nitrosoamines to humans are not well understood.

Livestock: Nitrate poisoning is most likely in ruminant animals such as cattle and sheep. Bacteria present in the rumen convert nitrate to toxic nitrite.

For a safe water supply:

- Ensure safe well construction
- Protect water from contamination
- Get recommended water tests
- Select treatment based on tests
- Save and compare test results

Nitrate in Drinking Water





G87-829

Fertilizer Nitrogen Best Management Practices

Richard A. Wiese, Extension Soils Specialist
Richard B. Ferguson, Extension Soils Specialist
Gary W. Hergert, Extension Soils Specialist

How best to use nitrogen fertilizer on your crops. Some priority steps growers must take are discussed in this NebGuide.

Best management practices for nitrogen fertilizer use should be every grower's goal for every crop on every field. High nitrogen use efficiency, or using fertilizer nitrogen in a most effective manner, is the main goal in a "best management practice" approach. An increase in crop use of applied nitrogen fertilizer, a larger increase in yield with a reduced application of nitrogen fertilizer, and reduced nitrogen leaching loss due to a shift in time or method of application are some ways to improve nitrogen use efficiency.

There are many alternative decisions on how to best use nitrogen fertilizer on crops. This NebGuide emphasizes some useful information and high priority activities for sound nitrogen fertilizer use. Details of effective nitrogen fertilizer use are found in other NebGuides listed at the end of this one.

An important point to remember throughout this reference is that crops cannot tell the difference among sources from which they get their nitrogen. Crops, therefore, use nitrogen from a variety of sources. Nitrogen fertilizer is one of these sources.

Crop growers have several priority steps they must take in the following order to improve nitrogen fertilizer use on all fields.

1. Determine a realistic yield goal.
2. Determine soil residual nitrate (NO₃⁻-N).
3. Determine the nitrogen contribution from (a) irrigation water, (b) legumes, and (c) manure.
4. Use the above three steps to calculate fertilizer nitrogen rate for a crop and decide on the best application method.
5. Practice good irrigation water management.

Yield Goal Determination

Determining a yield goal is the most important step because the rate of nitrogen fertilizer is based upon your yield goal. Production records will show that crop yields vary from year to year. To determine a realistic yield goal use the average yield on a field over a 5-year period and add no more than 5% to the average. Examples:

| Crop | Year | | | | | Avg. | Avg. plus 5% |
|---------------|------|-----|-----|-----|-----|------|--------------|
| | 1 | 2 | 3 | 4 | 5 | | |
| Corn (bu/A) | 83 | 94 | 45 | 70 | 110 | 80 | 84 |
| | 135 | 190 | 156 | 170 | 142 | 159 | 167 |
| Wheat (bu/A) | 62 | 40 | 56 | 32 | 45 | 47 | 49 |
| Grain Sorghum | 92 | 65 | 45 | 103 | 70 | 75 | 79 |

Yields will be either below or above a true average yield 50% of the time. Attaining a yield goal of the field average plus 5% (equal to 105% of the average) can occur 1 or 2 years out of every 5. Weather differences (particularly seasonal rainfall and temperatures) from year to year cause most of the yield variation.

Setting yield goals so high that they are rarely attained leads to the use of excess nitrogen fertilizer because nitrogen fertilizer rates are directly related to yield goals.

Residual Soil Nitrate (NO₃⁻-N) Determination

Once yield goal is calculated the next important information is residual soil nitrates. About one-third of cropped field soils will have large enough quantities of residual nitrate (NO₃⁻-N) to justify a reduction in applied fertilizer nitrogen. Some fields will have enough residual nitrate to produce a good crop without any added nitrogen fertilizer as shown in Table 1.



G82-586

Effects of Agricultural Runoff on Nebraska Water Quality

Elbert Dickey, Extension Agricultural Engineer

Phillip Harlan, Extension Agronomist

Don Vokal, Extension Technologist, Agronomy

C. J. Kisling-Crouch, Technical Writer, Agricultural Engineering

The Federal Water Pollution Control Act Amendments of 1972 and the Clean Water Act of 1977 were written in response to a national concern for decreasing surface and groundwater quality. These laws set 1985 as a target date for eliminating pollutant discharges into navigable waters. An interim goal of the acts calls for "water quality which provides for the protection and propagation of fish, shell fish, and wildlife and provides for recreation in and on the water", where attainable, by July 1, 1983.

To accomplish these goals, each state was given the responsibility to develop a water quality management plan which identified problem areas and suggested possible solutions. Nebraska has prepared such a plan and has filed it with the Environmental Protection Agency.

To prepare Nebraska's Water Quality Management Plan, the Nebraska Natural Resources Commission sponsored public meetings and hearings for private citizens and members of organizations from across the state who were interested in this issue. Water quality data and pollution sources information were used at these planning meetings to identify eleven water quality problem areas:

- 1) Agricultural runoff.
- 2) Leaching of nitrates, pesticides and other chemicals into groundwater.
- 3) Improper operation and maintenance of waste water treatment plants and insufficient operator training.
- 4) Roadside erosion.
- 5) Stream bank erosion.
- 6) Irrigation returns flows.
- 7) Construction site runoff.
- 8) Urban runoff.
- 9) Residual waste disposal site contamination of surface and groundwater and land application of wastewater effluent and sludge.

10) Feedlots.

11) Septic tanks.

Although all of these problem areas are important, agricultural runoff and the resulting water quality problems are of greatest concern to Nebraska. Effective methods to alleviate these problems are also suggested in Nebraska's Water Quality Management Plan. These methods, called best management practices, are practical and manageable on a voluntary basis.

Agricultural Runoff

Agricultural runoff is excess water from rainfall and other precipitation that runs off the land. When uncontrolled, agricultural runoff removes topsoil, nutrients, pesticides, and organic materials and carries them to water bodies where they become pollutants. In Nebraska, the estimated average erosion rate is more than 140 million tons annually. By volume, sediment resulting

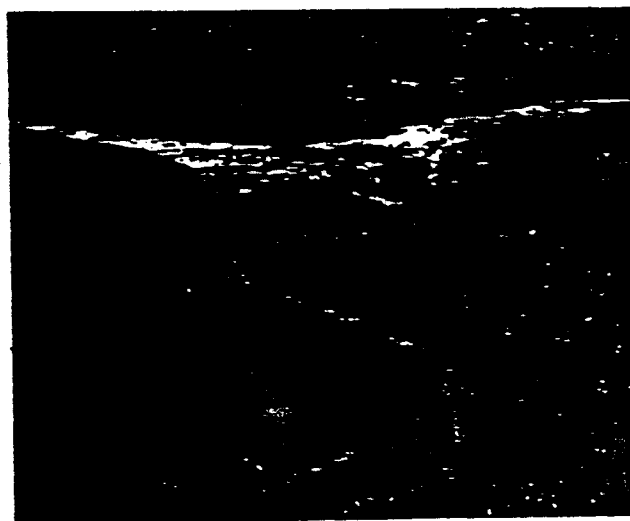


Figure 1. Soil erosion caused by agricultural runoff.



G89-913

Adjusting Nitrogen Fertilizer for Corn Based on Nitrate Levels in Soil and Irrigation Water

Richard B. Ferguson, Extension Soils Specialist
Richard A. Wiese, Extension Soils Specialist

This NebGuide contains a five-step process for determining the fertilizer nitrogen rate for corn.

Nitrogen (N) necessary for crop growth can be obtained from a variety of sources. Nitrogen fertilizer is necessary in most cases to supplement other sources of nitrogen for optimum yield. Several of the sources of nitrogen for crop growth, other than fertilizer, are listed below.

1. Nitrogen from soil organic matter—The amount of plant available nitrogen released from soil organic matter varies from year to year. This nitrogen becomes available through the process of mineralization, which is a microbial process. Consequently, mineralization proceeds more rapidly under warm, moist conditions than under cool, dry conditions.

2. Nitrogen from residual soil nitrate—Nitrate is the end product of several conversion processes occurring in soil. These processes affect nitrogen from all sources: organic matter, manure, fertilizer, etc. Significant amounts of nitrate can remain in the soil if nitrogen fertilizer is only partially used by a crop. Significant amounts of nitrate also can result from the decomposition of manure or other waste products, and the decomposition of residue from sod legumes, such as alfalfa or sweet clover.

3. Nitrogen from irrigation water—Nitrate derived from irrigation water can be a valuable source of nitrogen for crops. The amount of nitrogen available depends on the nitrate concentration in the water and the amount of irrigation water applied.

4. Nitrogen from manure and other waste products—Nitrogen derived from manure, compost, sewage sludge, etc. is usually in both organic and inorganic forms. The inorganic, or plant available forms, can be used immediately by plants, while organic forms gradually will decompose over time into inorganic forms. Waste products can serve as a significant source of nitrogen, with part or most of the nitrogen being slow release in nature.

5. Nitrogen from legumes—Depending on the legume, 20 to 100 pounds of nitrogen per acre can be supplied to a crop following the destruction of the legume by incorporation or spray.

The procedure outlined below is a five-step process for determining the fertilizer nitrogen rate for corn after adjusting for nitrogen present as residual nitrate in the soil and nitrate present in irrigation water. This outline can be used for dryland corn as well.

- Step 1. Determine yield goal.
- Step 2. Determine residual N in soil.
- Step 3. Determine fertilizer N based on yield goal and soil residual N.
- Step 4. Determine N contribution of irrigation water.
- Step 5. Determine N fertilizer recommendation, based on yield goal, soil residual N, and irrigation water nitrate content.

For adjustments for other nitrogen sources, such as manure or legumes, see *NebGuide G87-829, Fertilizer Nitrogen Best Management Practices*.

Using Legumes in Crop Rotations

Ray E. Lamond
Extension Specialist
Soil Fertility and Management

David A. Whitney
Extension State Leader
Agronomy Program

Larry C. Bonczkowski
Extension Specialist
Crop Protection, NE

John S. Hickman
Extension Specialist
Soil and Water Conservation

The process of nitrogen fixation

Rhizobia bacteria interact with legume host plants to change atmospheric dinitrogen (N_2) gas into a form usable by the host plant and subsequent crops. This process is called symbiotic nitrogen fixation. The *Rhizobia* bacteria inhabit nodules on the roots of host legume plants. The host plant provides energy for the reactions through which the bacteria convert atmospheric dinitrogen (N_2) gas into usable nitrogen. The atmospheric nitrogen used in this process is inexhaustible, as the earth's atmosphere is 78 percent N_2 gas.

Factors affecting nitrogen fixation

The amount of nitrogen fixed in this process varies with the strain of bacteria, condition of the host plant, and various soil and climatic conditions. Nitrogen fixation has been estimated to be as high as 450 pounds of nitrogen per acre by a crop of clover in New Zealand. However, this occurs only under optimum conditions; amounts are normally much less—in a range of 40 to 200 pounds per acre.

Type of bacteria: *Rhizobia* bacteria are host plant specific—that is, the inoculum for soybeans is not the same strain that would be used for inoculating alfalfa. The chart below lists the *Rhizobia* species required for commonly grown legume crops.

Inoculum labels indicate the legume plants for which the bacteria are effective. Remember, the bacteria in the inoculum are sensitive living organisms and should be treated accordingly. Inoculum should be stored in a cool, dry place away from direct sunlight, and should be used according to label directions before the expiration date. Legume seed preinoculated more than 30 days prior to seeding should be re-inoculated before seeding.

Once a population of *Rhizobia* is established in the soil, it probably is not necessary to re-inoculate provided the host plant is grown periodically. It is essential, however, to inoculate on new ground where the legume is being grown for the first time, and advisable if there is any question of the bacteria's presence in the soil.

Host plant and environmental conditions: Because the *Rhizobia* depend on the host plant for the energy required in nitrogen fixation, anything that limits normal plant growth and development will affect nitrogen fixation. Symbiotic nitrogen fixation requires oxygen, so well-aerated soils with good host plant growth provide the optimum environment. Poorly drained, water-logged soils are detrimental to host plant root growth and to the *Rhizobia* bacteria.

Nutrients other than nitrogen need to be at levels adequate for normal growth and development. Phosphorus is especially critical, as legumes are heavy users of phosphorus. Steps should be taken to be sure the phosphorus supply is adequate.

Small amounts of residual nitrogen in the soil or small amounts of nitrogen added before or at seeding are not detrimental to the bacteria. In fact, 10 to 30 pounds of nitrogen is recommended on ground being seeded to a legume for the first time. This small amount of nitrogen gets the host plants off to a vigorous start, allowing rapid development of nodules and subsequent nitrogen fixation. However, research has shown that large amounts of residual nitrogen in the soil, either from carry-over or added nitrogen, reduce nitrogen fixation. Apparently, the host plant expends less energy by utilizing residual soil nitrogen than by fixing nitrogen

(continue next page)

| <i>Rhizobia</i> species | Legume crop |
|--------------------------------|--------------------------|
| <i>Rhizobium meliloti</i> | Alfalfa, sweet clover |
| <i>Rhizobium trifolii</i> | Red clover, white clover |
| <i>Rhizobium leguminosarum</i> | Pea, sweet pea |
| <i>Rhizobium phaseoli</i> | Dry bean |
| <i>Rhizobium japonicum</i> | Soybean |
| <i>Rhizobium lupini</i> | Lupine |

PESTICIDES IN GROUNDWATER

NPS Training Sessions

September 1989

INTRODUCTION

Groundwater is important to the physical and economic well being of Kansans as it is the major source of water for agricultural irrigation, industry, and drinking. Like surface waters, groundwater can be polluted by human activities. This publication addresses pesticides in groundwater, including a discussion on mechanisms of pesticide movement to groundwater.

Agricultural pesticides are widely used in crop production for control of weeds, insects, plant diseases, and rodents. Pesticides are also commonly used on forestland, lawns and gardens, as well as highway, railroad, and utility rights-of-ways. Pesticides have been instrumental in combating diseases such as malaria, yellow fever, and typhus. Unfortunately, certain pesticides are also toxic to non-target organisms. Fish kills, reproductive failure in birds, and acute illness in people have been attributed to exposure to or ingestion of pesticides - often as a result of misapplication or careless disposal. Pesticide losses to non-target sites, such as groundwater, represent economic and energy losses to producers as well as a threat to the environment. Groundwater contamination is of particular concern because pesticides degrade slower in groundwater than in other environments, dilution of the pesticide does not occur rapidly, and groundwater is the major source of irrigation and drinking water. Careful management of pesticides is essential to avoid environmental contamination.

SOURCES OF PESTICIDE CONTAMINATION TO GROUNDWATER

Groundwater can become contaminated by pesticides at any point in the life cycle of the pesticide: its manufacture, distribution, storage, use on the land or industrial settings, and disposal.

Pesticide contamination can include accidental spills and leaks at manufacturing facilities, and where bulk pesticides are stored and handled, such as agricultural chemical dealerships and commercial applicator facilities. Hazardous and municipal waste landfills and other waste handling or treatment facilities where pesticides are disposed of are also include in this category. These sites are referred to as point sources of contamination and are regulated by federal and state legislation. Pesticide contamination of groundwater from these sources is a very complicated process and won't be addressed in this publication.

Contamination of groundwater by pesticides can also occur from agricultural, industrial, and home use. Contamination from these sources may extend over wide areas at very low concentrations which build up over years of pesticide use which makes it very difficult to determine the precise cause of a pesticide contamination problem. Three specific mechanisms for potential contamination of groundwater by pesticides will be discussed; run-in, losing streams, and leaching.

Run-in

Run-in is transport of pesticides to groundwater by direct routes, such as drinking water wells, irrigation wells, oil wells, test wells, sounding holes, or sink holes. Sink holes are hollows or depressions common in karst (limestone) topography, which contain porous or fractured bedrock. Run-in occurs when pesticide misapplication, spills, runoff, or careless disposal of unused material, including containers, occurs near such sites. These routes act as direct pathways to groundwater for pesticides dissolved in runoff water or attached on eroding soil. Run-in contamination can often be avoided by careful use and disposal of pesticides and by following pesticide label directions.

Back-siphoning of pesticides from sprayer tanks is another example of run-in contamination. To prevent back-siphoning, keep the end of the fill hose above the water level in the spray tank at all times during filling. Inexpensive anti-back flow devices for fill hoses can be purchased to prevent back-siphoning. Back-siphoning can also occur during chemigation if failure of the irrigation pump occurs. Kansas chemigation law requires interlock devices on chemigation equipment.

When filling spray tanks, maintain a distance of 300 feet from the well and always add pesticides after arriving at the field. Never rinse spray tanks near the well.

Losing Streams

The exchange of water between surface water streams and groundwater aquifers is also a potential mechanism for pesticide contamination of groundwater. A stream which flows near the surface of an aquifer will lose water to the aquifer if the water surface in the stream is higher than the water table of the aquifer. Such a stream is called a losing stream. Groundwater contamination can occur when pesticide contaminated water in a losing stream is lost to the groundwater. Pesticides in surface waters may result from runoff losses or misapplication.



The Pesticide Label

Larry D. Schulze, Extension Pesticide Coordinator, and
Shripat T. Kamble, Extension Specialist Pesticide Impact Assessment

This NebGuide describes the parts of a pesticide label to aid understanding and promote safe and effective use of pesticide products.

Pesticide information can be provided to end users through labels and labeling. Not all pesticide products have labeling. While the words are similar, they have distinctly different meanings.

Labeling

Labeling, as provided by the manufacturer, gives additional information concerning the pesticide product. Labeling includes booklets, brochures, flyers and other information distributed by the pesticide dealer or manufacturer. Labeling also may include information provided by the Environmental Protection Agency (EPA) on maps indicating the habitats of endangered species.

Label

Now, what about the label? The label is the printed information on or attached to the pesticide container. The label contains specific information of interest to various parties.

For example, to the manufacturer the label means the product may be sold and distributed with approval from the EPA. State and federal governments rely upon the label to control the distribution, storage, sale, use and disposal of the pesticide.

The buyer and user of the pesticide learn how to use the product correctly and legally from the label. Physicians may depend upon the label for information for proper medical treatment in poisoning cases.

For the applicator, the label provides guidelines for correct application and use of the pesticide. The label identifies the classification of the pesticide as either general or restricted use, and the specific sites for the intended applications.

By law, a pesticide can only be applied to a site identified on the label, even though specific pests may not be

indicated. A site can be a crop, animal or location the product is intended to protect.

Pesticide Label Requirements

The manufacturer is required by law to furnish certain information on the label. The information includes the brand name or trade name of the product, the ingredient statement, the percentage or amount of active ingredient(s) by weight, the net contents of the container, and the name and address of the manufacturer.

Other required parts of the label are the registration and establishment numbers, signal words and symbol, precautionary statements, statement of practical treatment, environmental hazard statement, classification statement, directions for use, re-entry statement as necessary, harvesting and/or grazing restrictions, and storage and disposal statement. Following are details on the parts of the label, which are numbered for identification on the sample on the second page.

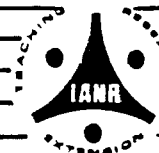
1. **Brand, trade, or product name:** A single pesticide active ingredient may be marketed at the same time under several brand names. Each label may designate a different use of the product. A specific brand name, usually registered as a trademark, will identify a product as produced by a particular manufacturer.

2. **Ingredient statement:** Every pesticide product label must include the active and inert ingredients. The amounts (percentage by weight) of the ingredients are also printed on the label. Often, the *chemical name* of the active ingredient is stated. If an approved *common name* of the active ingredient exists, it may be listed and followed by a chemical name. Brand or trade names are indicated on the front panel of the label and are used in advertisements, by company representatives and pesticide dealers. The names of inert ingredients sometimes are not stated, but the label must indicate their percentage to the total contents.

Net weight or measures of content: The net contents are displayed prominently on the front of the label. Net



NebGuide



G79-479

(Revised August 1987)

Pesticide Laws and Regulations

Edward F. Vitzthum, Associate Coordinator, Environmental Programs
 Larry Schulze, Pesticide Training Coordinator
 Roger E. Gold, Coordinator, Environmental Programs

A succession of laws relating to pesticides has been part of the federal statutes since shortly after the turn of the century. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) first appeared in 1947. It has undergone several major amendments over the years, the latest of which was signed into law in September 1978. FIFRA and the Nebraska Pesticides and Devices Act are the principal statutes governing the use of agricultural pesticides in Nebraska. This publication presents only selected provisions of both laws and is intended solely for general information use.

FIFRA

The intent of FIFRA is to protect both man and the environment. It seeks to insure this protection by providing for the controlled use of pesticides. The law contains provisions on pesticide registration, classification, labeling, distribution, use, and other topics. Those sections pertaining to pesticide users broadly address three key issues: user categories, certification, and penalties for violations.

User Categories

The law recognizes two pesticide user categories — private and commercial applicator. A private applicator is defined as being a certified applicator who uses or supervises the use of a restricted use pesticide to produce an agricultural commodity on property he/she owns or rents, on an employer's property, or on the property of another person (if there is no compensation other than trading personal services). A commercial applicator is any person who uses or supervises the use of restricted use pesticides for any purpose other than producing an agricultural commodity.

FIFRA recognizes two classes of pesticides — *general use* and *restricted use*. Some pesticides can be registered for both general and restricted use. Classifying a pesticide "for restricted use" by regulation is also authorized.

Two points about these definitions are especially important. First, in order to use or supervise the use of restricted use pesticides, a person *must* be certified. Secondly, any use of a "restricted use" pesticide by a noncertified applicator *must* be supervised by a certified applicator from the beginning to the end of the application. In supervising the work of a noncertified applicator the certified applicator must:

- 1) determine the level of experience and knowledge of the noncertified applicator in the use of a pesticide;
- 2) provide verifiable detailed guidance on how to conduct each individual pesticide use performed under his direct supervision;
- 3) accompany a noncertified applicator to at least one site which would be typical of each type of pesticide use that the noncertified applicator performs;
- 4) be accessible to provide further instructions at all times during the noncertified applicator's use of a restricted use pesticide;
- 5) be able to be physically on the site, should the need arise, where the pesticide use or storage is taking place within a reasonable period of time.

Some FIFRA provisions affect only private applicators. For example, the administrator of the U.S. Environmental Protection Agency (EPA) cannot require that persons wishing to be certified or recertified as private applicators take and pass an examination. Nor can private applicators be required to maintain records or file any reports or documents.

FIFRA clearly states that using a pesticide in a manner inconsistent with its labeling is unlawful. Some procedures are specifically exempted under this provision and they include:



NebGuide



G79-472

Disposal of Pesticide Containers

Edward F. Vitzthum, Communications Specialist/Environmental Programs
 Emery W. Nelson, Pesticide Training Coordinator
 Roger E. Gold, Coordinator, Environmental Programs

Modern agriculture depends heavily on pesticides. Estimated usage in one recent year, according to USDA, exceeded 330,000 tons (297,000 t). Because of their toxicity, pesticides are a potential hazard to humans, domestic animals and wildlife. Even in very small quantities, some can have substantial impact on the environment. As a result, there has been a growing concern in recent years for protecting the environment from undue pesticide contamination.

The combination of these factors has brought pesticide users face to face with several issues. Disposal of the empty cans, barrels, bags, bottles and plastic containers accumulated in the course of using pesticides is one of them.

Labels which manufacturers affix to pesticide containers normally provide some guidance on their disposal. Always comply fully with manufacturer's specific directions, as well as applicable regulations published by federal, state and local authorities. The recommendations in this publication are intended to be used only insofar as they do not conflict with any existing pesticide container disposal regulations.

Container Disposal

Except for returning an unadulterated, unused product to its original container (with the container label intact), never reuse any pesticide container once it has been emptied. Even after rinsing, some pesticide residue may remain. Storing or transporting water, feed or seed in a container which originally held a pesticide is an open invitation to disaster.

Do not abandon empty containers or allow them to accumulate in an easily accessible area. This will prevent unauthorized salvaging and conversion to other uses. However, it may not always be possible to dispose of pesticide containers immediately after they have been emptied. In those cases, handle the containers as though they still contained the pesticide and return them to a secure storage area (see NebGuide G79-460: *Farm Pesticide Storage*).

Regardless of whether an individual is applying a pesticide or preparing containers for disposal, some safety precautions are common to both.

1. Protective clothing (gloves, face shield, goggles, breathing apparatus, etc.) should be worn if required by label instructions.
2. Always avoid skin contact with the chemical and/or the rinse solution, and breathing the chemical vapor.
3. Always wash thoroughly with soap and water before eating, drinking or smoking, and after the job of disposal is completed.

U.S. Environmental Protection Agency guidelines divide containers into three groups.

Group I includes combustible containers which held pesticides other than those which contain heavy metals such as organic mercury, lead, cadmium or arsenic compounds. *Group II* containers (metal, glass and plastic) will not burn and held the same kinds of pesticides as were packaged in *Group I* containers. *Group III* includes both combustible and non-combustible containers used as packaging for pesticides containing heavy metals.

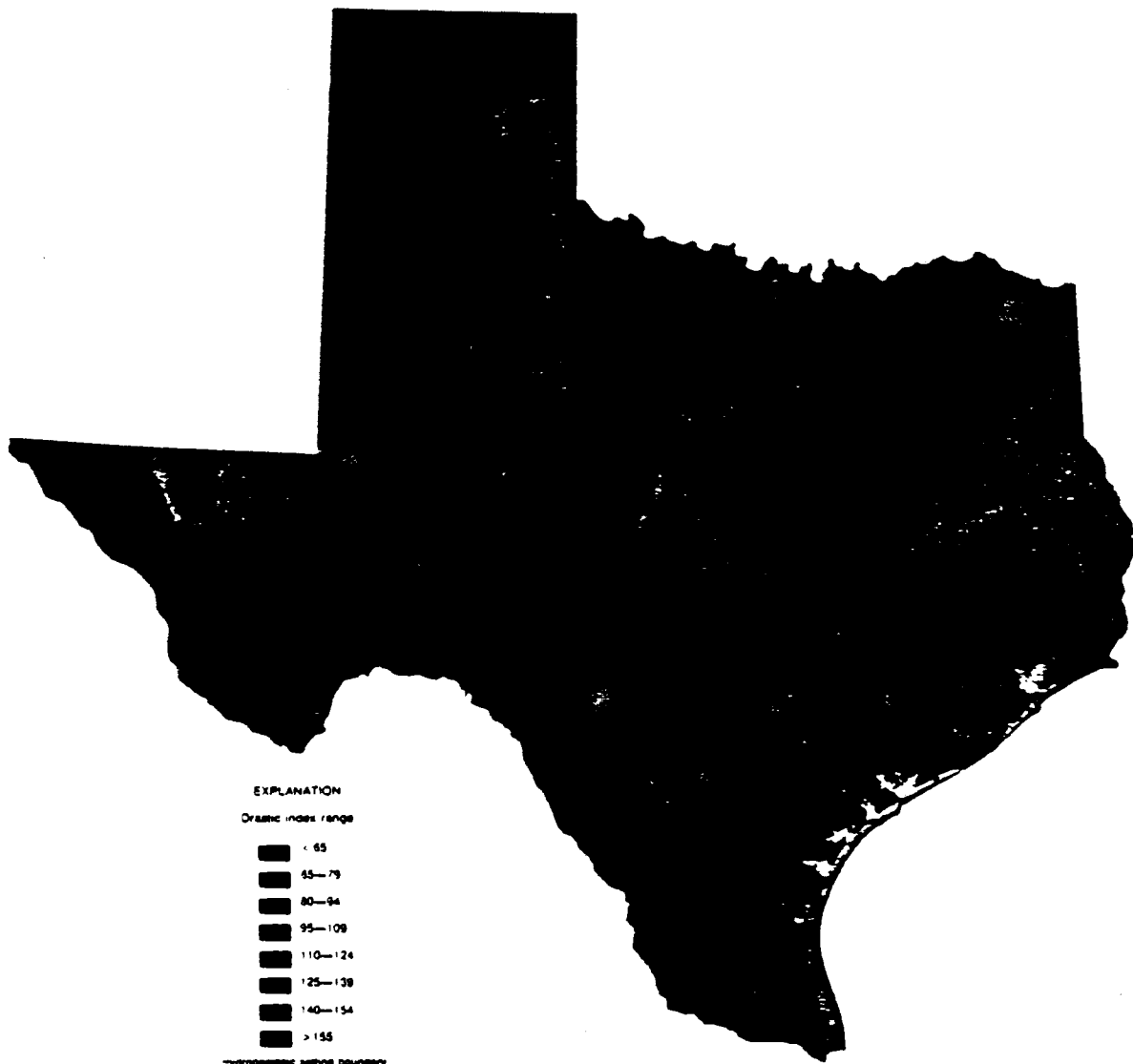
Table 1. Pesticide Container Classification

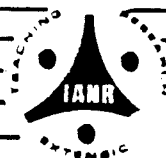
| Container Group | Container Type | Type Pesticide(s) Packaged |
|-----------------|--|---|
| I | Combustible | All pesticides except heavy metals |
| II | Noncombustible (Metal, Glass Plastics) | All pesticides except heavy metals |
| III | Combustible & Noncombustible | Heavy metals (Organic mercury, lead cadmium, arsenic, etc.) |



Texas Agricultural Extension Service

Protection of Groundwater from Fertilizers and Pesticides





G 83-674
(Revised November 1987)

Hazardous Waste Management Requirements for Pesticide Applicators

Edward F. Vitzthum, Associate Coordinator, Environmental Programs
Roger E. Gold, Head, Dept. of Entomology
Emery W. Nelson, Former Extension Specialist, Pesticide Training
Larry D. Schulze, Extension Specialist, Pesticide Training

NebGuide to inform Nebraska pesticide applicators about selected provisions of federal and state hazardous waste laws and regulations.

Congress passed the Resource Conservation and Recovery Act (RCRA) because of widespread indiscriminate disposal of hazardous chemicals. Under provisions of that law, the U.S. Environmental Protection Agency (EPA) has established national standards for proper management of hazardous wastes. "Management," as EPA uses the term, includes generating, transporting, storing, treating and disposing of hazardous waste.

The EPA has defined hazardous waste as "...any solid, liquid, or contained gaseous material that you no longer use, and either recycle, throw away, or store until you have enough to treat or dispose of." Clearly, many pesticides come within the scope of that definition. Any chemicals, including pesticides, that might cause injury or death or pollute air, land or water, are therefore regarded as being hazardous. Applicators who use such pesticides may be affected by RCRA and related EPA and state regulations. The Department of Environmental Control is responsible for administering and enforcing hazardous waste laws and regulations for the State of Nebraska.

EPA designates as "hazardous waste" any chemical that has one or more of these four characteristics: ignitability, corrosivity, reactivity or toxicity. Most pesticides categorized by EPA as hazardous waste are so classified because of their toxicity. A second way a chemical can be brought into the hazardous waste regulatory system is by listing — i.e. EPA makes an administrative decision that the chemical may pose an unreasonable risk to health or the environment.

Two hazardous waste lists published by the EPA in the Code of Federal Regulations pertain to pesticide applicators. Chemicals on List I are identified as "acute hazardous wastes." Each has a hazardous waste number having the prefix "P." Chemicals on List II are referred to in federal regulations as "toxic wastes." The hazardous waste numbers of chemicals on this list have the prefix "U."

Use all pesticides safely. Read the pesticide label completely and comply with all directions. Failure to do so may subject you to sanctions or penalties provided by federal and/or state laws.

Pesticides¹ currently on List I, the "Acute Hazardous Waste" list (EPA designated "P" List), are:

- Acrolein
- Aldicarb (Temik)
- Aldrin
- Allyl alcohol
- alpha-Naphthylthiourea
- Aluminum phosphide (hydrogen phosphide)
- Arsenic acid
- Arsenic pentoxide
- Arsenic trioxide

¹The official list of hazardous waste pesticides is published in the Code of Federal Regulations (40 CFR Part 261) and Title 128, Chapter 15 of the Nebraska State Regulations. The list is subject to periodic change. For more detailed information on provisions of the EPA and state hazardous waste regulations and current lists of pesticides identified as hazardous waste, please contact the Nebraska Department of Environmental Control, 301 Centennial Mall South, P.O. Box 94877, Statehouse Station, Lincoln, Nebraska 68509, (402) 471-2186.



G79-473

Disposal of Excess Pesticides and Related Waste

Edward F. Vitzthum, Communications Specialist/Environmental Programs
 Emery W. Nelson, Pesticide Training Coordinator
 Roger Gold, Coordinator, Environmental Programs

Pesticides, like other resources used in agricultural production, are very expensive. Most producers plan their use of pesticides then mix and apply the products carefully, not only for safety reasons, but also for the sake of economy. Despite one's best efforts to avoid accumulating excess pesticides, it is sometimes necessary to dispose of leftover chemicals.

It also may be necessary occasionally to dispose of pesticide wastes, such as materials used in cleaning up a spill. Pesticide wastes are as hazardous as the pesticide itself. These guidelines, therefore, should be followed in handling both excess pesticides and pesticide wastes.

The Nebraska Department of Environmental Control (DEC) in its "Guidelines for the Disposal of Pesticides, Pesticide Containers and Pesticide-Related Materials," differentiates between a "large" and "small" amount of pesticide on the basis both of quantity and toxicity. A "large" amount of pesticide is said to be:

- a) "The greater of 50 lbs. or 5 gals. for slightly or moderately toxic pesticides."
- b) "The greater of 5 lbs. or 1 gal. for highly toxic pesticides."

The best way to dispose of small amounts of pesticide is to apply it to the same site (specific plant, animal, structure) in another location or against a different pest or site for which the product also is registered. Always double check the container label to be certain the site is registered and that the maximum application rate and permissible residue levels will not be exceeded.

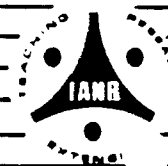
DEC also recommends a "Ground Surface Disposal" method. In using this approach to disposing of small amounts of pesticides, it is recommended that an applicator spread the pesticide thinly in an area where it is certain the chemical will do no harm. All container label restrictions must be complied with in using this method. Do not drain surplus pesticide in any location where it can contaminate wells, streams or other surface water. Persistent toxic pesticides (those containing heavy metals or chlorinated hydrocarbons) should be disposed of in a licensed sanitary landfill or by ground burial.

For each gallon (3.8 l) of liquid, or 10 lbs. (4.5 kg) solid excess, a slit trench two to three feet (60 to 90 cm) long, six inches (15 cm) wide at the bottom, and 24 inches (60 cm) deep is recommended. The water table should be at least six feet (1.8 m) below the bottom of the burial trench in clay soil.

To the extent possible, it is also recommended that application be the first alternative considered in disposing of "large" quantities of pesticides, providing that use remains permissible under current federal, state and local laws and regulations. As a second alternative, pesticides still in unopened original containers, or still in concentrated form, may be returned to the dealer or manufacturer. However, prior arrangements should be made before returning any pesticide to a supplier or manufacturer. Never ship repackaged pesticides without first contacting both the Pesticide Branch, U.S. Environmental Protection Agency, Region VII, Kansas City and the U.S. Department of Transportation.

When disposal by one of these methods is not feasible, federal guidelines recommend disposing of organic pesticides and chlorinated hydrocarbons by incineration or by burial in specially designated landfills. Information on incineration facilities and secured or specially designated landfills in EPA Region VII (Nebraska, Kansas, Missouri and Iowa) is available through the Solid Waste Control Division, Nebraska Department of Environmental Control (DEC), Box 94877, Statehouse Station, Lincoln, NE 68509, telephone (402) 471-2186. DEC has established the following procedure to facilitate the safe, orderly disposition of any large quantity of pesticides or pesticide-related waste:

1. Pesticide owner notifies DEC of intention to dispose of pesticides/wastes.
2. Owner files written request for permission to dispose of pesticides/wastes, listing type, amount, composition, containerization and location.
3. DEC responds within two weeks designating the closest disposal site suitable for handling



G89-943
(Revised August, 1989)

Laundering Pesticide Contaminated Clothing

Joan Laughlin, Professor of Textiles, Clothing and Design
Roger Gold, Professor of Entomology

The importance of wearing protective clothing when working with pesticides is discussed here, as is the importance of careful laundering of that clothing.

Pesticide safety procedures always emphasize reducing potential human exposure. Pesticides can enter the body through the mouth, the respiratory system and the skin. The greatest amount of pesticide enters the body by absorption through the skin.

Covering the body can reduce exposure to pesticides. Use protective clothing and equipment to reduce skin exposure.¹

Clothing soiled by low toxicity pesticides can be laundered effectively, even if soiling is extensive. Use the pesticide label as a guide to which chemicals are more toxic. Key words on all pesticide labels identify the toxicity of the product (*Table I*).

Table I.

| Key Word | Toxicity | Examples* |
|--------------------------------|-------------------------------|---|
| DANGER POISON | Highly toxic/ concentrated | Counter ® Disyston ® Parathion Furadan ® Dyfonate ® |
| WARNING | Moderately toxic | Diazinon Sonalan ® Lorsban ®/Dursban ® |
| CAUTION | Slightly Toxic | 2,4-D Sevin ® Atrazine Malathion |

*Toxicity of the pesticide may vary depending upon the formulated product.

¹Pesticide manufacturers are required by federal law to specify the clothing/equipment a user needs to apply a pesticide safely. Because the pesticide label has the force of law, failure to wear specified protective clothing is a violation of federal law.

Hazards are less pronounced in handling clothing exposed to low toxicity pesticides. The ease of pesticide removal through laundering does not depend on toxicity level; however, it depends on chemical class, solubility, and formulation of the pesticide. For example, 2,4-D amine is easily removed through laundering because it is soluble in water; 2,4-D ester is much more difficult to remove through laundering.

Clothing contaminated with highly toxic and concentrated pesticides must be handled most carefully, as these pesticides can be absorbed through the skin, and/or cause serious skin injury. In general, as the concentration of active ingredients (AI) in the pesticide increases, the removal of pesticide residue by laundering decreases. Clothing contaminated with a highly concentrated and/or highly toxic pesticide should be discarded using disposal directions found on the pesticide container label.

A Nebraska study on highly toxic methyl parathion concentrate (54 percent AI) indicates that less than 20 percent was removed by one laundering. After 10 launderings, 34 percent of the concentrate remained in the fabric. The level of residue remaining was enough to kill insects, and to cause major health hazards to humans.

Skin exposure may be reduced appreciably by proper laundering to remove pesticide residues from washable protective apparel and allow reuse of contaminated clothing. Since many pesticides vary in chemical composition, it is only practical to generalize suggestions for the most appropriate laundering procedures.

Certain chemicals are idiosyncratic in their response to laundering conditions. Paraquat is an example of this idiosyncratic response, as the presence of salt ions in the water facilitates paraquat removal in the laundering. For paraquat, the addition of 1/4 cup of salt for each five gallons of wash water significantly improves the ability of the laundering procedures to lower residues.

Unless unique laundering procedures are known for a chemical (and much research still needs to be done), in general, laundering practices known to enhance residue



G84-736

Urban Storage and Disposal of Pesticides and Containers

Emery W. Nelson, Extension Specialist—Pesticide Training
Edward F. Vitzthum, Extension Communications Specialist

This NebGuide provides storage and disposal guidelines for urban pesticide users to follow to avoid accidental poisonings and damage to the environment.

Most accidental pesticide poisonings occur when pesticides are improperly stored or disposed of in a manner that exposes them to people or the environment. The victims of these accidents frequently are children five years old or younger. Pesticide accidents can be prevented by planning and using a safe storage location, and by following simple rules for disposal.

The first step in preventing accidental poisonings is to use good judgment when purchasing pesticides. Buy only the amount that can be used in a reasonable length of time. This will alleviate the problem of long-term storage. In addition, some pesticides should not be stored for long periods because they become less effective. A few become stronger and dangerous to use after lengthy storage. Time limitations for using a pesticide after the container is opened are included in the directions on the product label.

NEVER give a pesticide to neighbors or friends unless the product is in its original container with the label intact. Using any other container is illegal and could be the cause of a pesticide accident.

Storage

Safe storage of pesticides requires a location that is not accessible to children, pets or unauthorized adults. Making arrangements to lock the storage area is advisable, particularly when there is a possibility that children may gain access to it.

The pesticide storage location should be warm and dry. Some pesticides can be reduced in effectiveness if they are frozen. In addition, expansion of pesticides packaged in glass containers can cause containers to

crack or break, resulting in potentially dangerous leaks or spills. Excessively high temperatures can also change the effectiveness of a pesticide and produce dangerous fumes, making the storage area unsafe.

Store pesticides away from foods, pet food and plants. It should be impossible to contaminate these items by accidental spills, leaks or fumes.

Check the pesticide storage area frequently for leaks or spills. Transfer pesticides in a leaking container into a container *exactly* like the original. When this is not possible, put the leaking container with the pesticide into a liquid-proof container and dispose of it as discussed under disposal of excess pesticides.

Should a leak or spill occur, it should be possible to readily decontaminate the storage area. Keep an absorbent material, such as cat litter, sand or old rags, available to soak up spilled pesticides. Dispose of the contaminated absorbent in the same manner recommended for excess pesticides. Wash the spilled area with detergent and water. Wear rubber gloves and other protective equipment if necessary to prevent becoming exposed to the pesticide. Make certain the pesticide is not spread beyond the spill area during the washing procedure. Further decontamination of the spill area with a bleach concentrate solution is suggested.

Also store all pesticide application equipment in the pesticide storage location. After each use, wash pesticide equipment thoroughly and place it in the safe storage.

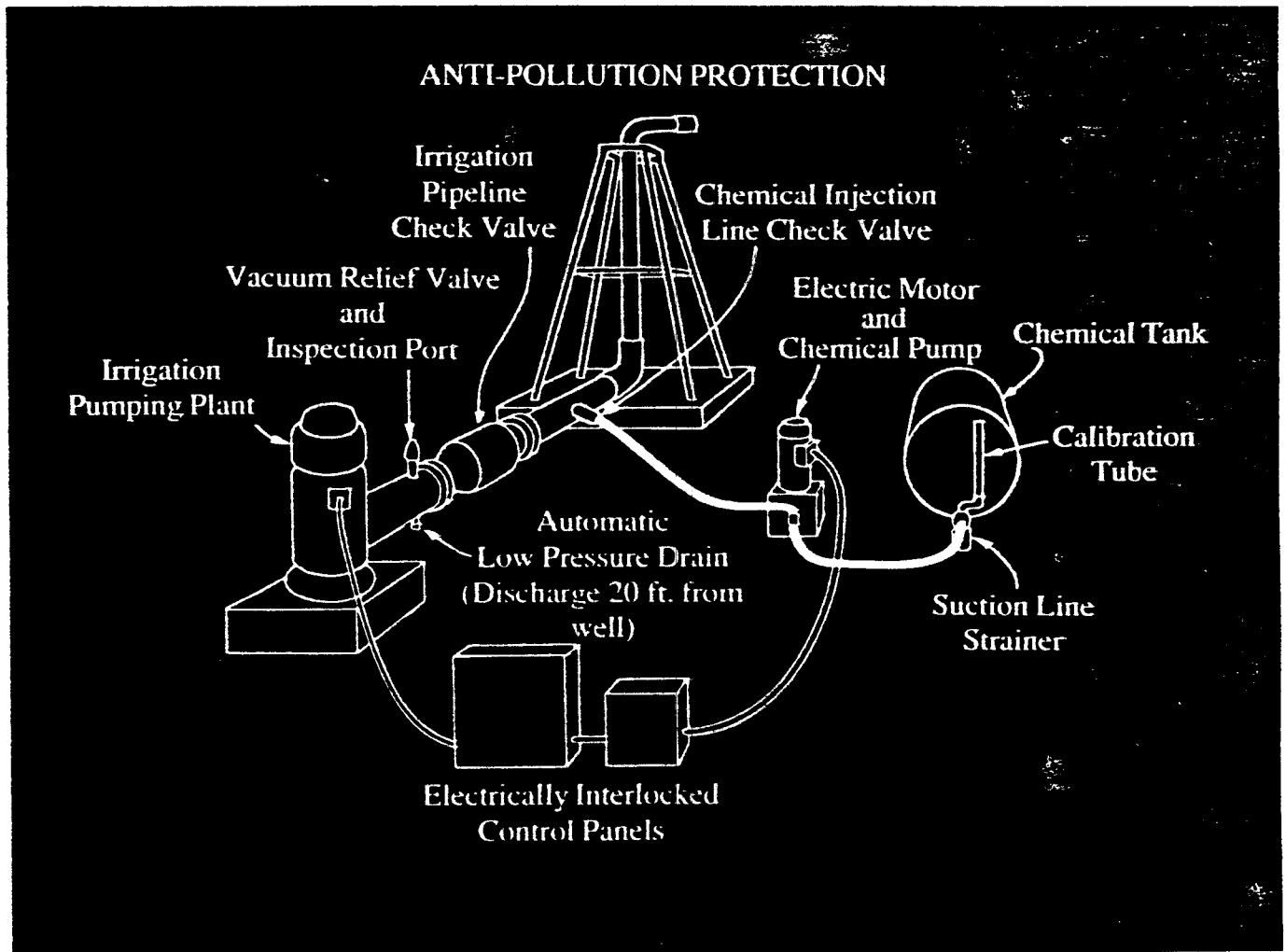
Store herbicides, particularly those that are volatile, separately from other pesticides. Insecticides or fungicides can become contaminated if stored with one of these volatile herbicides, and cause plant injury when they are used.

Be sure all pesticides placed in storage have a complete label. Check the lids to make certain that they are tightly closed.

Warning signs on the pesticide storage location provide additional protection.

Anti-pollution Protection when Applying Chemicals with Irrigation Systems

Dean E. Eisenhauer and DeLynn R. Hay, Extension Irrigation Specialist and Extension Irrigation & Water Resources Specialist



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Leo E. Lucas, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.



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CLEAN WATER

*You Can
Make A Difference*

Water Quality for Livestock and Poultry

by
Fred Bergsrud, Extension Agricultural Engineer
and
James Linn, Extension Animal Scientist

Tab 6

What's Going on Back Home

APPENDIX H
RESEARCH IMPLEMENTATION COMMITTEE
REPORT

RIC met Monday, June 25, 1990 at the Hotel Newport in Newport, Oregon. Members present were: J. J. Zuiches (Chair-elect), V. V. Volk, H. P. Rasmussen, W. D. Carlson, W. G. Chace, L. E. Lassen.

1.0 THE FOLLOWING REGIONAL RESEARCH PROJECTS AND COORDINATING COMMITTEES ARE CURRENTLY SCHEDULED TO TERMINATE ON OR BEFORE SEPTEMBER 30, 1990

W-134 Quantifying the Nematode Pest Management Decision Process (see item 3.1)
W-153 Economic and Behavioral Factors Associated with Food Supplement Usage (see item 4.1)
W-172 Genetic Engineering to Improve Plant Health and Production Efficiency
WRCC-52 Food Legume Production Improvement (see item 6.3)
WRCC-54 Drainage Water Management (see item 6.4)
WRCC-56 Overstory-Understory Relationships in Western Forests and Woodlands
WRCC-62 Systems Based, Expert-Support Systems for Production Agriculture
WRCC-64 Improving Data Quality and Methodology in Rural Social Sciences (see item 6.7)

2.0 REQUESTS FOR PROJECT EXTENSIONS

2.1 IR-006 National and Regional Research Planning, Evaluation, Analysis, and Coordination

A request for extension of IR-006 to September 30, 1991 was received from J. Bruce Bullock (MO), Lead Administrative Advisor.

The Committee of Nine at their May 23-25, 1990 meeting approved the extension of IR-006 to September 30, 1991 with off-the-top RRF funding of \$200,000.

RIC recommends that the proposed replacement for IR-006, the National Research Support Project "The Planning, Evaluation and Reporting of Cooperative Regional/National Research," be rejected. RIC suggests that it is inappropriate to use off-the-top RRF funds to manage regional research projects. The proposed research support is part of CSRS regional research management and should be supported by CSRS administrative funds. RIC recommends that regional planning should be an integral part of ESCOP planning, not a separate NRSP.

(Action of WDA: Approved)

3.0 REQUESTS FOR PROJECT REVISIONS

3.1 W-134 Quantifying the Nematode Pest Management Decision Process

A project outline with the above title was received from Administrative Advisor S. D. Van Gundy (CA-R) on behalf of W-134.

RIC recommends that the outline be rejected. The committee is encouraged to continue their cooperation and submit a petition for a WRCC.

(Action of WDA: Approved)

- 3.2 W-151 Grazing Animal Behavioral Mechanisms and Nutritional Status of Cow/Calf and Ewe/Lamb

A project outline with the above title was received from Administrative Advisor C. C. Kaltenbach (AZ) on behalf of W-151 "Utilization of Range Forage for Rangeland and Domestic Ruminant Animal Production."

RIC recommends approval of W-151 for five years, from October 1, 1990 to September 30, 1995, subject to minor editorial changes.

(Action of WDA: Approved)

- 3.3 W-173 Stress Factors of Farm Animals and Their Effects on Performance

A project outline with the above title was received from Administrative Advisor L. J. Koong (OR) on behalf of W-173.

RIC recommends approval of W-173 for five years, from October 1, 1990 to September 30, 1995.

(Action of WDA: Approved)

4.0 REQUESTS FOR ESTABLISHMENT OF NEW PROJECTS

- 4.1 W- Dietary Fat and Fiber: Knowledge, Perceived Risk and Dietary Practices

A project outline with the above title was received from Administrative Advisor H. F. McHugh (CO) on behalf of W-153 "Economic and Behavioral Factors Associated with Food Supplement Usage."

RIC recommends approval of the outline from October 1, 1990 to September 30, 1995. RIC made the following comment and recommendation: (1) the WDA take note and recognize the commitment which has been made in support of the project, and (2) the technical committee set up an external advisory board to provide assistance on design and procedures, with a possible nutrition specialist from ARS-HNIS or HANES. National Nutrition Surveys might be included.

(Action of WDA: Approved)

5.0 REQUESTS FOR ESTABLISHMENT OF AD HOC TECHNICAL COMMITTEES

None

6.0 REQUESTS FOR WRCC RENEWALS OR EXTENSIONS

6.1 WRCC-11 Turfgrass

A petition for three-year renewal of WRCC-11 was received from Administrative Advisor K. M. Brink (CO).

RIC recommends approval of WRCC-11 for three years, from October 1, 1990 to September 30, 1993, subject to minor editorial changes.

(Action of WDA: Approved)

6.2 WRCC-23 Textiles and Apparel Research Coordination

A petition for three-year renewal of WRCC-23 was received from Administrative Advisor J. A. Thompson (WA).

RIC recommends approval of WRCC-23 for three years, from October 1, 1990 to September 30, 1993.

(Action of WDA: Approved)

6.3 WRCC-52 Food Legume Production Improvement

A request for a one-year extension of WRCC-52 was received from Administrative Advisor D. Heimsch (ID).

RIC recommends that WRCC-52 terminate on September 30, 1990. If interest in the committee is revived, RIC encourages the committee to submit a new petition.

(Action of WDA: Approved)

6.4 WRCC-54 Drainage Water Management

A petition for one-year extension of WRCC-54 was received from Administrative Advisor J. van Schilfgaarde (ARS-CO).

RIC recommends that WRCC-54 terminate on September 30, 1990. The current participants are encouraged to work with W-160 in the development of a revised project outline, as the Administrative Advisor has indicated. If the scientific interests of WRCC-54 cannot be merged with W-160, the committee can submit a petition for a WRCC at a later time.

(Action of WDA: Approved)

6.5 WRCC-59 Influence of Water Quality on Poultry Performance

A petition for three-year renewal of WRCC-59 was received from Administrative Advisor B. L. Reid (AZ).

RIC recommends approval of WRCC-59 for three years, from October 1, 1990 to September 30, 1993, subject to minor editorial changes.

(Action of WDA: Approved)

6.6 WRCC-63 Rural Credit Systems in the West

A petition for one-year extension of WRCC-63 was received from Administrative Advisor J. S. Hillman (AZ).

RIC recommends approval of extension of WRCC-63 for one year, with J. Barron (WA) to replace J. S. Hillman (AZ) as Administrative Advisor.

(Action of WDA: Approved)

6.7 WRCC-64 Improving Data Quality and Methodology in Rural Social Sciences

A petition for one-year extension of WRCC-64 was received from Administrative Advisor J. J. Zuiches (WA).

RIC recommends that WRCC-64 terminate on 9/30/90. RIC further recommends establishment of Ad Hoc W- "Improving Data Quality and Methodology in Rural Social Sciences" for one year, from October 1, 1990 to September 30, 1991 with J. J. Zuiches (WA) to serve as Administrative Advisor.

(Action of WDA: Approved)

7.0 REQUESTS FOR ESTABLISHMENT OF NEW OR AD HOC WRCC'S

7.1 WRCC- Biology and Control of Winter Annual Grass Weeds in Dryland Winter Wheat

A petition with the above title was submitted by Directors G. A. Lee (ID), J. J. Zuiches (WA) and T. R. Dutson (OR).

RIC recommends approval of WRCC-77 "Biology and Control of Winter Annual Grass Weeds in Dryland Winter Wheat" for three years, from October 1, 1990 to September 30, 1993, with G. A. Lee (ID) to serve as Administrative Advisor.

(Action of WDA: Approved)

8.0 FOLLOW-UP OF AD HOC TECHNICAL AND COORDINATING COMMITTEES

None

9.0 ADMINISTRATIVE ADVISOR ASSIGNMENTS

The following Administrative Advisor assignments are tentative, pending acceptance by the named candidates:

- 9.1 W-166 Characteristics and Feed Value of Barley and Western Protein Supplements for Swine. T. R. Dutson (OR) to replace R. B. Muntifering (MT).
- 9.2 W-171 Germ Cell and Embryo Development and Manipulation for the Improvement of Livestock. D. M. Briggs (NM) to replace R. B. Muntifering (MT).
- 9.3 W-178 Water Management and Conservation in Western Irrigated Agriculture. G. Cunningham (NM) to replace D. L. Oldenstadt (WA).
- 9.4 WRCC-39 Increased Efficiency in Sheep Production and Marketing of Lamb and Mutton. R. Ax (AZ) to replace A. C. Linton (MT).
- 9.5 WRCC-63 Rural Credit Systems in the West. J. Barron (WA) to replace J. S. Hillman (AZ).
- 9.6 WRCC-68 International Marketing. M. V. Martin (OR) to replace D. L. Oldenstadt (WA) with the recommendation that WRCC-68 and WRCC-70 meet jointly and consider merging the two WRCCs. M. V. Martin (OR) would serve as Administrative Advisor of the merged WRCC committees.
- 9.7 WRCC-70 Economic Impacts of the U.S.-Canada Trade Agreement. M. V. Martin (OR) to replace D. L. Oldenstadt (WA), see Item 9.6 above.
- 9.8 WRCC-74 Child Development Under Conditions of Maternal Absence: A Focused Examination of Middle Childhood. J. Schulz (AZ) to replace R. Cate (WA).

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

The following projects and coordinating committees appear to be progressing satisfactorily with good publication records, adequate resources and/or participation, and the committees are following their stated objectives:

SECOND YEAR REVIEWS

| NO. | TITLE | ADVISOR | REVIEWER |
|------------|--|------------------|-----------------|
| IR-004 | A National Agricultural Program: Clearances of Chemicals and Biologics for Minor or Special Uses | Ware (AZ) | Carlson |
| W-102 | Integrated Methods of Parasite Control for Improved Livestock Production | Card (AZ) | Lassen |
| W-126 | Integration of Physiological and Morphological Criteria for Alfalfa Breeding | Mitchell (AK) | Rasmussen |
| W-130 | Freeze Damage and Protection of Fruit and Nut Crops | Seiber (CA-D) | Chace |
| W-166 | Characteristics and Feed Value of Barley and Western Protein Supplements for Swine | Muntifering (MT) | Volk |
| W-180 | Effects of Africanized Honey Bees on Pollination by Solitary Bees and European Honey Bees | Allen (CA-B) | Van Gundy |
| WRCC-01 | Beef Cattle Breeding Research in Western Region | Jones (NV) | Lassen |
| WRCC-24 | Diseases and Pests of Grape Crops | Ferris (CA-D) | Chace |
| WRCC-27 | Potato Variety Development | Rasmussen (UT) | Zuiches |
| WRCC-37 | Maximizing the Effectiveness of Bees as Pollinators of Agricultural Crops | Allen (CA-B) | Volk |
| WRCC-40 | Western Rangeland Research | Laycock (WY) | Lassen |
| WRCC-47 | Climatic Data and Analyses for Applications in Agriculture and Natural Resources | Wierenga (AZ) | Carlson |
| WRCC-60 | Resistance and Resistance Management to Pesticides in Pests and Beneficial Organisms | Hoyt (WA) | Van Gundy |
| WRCC-66 | Biology and Control of the Russian Wheat Aphid | O'Keefe (ID) | Chace |
| WRCC-67 | Sustainable Agriculture | Schlegel (CA-S) | Zuiches |
| WRCC-68 | International Marketing | Oldenstadt (WA) | Carlson |
| WRCC-69 | Coordination of IPM Research Programs for the Semiarid Regions of the Western United States | Schlegel (CA-S) | Van Gundy |
| WRCC-70 | Economic Impacts of the U.S.-Canada Trade Agreement | Oldenstadt (WA) | Rasmussen |

FOURTH YEAR REVIEWS

| NO. | TITLE | ADVISOR | REVIEWER |
|------------|---|-----------------|-----------------|
| W-112 | Reproductive Performance in Domestic Ruminants | Kaltenbach (AZ) | Rasmussen |
| W-132 | Genotype-Environment Interactions Related to End-Product Uses in Small Grains | Volk (OR) | Lassen |
| W-133 | Outdoor Recreation and Public Interest: Benefits and Costs in Federal and State Resource Planning | Bell (FS-CA) | Chace |
| W-143 | Nutrient Bioavailability--A Key to Human Nutrition | Woodburn (OR) | Chace |

| | | | |
|-------|---|-----------------|---------|
| W-176 | Housing and Locational Decisions of the Maturing Population: Opportunities for the Western Region | Green (OR) | Zuiches |
| W-177 | Domestic and International Marketing Strategies for U.S. Beef | Dutson (OR) | Zuiches |
| W-178 | Water Management and Conservation in Western Irrigated Agriculture | Oldenstadt (WA) | Volk |

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

SECOND YEAR REVIEWS

| NO. | TITLE | ADVISOR | REVIEWER |
|-----|-------|---------|----------|
|-----|-------|---------|----------|

| | | | |
|-------|-----------------------------|--------------|---------|
| W-168 | Seed Quality Investigations | Heimsch (ID) | Carlson |
|-------|-----------------------------|--------------|---------|

Although the research appears to be scientifically sound and contributing to a better understanding of seed quality, there is little evidence that the total contribution is any greater than it would be without the regional project. Perhaps its most significant contribution is bringing the scientists together for exchange of ideas, which could be accomplished by a WRCC, rather than a funded project.

| | | | |
|---------|--|------------|------|
| WRCC-65 | Adaptive Control of Surface Irrigation Systems | James (WA) | Volk |
|---------|--|------------|------|

No evaluation of progress could be made because no information has been submitted by the committee. RIC recommends that the WRCC terminate on schedule.

FOURTH YEAR REVIEWS

| NO. | TITLE | ADVISOR | REVIEWER |
|-----|-------|---------|----------|
|-----|-------|---------|----------|

| | | | |
|--------|---|-------------|---------|
| IR-005 | Research Information Using the Current Research Information System (CRIS) | Briggs (NM) | Carlson |
|--------|---|-------------|---------|

RIC notes that this is a very important project upon which the entire CRIS system depends for updating and utility of users. CRIS requires modernization in hardware and software to upgrade quality, sophistication and speed of access and output.

| | | | |
|-------|---|-------------|-----------|
| W-179 | Marketing Alfalfa in the Western Region: Structural Analyses, Strategies and Issues | Briggs (NM) | Rasmussen |
|-------|---|-------------|-----------|

RIC notes that output needs to be improved. There is a need for the work to be completed and distributed. The committee needs to set specific publication goals.

11.0 OTHER BUSINESS

Discussion of Committee of Nine Regional Workshop.

RIC discussed the CSRS Form 89 (revised 5/90) which is to be used to evaluate regional project outlines. RIC recommends reconsideration of CSRS Form 89, that Form 89 be simplified, and a revised version be submitted to each of the regional associations for approval.

(Action of WDA: Approved)

| Administrative Advisor Assignments As of 6/25/90 | | | | | | | |
|---|------------------------------|-------|---------|---|----------|----------|----------|
| Administrative Advisor | Western Regional Projects | | | Western Research Coordinating Committees | | | |
| Allen, W. W. (CA-B) | W-110 | W-180 | | | WRCC-43 | WRCC-37 | |
| Arnold, R. G. (OR) | W-122 | | | | | | |
| •• Ax, R. (AZ) | | | | | WRCC-39 | | |
| •• Barron, J. (WA) | | | | | WRCC-63 | | |
| • Bell, E. (FS-CA) | W-133+ | | | | | | |
| Boyd, L. L. (DAL) | IR-007+ | | | | | | |
| Briggs, D. M. (NM) | W-171 | W-179 | IR-005+ | | WRCC-72+ | | |
| •• Brink, K. M. (CO) | | | | | WRCC-11+ | | |
| •• Card, C. (AZ) | W-102+ | | | | | | |
| Cunningham, G. (NM) | W-178 | | | | | | |
| Dutson, T. R. (OR) | W-166 | W-177 | | | WRCC-17+ | WRCC-58+ | |
| •• Ferris, H. (CA-D) | | | | | WRCC-24+ | | |
| Gale, A. (WY) | | | | | WRCC-21 | | |
| • Gerloff, E. (ARS-CO) | W-164+ | | | | | | |
| •• Gifford, F. (NV) | | | | | WRCC-56+ | | |
| •• Goetz, H. (CO) | | | | | WRCC-55+ | | |
| Green, K. (OR) | W-176 | | | | | | |
| Heil, R. D. (CO) | W-155 | | | | | | |
| Heimsch, R. (ID) | W-168 | | | | WRCC-52 | | |
| •• Hoyt, S. (WA) | | | | | WRCC-60+ | | |
| Hughes, J. M. (CO) | W-133+ | | | | | | |
| •• James, L. (WA) | | | | | WRCC-65+ | | |
| Jones, B. M. (NV) | | | | | WRCC-01 | | |
| Kaltenbach, C. C. (AZ) | W-102+ | W-112 | W-151 | | | | |
| Kefford, N. P. (HI) | W-082 | | | | | | |
| •• Kendrick, E. (AZ) | | | | | WRCC-75+ | | |
| Koller, L. D. (OR) | | | | | WRCC-46 | | |
| Koong, L. J. (OR) | W-173 | W-174 | | | | | |
| •• Ladd, S. (OR) | | | | | WRCC-61+ | | |
| Laughlin, S. (CA-B) | W-167 | | | | | | |
| •• Laycock, W. A. (WY) | | | | | WRCC-40+ | | |
| Lee, G. A. (ID) | W-147 | W-170 | | | WRCC-66+ | WRCC-77 | |
| •• Lund, L. J. (CA-R) | | | | | WRCC-30+ | | |
| Lyons, J. M. (CA-D) | W-164+ | | | | | | |
| •• Martin, M. V. (OR) | | | | | WRCC-68 | WRCC-70 | |
| •• Mathre, D. E. (MT) | | | | | WRCC-29+ | | |
| McHugh, H. F. (CO) | W-153 | W-175 | W-160+ | IR-006+ | WRCC-11+ | WRCC-54+ | WRCC-55+ |
| Mitchell, G. A. (AK) | W-126 | | | | | | |
| •• Nelson, M. R. (AZ) | | | | | WRCC-20+ | | |

- USDA research administrators
- Other research administrators
- + Designates Co-Administrative Advisor in a project with Co-Advisors

| Administrative Advisor Assignments As of 6/25/90 | | | | | | | | |
|---|------------------------------|-------------------|-------|---|----------|----------|----------|----------|
| Administrative Advisor | Western Regional Projects | | | Western Research Coordinating Committees | | | | |
| | Niehaus, M. H. (CO) | W-006 | W-157 | | | | | |
| •• O'Keefe, L. E. (ID) | | | | | WRCC-66+ | | | |
| Pardini, R. (NV) | W-181 | | | | WRCC-56+ | | | |
| Rasmussen, H. P. (UT) | W-150 | W-154+ | | | WRCC-27 | | | |
| • Reginato, R. J. (ARS-CA) | W-154+ | | | | WRCC-62+ | | | |
| •• Reid, B. L. (AZ) | | | | | WRCC-59+ | | | |
| •• Robbins, L. (NM) | | | | | WRCC-72+ | | | |
| Schlegel, D. E. (CA-B) | W-106 | | | | WRCC-67 | WRCC-69+ | | |
| •• Schulz, J. (AZ) | | | | | WRCC-74+ | | | |
| Seiber, J. N. (CA-D) | W-130 | | | | | | | |
| •• Smith, O. E. (OR) | | | | | WRCC-69+ | | | |
| •• Studer, H. (CA-D) | | | | | WRCC-51+ | | | |
| •• Thompson, J. (WA) | | | | | WRCC-23+ | | | |
| Toscano, N. C. (CA-R) | W-084+ | | | | WRCC-30+ | WRCC-42 | WRCC-71+ | |
| Van Gundy, S. D. (CA-R) | W-084+ | W-134 | | | | | | |
| • van Schilfgaarde, J. (ARS-CO) | W-160+ | | | | WRCC-54 | | | |
| •• Vaux, H. (CA-R) | | | | | WRCC-71+ | | | |
| Volk, V V. (OR) | W-128 | W-132 | IR-1+ | | WRCC-61+ | | | |
| Ware, G. W. (AZ) | W-045 | W-169 | IR-4+ | | WRCC-47+ | WRCC-59+ | WRCC-63+ | WRCC-75+ |
| •• Weiser, C. J. (OR) | | | | | WRCC-17+ | WRCC-58+ | | |
| •• Wieranga, P. J. (AZ) | | | | | WRCC-47+ | | | |
| Woodburn, M. J. (OR) | W-143 | | | | WRCC-57 | | | |
| Zuiches, J. J. (WA) | W-118 | W-Data Quality | IR-2+ | | WRCC-60+ | WRCC-64 | WRCC-74+ | WRCC-76 |

-
- USDA research administrators
 - Other research administrators
 - + Designates Co-Administrative Advisor in a project with Co-Advisors

APPENDIX I

UPDATE

LOW-INPUT SUSTAINABLE AGRICULTURE (LISA)

David Schlegel

June 13, 1990

The organizational structure of the Western LISA Program is evolving. The Administrative Council which is responsible for the overall operation of the program is composed of Robert Heil (AES), Stan Hobson (SCS), Dick Phillips (ES), Kay Thomley and Margaret Clark (farmers) and Jan Van Schilfgaarde (ARS). The Western Regional Coordinating Committee for Sustainable Agriculture, WRCC-67, serves as the Technical Advisory Committee and is scheduled to meet at the end of August, 1990.

During the first cycle of the LISA program ('87-88), the Western Region opted to fully fund projects for two years. This ensured at least two years funding for each approved project. This was done because, given the origin of the LISA program, there was no assurance that funding would be available in future years and the Council wished to ensure that each proposal had at least two years funding if that were requested. The next funding cycle provided a modest increase in funds and since all projects were forward funded, the full amount of funds authorized to were available for the new cycle.

The expectation was that significant additional funding would be authorized for '89-90, but these funds did not materialize. The Council felt a sense of obligation toward the long-term projects funded during the first cycle that were successfully moving ahead. All long-term projects were invited to submit continuation projects which described the work planned and the progress to date. The Administrative Council reviewed these proposals, conducted a site visit to each and recommended continued funding.

As a result of the evaluation of proposals, progress reports and site visits the Council concluded that it was inappropriate to send out an announcement for new proposals (anticipating 150 to 250 new requests) when the total funding available would not likely exceed \$200,000. It was felt that funding one to two proposals out of 200 would be detrimental to the LISA program, because a 1% success rate is simply unrealistic. As a result, the Council elected to use the program's limited funds to support a series of conferences and workshops and other information delivery systems. Funds not required for the conferences and workshops will be added to the available funds for the 1991 program.

The Council recommended support for a workshop on the use of a new Farm Decision Support System. In 1988 when the LISA program was initiated, CSRS and ES made the decision to support the development of a Farm Decision Support System that would develop enterprise budget applicable to individual farms or fields. That system is now at a point of major field tests, and if broadly successful, it would a tremendous asset to farmers trying to develop a more sustainable agriculture. The goal of the workshop is to train teams for each state or subregion to use the Farm Decision Support System to generate enterprise budgets, with the expectation that these teams would return to their home state or subregion and train additional teams. Some funds were set aside to assist travel to this workshop to ensure participation.

The Council also recommended that a Sustainable Agriculture Science Conference be held. This conference/workshop would be developed in a way that would attract scientists who had not previously been involved in sustainable agriculture research. Its avowed goal would be to bring more scientists into the area of sustainable agriculture and enhance the scientific credibility of the field. Dr. Montague Demment, Director of the UC Davis Campus Sustainable Agriculture program was asked to outline such a conference.

In an effort to strengthen farmer involvement in the identification of problems that they, rather than scientists, identify, a Farmer-to-Farmer forum concept has been identified as another conference/workshop of high priority. In this program, interested farmers will be brought together along with a minimal number of scientists selected for their listening ability. The intent will be to encourage farmers to identify among themselves the issues that they felt were most critical, agree on some priorities and then working with scientists (most likely Cooperative Extension) articulate these issues in such a way that they can be put on research and education agendas for scientists and institutions. The forum would be designed as a prototype that would be expanded if it is successful. Coupled with the forum or as a separate exercise, there would be training programs for on-farm research to aid farmers in conducting farmer developed experimentation and research on their own farm and in cooperating with AES and CE scientists who may do research on their farm.

The National Information Systems Program: The Congressional intent for the LISA program was clear with respect to the need to make information about sustainable agriculture widely. The West, through Fred Poston, took the initiative in trying to develop such a program. Two major planning conferences have been held and the program is now at the action stage. Janet Poley and Kevin Gamble in the Federal Extension Service, working with a small technical committee, are clarifying the network questions and plan to identify a common format for the presentation of data.

A National Subject Matter Committee has been appointed and charged with identifying and prioritizing the subject matter areas to be addressed. This is a rather large committee and a meeting is planned in the near future. At their last meeting, the Administrative Council for the Southern region voted to dedicate 10% of the funding to information systems and another 10% toward _____ A proposal for a national program should be forthcoming shortly.

Plans for next year are not clear in the absence of any sense of what the budget will be. If 1991 funding is the same as last year, the available funds will be quite limited, but sufficient to justify at least a limited call for proposals. The criteria for a limited proposal have not been identified, however, the number of proposals received could be reduced by restricting them to specific types of farming systems such as perennial fruits, irrigated vegetables, animal/range systems, etc., areas in which there are real problems, but which have not yet received funding. Obviously if there are increased funds available the call for proposals would be much more encompassing.

Individuals interested in submitting proposals for the next round may wish to do some preliminary planning for the next round, however, detailed planning should await the call for proposals. An announcement indicating the level of funding for 1991, the guidelines for submission and the criteria for evaluation will be distributed as soon as we have the information.

APPENDIX J

A PROPOSAL FOR THE MODIFICATION OF THE WESTERN REGIONAL
PESTICIDE IMPACT ASSESSMENT PROGRAM (PIAP)

David Schlegel
Administrative Advisor

June 19, 1990

The overall objective for PIAP is determining the need for continued registration of pesticides and the development of research data for pesticides subjected to regulatory reviews affecting future registration, registration standards, reregistration, special reviews, and possible cancellations or suspension. The related IR-4 program focuses on the maintenance of pesticide registrations for minor use crops. The threatened loss of registration of many important pesticides adds a new level of importance to these two programs.

Although PIAP and IR-4 are two closely related programs, because of the way they are structured, they have not really complemented each other. Over the years several meetings have been held that focused on the need to coordinate these programs. During the last eighteen months, the restructuring of the ESCOP Pest Control Strategies Committee to include liaison with PIAP and IR-4 reinforced the need to improve the coordination. There has always been a general agreement that this should happen, but somehow it hasn't come about.

The University of California is the lead institution for IR-4 and PIAP in the Western Region. Harold Alford serves as the coordinator for both. The recommendations from all of the discussions about improving coordination have always concluded that a single coordinator should be the norm, but up to now, only the Western Region has been organized this way. Harold recently announced his impending retirement, and the University of California reviewed the structure of the organization as it related to how it did its work. The question of the program's goals and priorities is a regional question, although some of these issues came up in the discussion. There will be a full search for Harold's replacement as the Coordinator for both programs.

There are two principal components to the PIAP program. One is the Competitive Research Grant program and the other is the Assessment Team. When a major pesticide is called into question by EPA, Assessment Teams with individuals drawn from all over the US are assembled for each chemical. Their role is to assess the impact of the loss of the pesticide. These teams are funded directly from CSRS and ES in Washington, DC., and their findings become a part of the decision process. The Regional Coordinators, the State Liaison Representatives and the CSRS representative are key to the identification of personnel for these teams and serve on many of them.

The second component is the Competitive Research Grant program which sponsors research on a variety of pesticide related problems, theoretically designed to aid in the reregistration and review process. This goal has really not been achieved because EPA does not provide advance information about what products are targeted next, or if it does, changes direction in mid-stream. Consequently, the research conducted under this program usually does not address a specific question that is needed in the reregistration process. Although PIAP's role is not exclusively minor use pesticides, when major use pesticides are cancelled, the minor uses suffer.

It would seem particularly appropriate at this time to take another look at how these two programs could be structured to be more complementary. Harold and I had already planned to make some significant changes in the review process for the Competitive Grants. Currently the program is

managed by the Coordinator working with the Administrative Advisor and a Technical Committee composed of the State Liasion Representatives. An Executive Committee of this Technical Committee serves as the review team for the competitive grant program. We are proposing to change the review process to include a review committee composed of outside reviewers, AES and CE, that are selected for their knowledge of the fields involved, instead of limiting it to an executive committee selected from a technical committee whose composition is quite stable. This will bring a broader perspective and a better balance to the review process and the program, something that we have felt was needed for some time. It will also make it possible to include AES Scientists as reviewers, which is not the case now as all of the Liasion Representatives are from Cooperative Extension.

The Technical Committee should be expanded slightly to include AES scientist representation, but the Executive Committee could be abolished, as its sole function has been to serve as a review panel for the Competitive Grants.

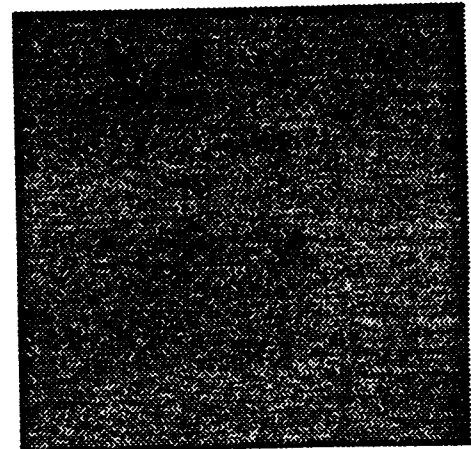
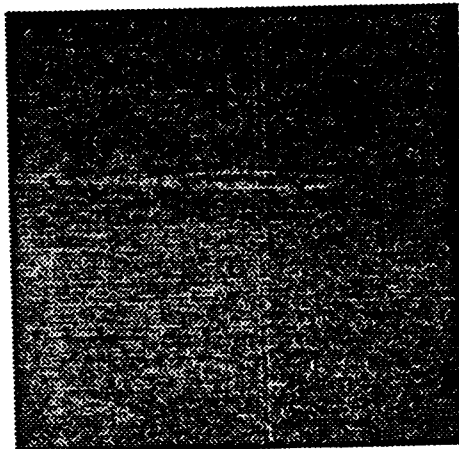
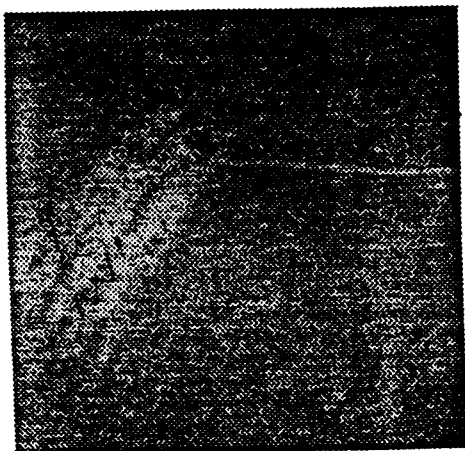
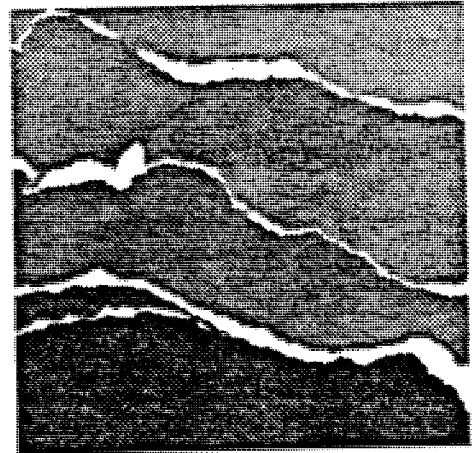
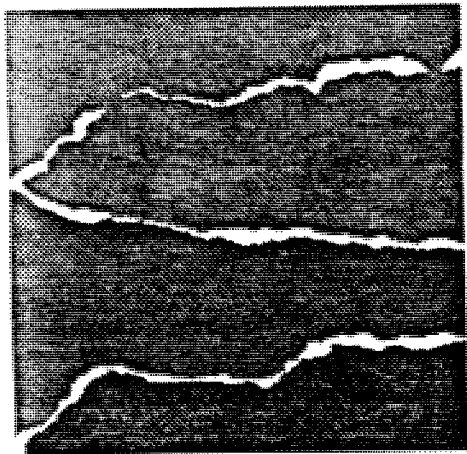
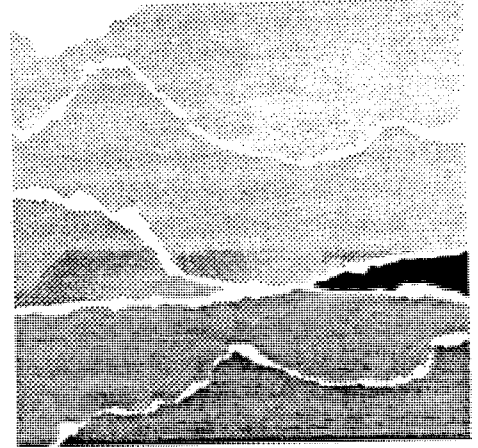
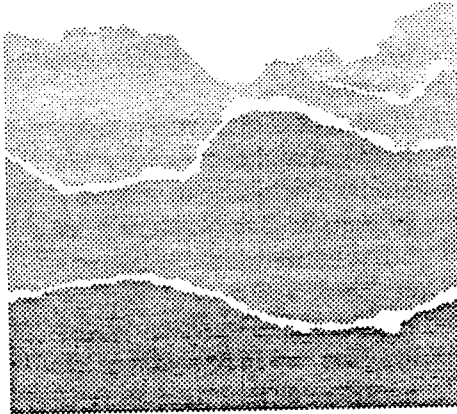
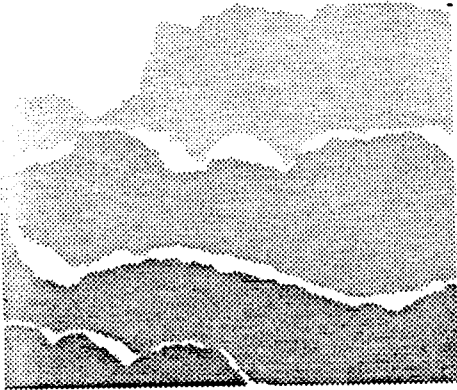
The big question remains, however, how to match PIAP programs to IR-4 programs. I propose that in addition to the call for proposals in the general areas that have been identified for the regional programs, that we solicit from IR-4 specific requests for data, and that these requests be identified in the RFP. These proposals would be reviewed along with the others, but by definition, are the highest priority. The technical quality of each proposal would not be compromised in this plan. (This would require that IR-4 make a serious attempt to identify some key data gaps appropriate for PIAP research.) Hopefully as we move in this direction, we could eventually utilize all of the PIAP research funds to fill specific data gaps.

If this plan meets with your approval, as the Directors responsible for the Western Program, I would like to make a start on it during the next cycle. The call for proposals will go out later this summer, so we need to begin thinking about this idea now. Harold Alford is working with the IR-4 Headquarters in Rutgers to identify some candidate data gaps that might be included in the RFP.

Developing Leadership Among Extension Clientele

DRAFT

John A. Michael,
M. Chris Paxson, and
Robert E. Howell
August 1990



Study Background

This report summarizes the findings and recommendations of the National Impact Study of Leadership Development in Extension (NISLDE). The study examined the leadership development work of Cooperative Extension staff nationwide.

The Extension Service, U.S. Department of Agriculture, commissioned NISLDE as one of five national impact studies under the provisions of the Extension Accountability and Evaluation System. Additional support came from Washington State University's Cooperative Extension, its Department of Rural Sociology, and other Cooperative Extension Services throughout the nation.

A complete description of the participants, purposes, methods, findings, and recommendations appears in the study's technical report titled *An Assessment of Extension's Leadership Development Work*.

Key Findings

- Extension invested over 2,600 staff years during 1985 developing the leadership competencies of an estimated 13.7 million clientele.
- The competencies most frequently taught were solving problems, directing projects and activities, forming and working with groups, planning for group action, managing meetings, and communicating effectively.
- Over 100,000 organizations and 330,000 volunteers collaborated with staff in leadership development work.
- 84 percent of Extension personnel believed that developing the leadership skills of clientele is one of their responsibilities and 91 percent attempted to develop leadership skills.
- Three-fifths of Extension staff tried to develop leadership skills while teaching nonleadership subjects such as agronomy or nutrition.
- Supervisors supported leadership development work in various ways, albeit infrequently.
- Extension staff defined leadership development in diverse ways, thereby impeding collaboration and coordination.

Recommendations

The report makes three recommendations. Extension should:

1. Produce a formal statement about the importance of leadership development.
2. Establish procedures that will aid and encourage leadership development.
3. Ensure the quality of leadership development work by strengthening its research and knowledge base.

| | |
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| Listing of Leadership Competencies | 2 |
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Purpose and Scope

Background

Leadership development has been part of Extension education since the early 1900s when agricultural cooperatives and boys' and girls' clubs were formed, although the term "leadership development" was not used at that time. Since then, historical events and legislative mandates have changed the nature of Extension's leadership development effort. Today, Extension staff conduct a wide range of educational activities aimed at developing leadership skills among rural and urban residents, local government officials, homemakers, officers and members of agricultural commodity groups and other voluntary associations, 4-H club leaders and members, and many others.

Despite this rich heritage, documentation has been scattered and sparse. A smattering of anecdotal accounts by staff provided clues about the nature of this work and its clientele. Also, a few studies have addressed specific aspects of Extension's leadership development work, such as community leadership and volunteerism. The best available estimate of the volume of such work came from the Extension Management Information System (EMIS), which suggested that during 1983 leadership development consumed 10 percent of staff time. But no comprehensive review of Extension's leadership development work had been attempted.

Purpose

In light of this situation, the Extension Service, USDA, commissioned this study in 1983 to describe and assess the Cooperative Extension System's leadership development work.

Since then, the National Impact Study of Leadership Development

in Extension (NISLDE) has focused on three things: defining leadership development; describing leadership development as it is actually practiced; and recommending improvements in the practice and management of this type of education. This report summarizes the study results.

Study Methods

The study proceeded in two phases. The first phase dealt principally with definitional and measurement issues. The study team examined organizational documents for clues about policy and practice; interviewed federal, state, district, and county staff about their views on leadership development and the nature of their work; conferred with persons identified as highly knowledgeable about leadership development within and outside Extension; and reviewed the research literature on leadership development and Extension's leadership development work. These activities laid the conceptual and measurement bases for surveying staff about their leadership development practices with clientele.

During its second phase, the study, in 1986, surveyed all state administrators and a nationally representative cross-section of nearly 3,100 Extension educators and their supervisors about their leadership development activities during 1985. All major program areas are represented in the stratified random sample, as are all fifty states, the District of Columbia, Puerto Rico, and the Territories. Of the initial sample, 86 percent returned a useable questionnaire.

Supplementary data come from the U.S. Bureau of the Census and EMIS. Data about how staff view leadership development come from field interviews and comments added to the questionnaire.

Defining Leadership Development

Study Definition

A review of published and unpublished materials on leadership development reveals no standard, widely accepted definition. A substantial body of research defines leadership in terms of the ability to influence. *This study defines leadership development as the fostering of competencies that enable one to influence people's thoughts, feelings, and behavior.* The term "competencies" refers to skills, knowledge, attitudes, and behaviors. This report uses the terms "skills" and "competencies" interchangeably.

Given the abstract quality of the above definition—an inherent problem with one-sentence definitions of complex topics—the study compiled a comprehensive list of leadership competencies. This list was used to communicate with Extension staff about the subject matter under study.

Listing of Leadership Competencies

The list of leadership competencies includes the skills, knowledge, attitudes, and behaviors that are taught to Extension clientele for developing themselves and influencing others. These competencies were found in Extension documents (e.g., plans of work), curricula, and educational materials, and through interviews with leadership development experts and Extension staff engaged in such work. This search netted over 100 competencies which were grouped into thirteen categories. These are the first thirteen categories in the box on page 3.

Additional competencies were volunteered during the study's survey of Extension staff and these have been grouped into the remaining six categories of the box, page 3. The nineteen categories

represent the leadership competencies that Extension staff tried to develop in 1985.

Differing Staff Conceptions

To measure leadership development practices reliably, it was necessary to know how staff defined "leadership development." By conferring with staff in various positions with different subject matter responsibilities, the study found that Extension personnel hold many different conceptions of leadership development. Their conceptions centered around four aspects of educational work: audience, purpose, content, and method. The study finds this diversity of viewpoints a source of confusion and disagreement among staff, inhibiting communication about leadership development.

Audience. Some staff members defined leadership development in terms of working with individuals in leadership positions. Other staff avoided referring to positions held by clientele when defining leadership development.

Staff adhering to an audience-based conception believed that all educational work with persons who hold important positions in Extension or the community constitutes leadership development, regardless of the subject matter being taught. For example, one staff member regarded the teaching of poultry management techniques to leaders as leadership development. Also, many Extension personnel regarded the instruction of volunteers in leadership positions as leadership development, even when instruction centered on nonleadership topics (e.g., gardening, administrative procedure).

A home economist voiced uncertainty about this view of leadership development:

I spend a great deal of time helping county staff and 4-H volunteers learn how to implement

Leadership competencies developed among Extension clientele.

1. **Solving Problems** Evaluating alternatives, estimating future impacts, building general agreements.
2. **Directing Projects or Activities** Conducting need assessments, setting goals and priorities, planning, managing human resources, supervising, measuring performance, evaluating, maintaining supportive work environments.
3. **Forming and Working with Groups** Recruiting, building teams, identifying responsibilities.
4. **Planning for Group Action** Recognizing diverse needs, identifying key decision makers, understanding power structures, organizational development, group dynamics, identifying cooperative strategies.
5. **Managing Meetings** Arranging facilities and equipment, building an agenda, using parliamentary procedures.
6. **Communicating Effectively** Understanding communication styles, listening, being assertive, speaking in public.
7. **Developing Proficiency in Teaching** Maintaining learner interest and enthusiasm, managing learning environments.
8. **Mobilizing for Group Action** Developing broad-based support, obtaining commitments to action influencing public policy.
9. **Understanding and Developing Oneself** Identifying and clarifying values, assessing degree of self-confidence, relating to people with different life-styles, building self-confidence.
10. **Understanding Financial Matters** Allocating financial resources, budgeting and record keeping understanding financial statements.
11. **Understanding Leadership** Understanding leadership roles and styles, adapting leadership styles to situations.
12. **Understanding Society** Learning about society's institutions, interpreting economic and social data, understanding social problems, learning about public decision-making bodies and procedures.
13. **Understanding Social Change** Understanding change and its effects, understanding how new ideas are adopted.
14. **Arbitrating** Managing conflict and stress, decision making, risk taking, negotiating responsibilities.
15. **Developing Resources** Fundraising, developing human resources, cultivating public and community relations, recruiting volunteers.
16. **Developing Followers** Giving support to others, encouraging altruism, self-discipline, responsibility, sincerity, and trust.
17. **Changing Behavior** Increasing productivity, managing time, increasing citizen involvement relating to diverse audiences.
18. **Clarifying Attitudes** Assessing others' motives, examining the consequences of valued and unvalued behaviors, teaching values, identifying ethical and moral responsibilities.
19. **Creativity** Working creatively.

effective youth nutritional educational programs. Yet I do not consider this to be developing leadership skills. Is it?

Staff with an opposing view distinguished between educational work with leaders and fostering leadership skills. In their view, educating leaders on nonleadership subjects is not leadership development.

Purpose

Many staff defined leadership development in two key ways related to instructional purpose: 1) by whose purpose is being served—the staff's, the organization's, or the client's; and 2) by what is to be changed—a person, group, or the public at large.

Whose Purpose (a) Staff intent. Most staff members encountered during field observation saw

themselves as developing leadership only when that was their intent. When that was not their intent, staff did not see themselves developing leadership, even though their behavior might indicate otherwise. As one staff member said:

I regularly taught clientele three topics: problem solving, communicating effectively, and understanding social change, but totally apart from any thought of leadership development.

The gap between intent and behavior prompted another staff member to remark:

I believe that Extension agents teach leadership development many times during the year without planning or even realizing that they are ... developing leaders.

(b) Official purpose. Some staff members relied on organizational cues for determining what constitutes leadership development. Only those programs officially designated as leadership development work were regarded as such. Typical in this regard, an agricultural agent responsible for a dairy program noted:

I have not done any work really with leadership development in mind (no formal work). I have spent substantial time, however, working with dairy farmers on public policy issues such as local land taxation. Much of this work involved "stimulating" farmers to become more knowledgeable and active in community and state affairs.

This agent only thought of himself as conducting a dairy program, following plan-of-work terminology. He regarded his leadership development effort as incidental.

Other staff regarded their attempt at developing leadership skills among clientele as leadership development, regardless of whether it took place during an

officially designated leadership development program or some other kind of program.

(c) Client intent. Very few Extension staff encountered during field observation defined leadership development in terms of a client's intentions. To note an exception, one agent asserted that both teacher and learner needed to agree that leadership development was a topic for instruction before it could qualify as leadership development.

Most commonly, staff undertook leadership development on their own initiative, without organizational or clientele endorsement. A state specialist acknowledged this point by stating that for the most part Extension staff develop leadership on their own initiative.

A key distinction made by many Extension personnel was whether leadership development is a means or end. Sometimes, the sole or primary purpose of instruction is the development of leadership, as in a formal leadership program. More often, leadership is developed as a means to other ends (e.g., increased crop production). Where leadership was taught as a primary objective, staff uniformly saw it as leadership development. Perceptions varied where leadership was taught as a means to another end: some saw it as leadership development, while others did not.

What Is To Be Changed. Staff members also differed in terms of whether they thought of leadership development as changing a person, group, or an entire population.

a) Skills for personal development. Some staff thought of leadership development in terms of fostering personal development. Other staff saw personal development as extrinsic, i.e., pre-leadership

The first group taught such competencies as setting priorities,

managing stress, and developing greater self-awareness. One agent of this persuasion regarded individual worth as the heart of leadership development:

You cannot develop leadership if you cannot develop that person's self-worth and self-esteem.

The second group excluded self-direction and self-management competencies from their view of leadership development.

(b) Skills for influencing groups. Many Extension staff thought of leadership development in terms of influencing group objectives and processes. They tried to strengthen existing groups and foster new ones by cultivating group-relevant skills (e.g., building teams). An agent expressed it this way:

Some groups have highly developed "leadership" and others are in need of help in developing their organizations.

(c) Skills for influencing the general public. Some staff members saw leadership development in terms of influencing public affairs and the public at large. They tried to teach skills such as understanding power structures. An agricultural specialist described his work this way:

I've tried to encourage people to organize into common interest groups and then approach political and/or educational leaders as spokespersons for the group. Emphasis is placed on group clout versus the meager efforts of individuals.

Two educational emphases were discerned among public affairs-minded staff, one aimed at increasing knowledge, the other at changing behavior. Some staff members attempted to create a more informed citizenry (e.g., by teaching about economic markets, public decision-making bodies and procedures, and demographic trends). Other staff

took a more activist stance by teaching clientele how to represent their point of view to the public at large through skills such as mobilizing for group action.

Content. Many Extension educators thought that instructional content (subject matter) determines what is, or is not, leadership development. Some staff thought that teaching subject matter of any sort constitutes leadership development. Other staff based their leadership development work on specific subject matter such as public speaking or understanding social change.

Illustrating the first viewpoint, some staff said that by learning better production techniques, clientele will become leaders in their field of endeavor. Personnel holding this view often stated:

Almost everything we do in Extension is leadership development.

Other staff rejected this viewpoint because all-inclusive terms are meaningless.

The all-encompassing perspective was often expressed in the form of a belief that "technical" (i.e., nonleadership) knowledge begets leadership. A specialist stated the idea this way:

My objective is to teach [non-leadership] subject matter. Any leadership development would be the result of increased proficiency in this subject.

Such a view suggests a disregard for leadership development, its subject matter, and related research. Countering this view, other staff believed that expertise in nonleadership topics (e.g., pest management) cannot substitute for leadership skills, and that both must be learned.

Staff who saw leadership development as having its own subject matter often disagreed with one another on which subjects pertain to leadership development, because they were schooled in different research and academic

traditions. For example, staff members with agricultural economics training tended to think of leadership development as public policy education (e.g., developing an in-depth understanding of an issue). Their counterparts with training in rural sociology thought not only of public policy education but also group management and public affairs leadership skills. Economists thought in terms of increased understanding, while sociologists thought also in terms of behavioral outcomes.

Method. Some staff defined leadership development in terms of instructional method, while others did not. In some cases, staff holding a method-based conception believed that only formal teaching (such as lectures or workshops) qualifies as leadership development. Adherents to this point of view denied involvement in leadership development when using informal instructional methods, saying "I only advise."

Alternatively, some personnel viewed the experiences that their clientele undergo while participating in an Extension-related event (e.g., chairing a committee) as leadership development. Frequently, this judgment was made regardless of what clientele were taught and why. Experience was equated with education.

Other staff disliked defining leadership development by reference to instructional method. A program leader expressed this by saying:

Throwing people into a swimming pool is one thing; teaching them how to swim is another. I don't equate the two.

Conclusion. Extension staff defined leadership development in various ways. Their conceptions hinged not only on purpose and instructional content, like the study's definition, but on audience and method as well. The lack of a

common definition implies difficulties in collaboration and coordination among staff, where leadership development is concerned.

More on the Study's Definition

Staff conceptions help clarify the study's definition. Regarding purpose, the study definition includes personal development skills in the definition of leadership development as well as the ability to influence others. Intent is irrelevant to the study's definition: leadership skills may be taught (or learned) as a means or an end, regardless of who intended it.

As for content, leadership development research determines the boundaries of the study's definition. Some specific competencies (e.g., communication skills) enhance personal development and interpersonal influence, research shows, but other competencies (e.g., knowledge of production techniques) do not. Thus, research is the wellspring of instructional subject matter for leadership development.

Profile of Extension's Leadership Development Effort

Instructional Goals Competencies Developed. To measure the type and extent of leadership development attempted with clientele, the study surveyed Extension staff about how often they tried to develop the first thirteen competency categories listed in the box on page 3 during 1985.

Each of these first thirteen categories was attempted at least once by between 68 to 86 percent of the staff (Figure 1). As for the seven other competencies volunteered during the survey, fewer than 5 percent attempted each one. More mention might have been made of these categories had they been listed in the questionnaire. In short, Extension's leadership development effort covers a wide spectrum of competencies.

In the box on the next page are examples of the leadership development work of several respondents. Highlighted are the educational foci and competencies taught.

The study's findings suggest that Extension staff tended to teach skills associated with (a) a stable social order and similarity in values; (b) working within groups; and (c) knowing how to do things right (transactional leadership), as opposed to knowing which is the right thing to do (transformational leadership). Also, there was an apparent emphasis on "doing" over "understanding." Among the first thirteen competencies, those that entail behavioral change (the first eight) were mentioned more often than those that entail increased comprehension.

Otherwise stated, Extension staff gave less emphasis to the following kinds of competencies:

- those for dealing with change, diversity, and conflict;

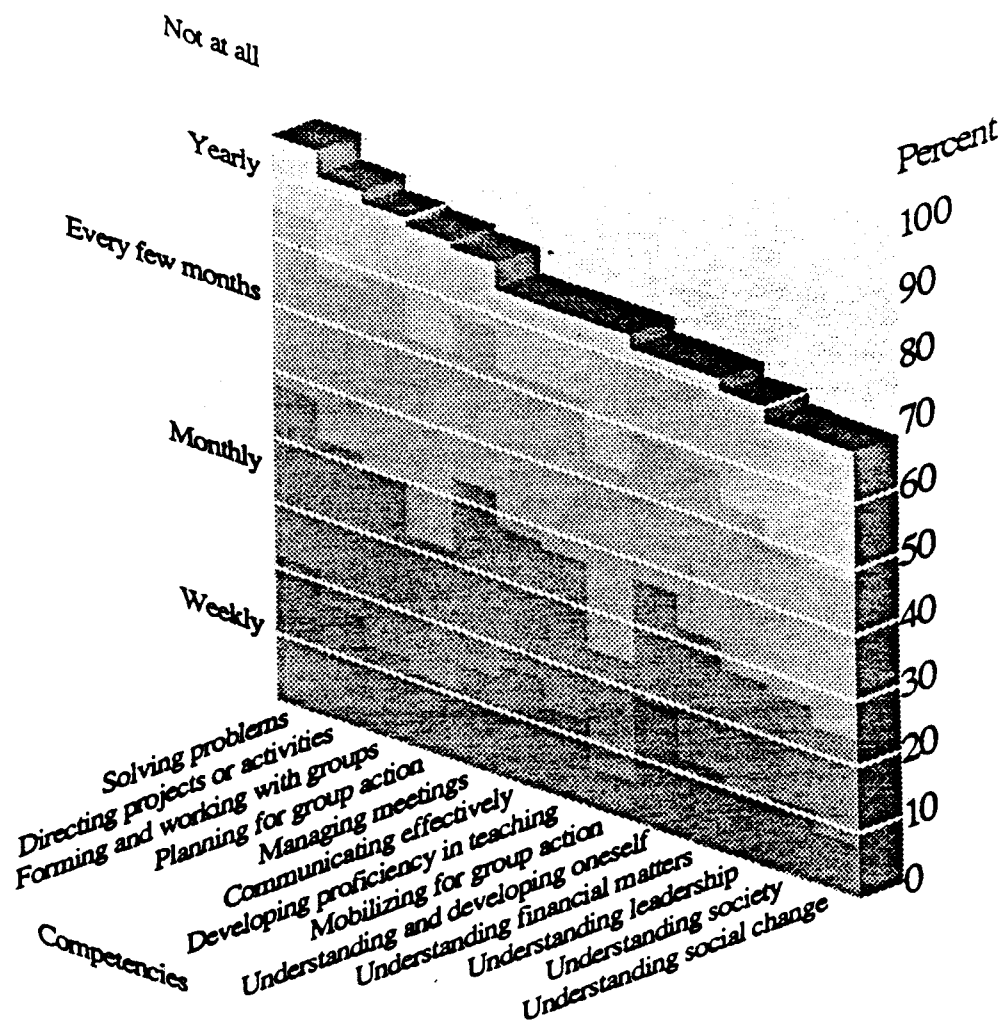


Figure 1. How often Extension staff tried to develop leadership competencies among clientele, by type of competency.

- those for inter-group relations and public affairs;
- those associated with transformational (visionary) leadership; and
- those involving knowledge perception and attitude.

The study's technical report questions whether these skills are receiving due emphasis.

The typical (modal) staff member tried to develop competencies in all thirteen categories sometime during 1985. Nine percent did not try to develop any competency in the twenty categories. Three-fifths of Extension staff developed leadership skills while teaching nonleadership subjects such as agronomy or nutrition.

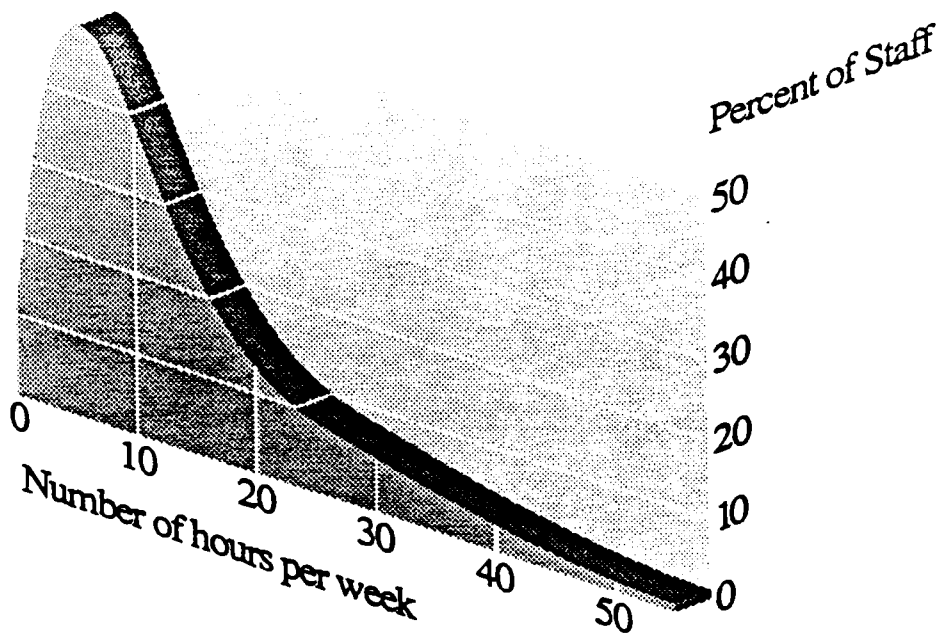


Figure 2. Number of hours per week spent developing leadership competencies among clientele.

Clearly, Extension's leadership development effort represents the combined endeavor of the vast majority of its staff, not a select few, as is generally the case with other subject matter.

Staff members tried to develop each of the first thirteen skill categories once every few months, on average. Thus, many staff members acquired limited experience developing any one skill during the year.

Amount of Leadership Development Work. On average, staff spent seven hours per week trying to develop leadership skills among clientele, i.e., 15 percent of their work time. This represents an annual total for the Cooperative Extension System of over 2,600 staff years. The majority of staff (57 percent) spent about the same amount of time developing leadership during the previous three years. Although data are not available on the leadership development efforts of other organizations, such a volume of effort suggests that Extension is in the vanguard of this kind of work.

The number of hours that staff spent per week developing leadership ranged from zero to over fifty (Figure 2). The number of hours varied by the staff member's organizational position and program area. Agents averaged nine hours per week, accounting for 70 percent of Extension's leadership development effort, while state specialists and district staff averaged five hours per week. University department chairs and state administrators averaged two and six hours per week, respectively.

Comparing major program areas, 4-H staff averaged sixteen hours per week on leadership development work. Community resource development and home economics staff averaged ten and nine hours respectively, while agriculture and natural resources

| Educational Focus | Leadership Competencies Taught |
|---|---|
| Training agricultural producers to organize a grassroots legislative committee | Organizational leadership Problem solving Planning for group action Mobilizing support |
| Leadership training for officers of a state-wide marina association | Public speaking Conducting effective board meetings |
| Training for persons responsible for county day-care services | Understanding leadership styles Agenda building Meeting management |
| Training for community leaders and local government officials concerned with downtown redevelopment | Communication skills Forming and organizing groups Managing meetings Problem solving Fund raising |
| Leadership training for a regional horticulture program advisory committee | Public relations Assessing trends and problems Group action strategies Team approach to solving problems |
| 4-H livestock judging school | Decision making Public speaking |
| Training for Extension Homemakers' executive committee members | Committee management Delegation Program planning and implementation techniques |

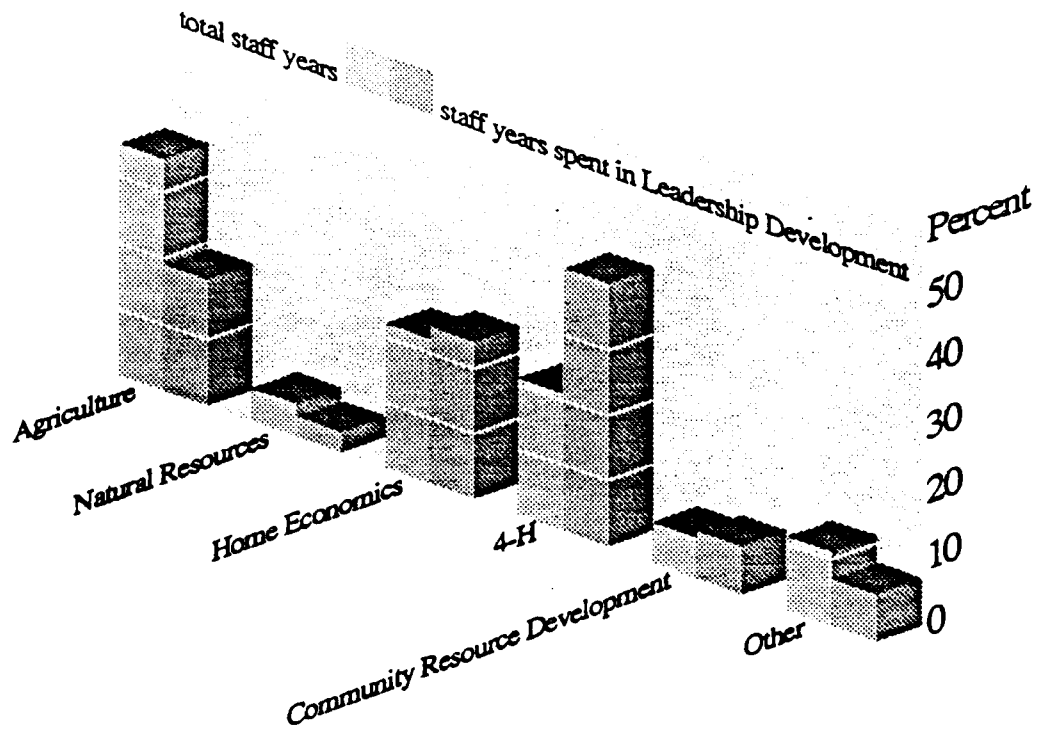


Figure 3. Professional staff years and total staff years spent on leadership development, by major program area.

staff each averaged four. Agriculture and natural resources program areas, which together constituted more than two-fifths of Extension personnel, accounted for about one-fifth of the staff years that Extension invested in developing leadership during 1985. In contrast, 4-H constituted roughly one-fifth of Extension staff and accounted for approximately two-fifths of the total staff years spent on leadership development (Figure 3).

Proficiency Level. To learn more about the nature of instructional objectives, the study queried staff about the level of proficiency expected of clientele regarding their understanding of leadership concepts and their ability to perform leadership tasks. The level of proficiency expected of representative work¹ clientele varied from basic to advanced, with the average expectation falling midway between these extremes. About 22 percent of staff members tried to develop basic levels of understanding while 13 percent aimed for advanced levels. Those who aimed for the higher levels tended to spend more time developing leadership.

¹In this study, representative work refers to those educational activities that respondents described as best representing their leadership development work during 1985. Many survey respondents reported what they regarded as their better work. Hence, findings about representative work cannot be safely generalized to all of Extension's leadership development work.

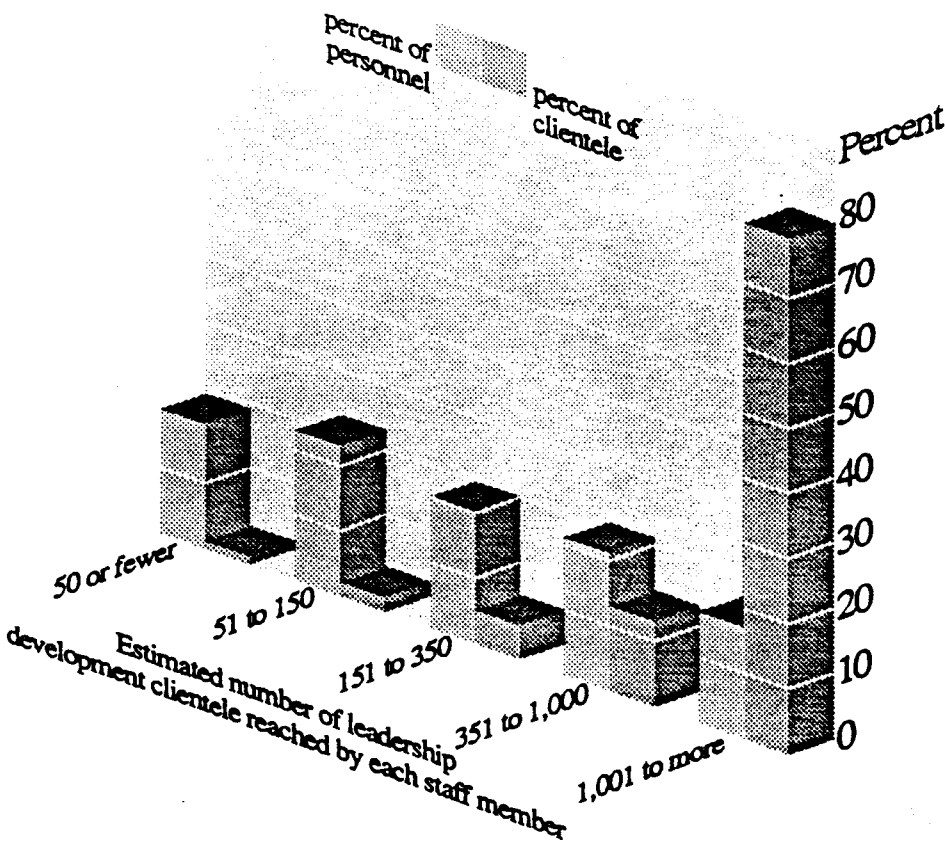


Figure 4. Distribution of leadership development clientele among staff.

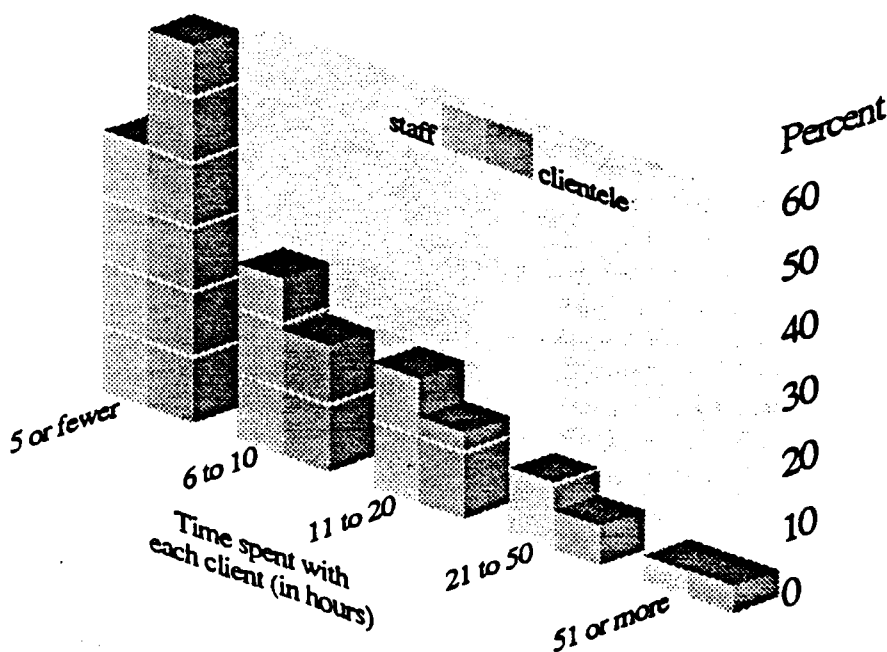


Figure 5. Length of time spent with leadership development clientele during 1985. Data refer to representative work.

Delivery Methods

Methods of Instruction. Extension staff tried to develop leadership among clientele through the following instructional methods:

| Instructional method | Percent of staff |
|--------------------------------|------------------|
| Advising | 85 |
| Providing practical experience | 80 |
| Group instruction | 79 |
| Role modeling | 76 |
| No method reported | 5 |

Nearly two-thirds of the staff used all four methods. Combinations with advising were the most popular. Staff members who relied on advising either as their sole or predominant method tended to reach fewer clientele.

Teaching Practices. Extension personnel also used the following teaching practices in their representative leadership development work during 1985:

| Teaching practices | Percent of staff |
|--|------------------|
| Planning instructional methods | 70 |
| Making use of reference materials when planning | 63 |
| Making use of reference materials when instructing | 61 |
| Developing skills among clientele systematically over time | 58 |
| Evaluating one's efforts | 52 |
| Planning instructional objectives | 50 |

Of these six teaching practices, the average staff member used four.

The findings suggest that the bulk of leadership development is done on a planned basis, not intuitively, spontaneously, or unsystematically. Also, the lesser prevalence of the last two practices suggests that the means of instruction receive more attention than its

ends, where leadership development is concerned.

Staff members using multiple methods of instruction used more of the six teaching practices than staff using only one method. This implies wide disparities in the quality of leadership development work. Also, the more methods and practices staff members used, the more frequently they tried to develop leadership. This finding suggests that a sole or primary reliance on mass communication techniques would jeopardize leadership development efforts.

Clientele

Number of Clientele. Extension tried to enhance the leadership competencies of 13.7 million people during 1985, according to the survey. Client load was unevenly distributed among staff (Figure 4). Less than one-fifth of the staff (17 percent) reportedly reached four-fifths (79 percent) of the leadership development clientele. Half the staff reached 200 or fewer clientele.

On average, Extension staff spent an estimated six hours during the year trying to develop the leadership skills of each client of representative work (Figure 5). Contacts with these clientele spanned an average of twelve months (Figure 6), suggesting neither cursory nor permanent relationships.

Demographic Traits. According to staff estimates about the characteristics of clientele of representative work, females comprised 61 percent of the leadership development clientele, although according to the Bureau of the Census they are only 52 percent of the U.S. population (Figure 7). This reflects the high proportion of females among volunteers, around whom much of the representative work revolved.

Racial and ethnic minorities were reached through representative work in rough proportion to their numbers in the general population.

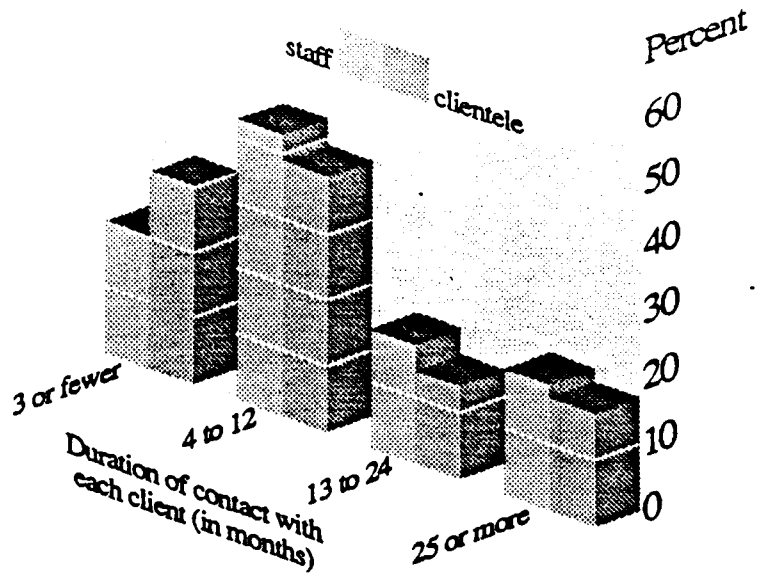


Figure 6. Duration of contact with leadership development clientele during 1985. Data refer to representative work.

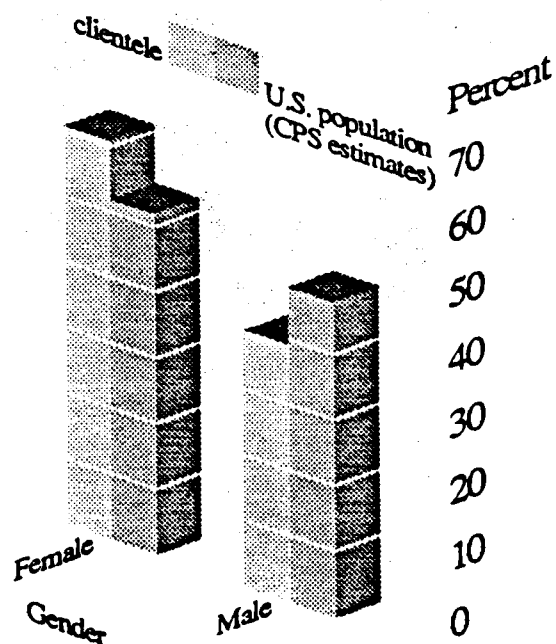


Figure 7. Gender of leadership development clientele and U.S. population. Data refer to representative work.

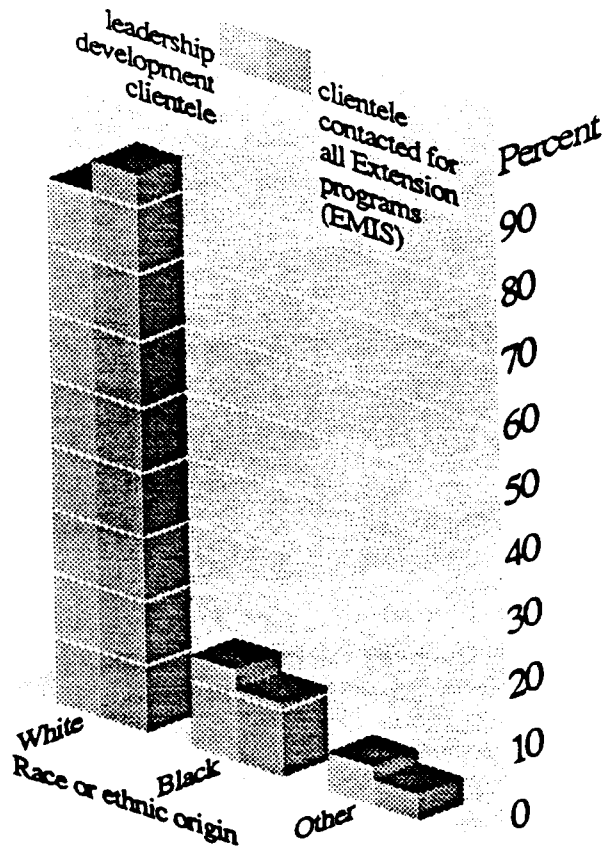


Figure 8. Race or ethnic origin of leadership development clientele and clientele of all Extension programs. Data refer to representative work.

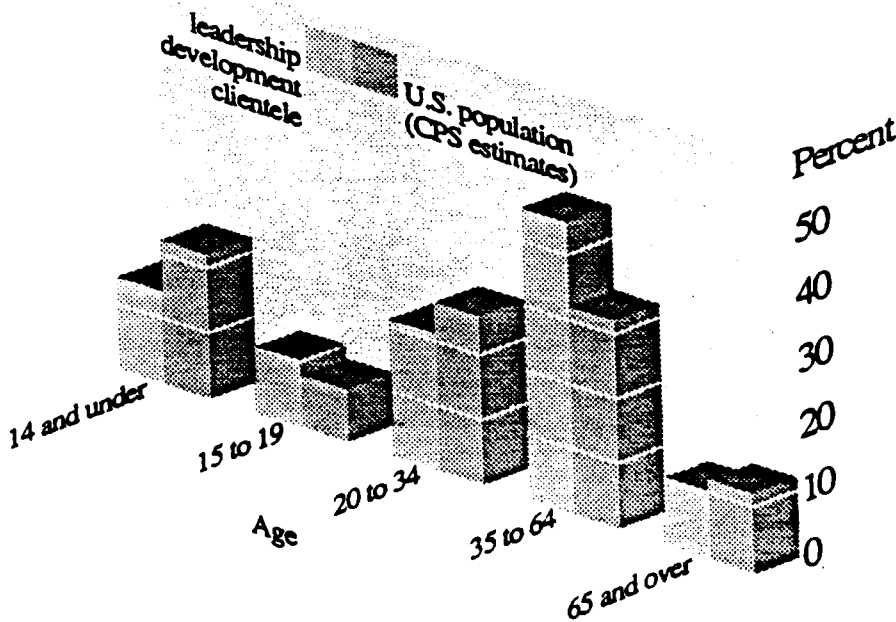


Figure 9. Age of leadership development clientele and U.S. population. Data refer to representative work.

numbers in the general population. Individual racial and ethnic groups were reached about as often as they participated in all Extension programs (Figure 8) and roughly in proportion to their numbers in the general population.

Extension staff directed their representative leadership development efforts toward people between the ages of 35 and 64 in disproportion to their numbers in the population (Figure 9). Similarly, efforts were directed toward lower-middle-income groups (\$10,000 to \$34,999) in disproportion to their numbers in the population (Figure 10). Staff also tried to develop the leadership competencies of established leaders more often than emerging leaders or other adults and youth (Figure 11).

Organizational Affiliations. A majority of Extension personnel worked with diverse types of organizations when trying to develop the leadership skills of their members, with 61 percent working with five or more types of organizations at least once during 1985. Proportionately more staff (73 percent) tried to develop the leadership skills of persons affiliated with community and civic service organizations than any other organizational type. Staff worked most frequently (35 percent at least once a month) with persons affiliated with a farm, ranch, or agriculture-related business.

Selectivity in Outreach. The evidence gained from representative leadership development work indicates considerable selectivity in who educates whom. For example, 11 percent of the staff reached 79 percent of the black clientele for leadership development purposes; most Extension staff (53 percent) had no black clientele (Figure 12). The same applies in varying degree to females, young and old people and both low- and high-income people.

Support

From Extension. Staff received support for leadership development work from a variety of sources within Extension (Figure 13). Common sources of support in addition to salary and travel expenses included help and encouragement from agents (80 percent), state program leaders (76 percent), and specialists (71 percent), along with counseling and encouragement from supervisors (70 percent). In addition, 76 percent of staff members received educational materials relevant to leadership development that probably originated within Extension.

From External Sources. Staff also received a variety of supports from external sources. The most common form of external support was help and encouragement from clientele (80 percent). Nearly two-thirds of the staff had clientele willing to give additional time for leadership development work beyond that required by the learning situation (e.g., serving on an advisory committee).

Volunteers supported the majority of staff. Over 330,000 people volunteered to assist Extension staff in their leadership development work during 1985.

Staff members also received support in 1985 from an average of eight organizations other than Cooperative Extension. Altogether, more than 100,000 organizations supported Extension's leadership development work in 1985. More than two out of five staff members received such support in the form of facility use, financial support, or staff time. Large-scale leadership development efforts relied on outside funding. The W. K. Kellogg Foundation is the leading source of outside funds for Extension's formally organized leadership development work. The findings imply considerable entrepreneurial skill on the part of Extension staff in

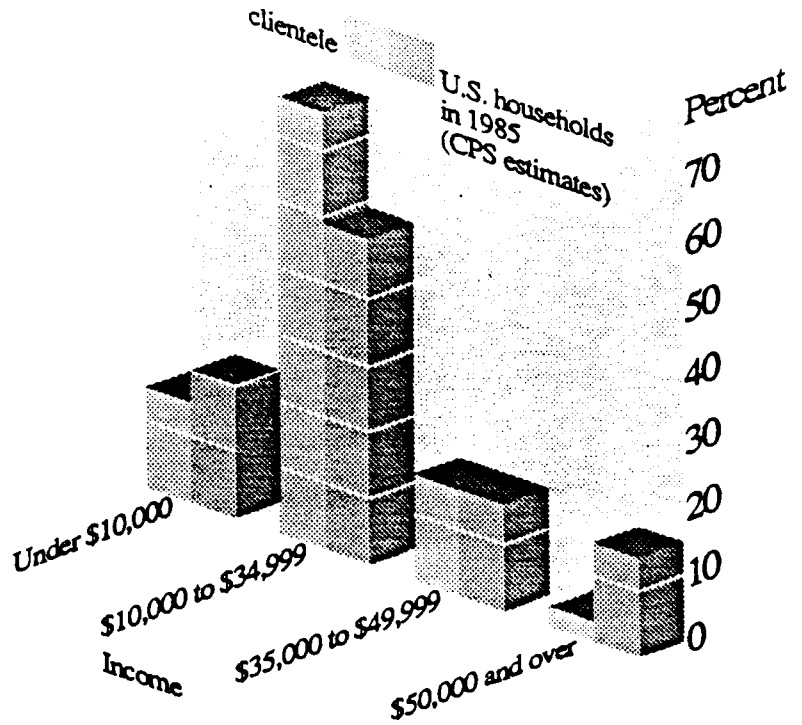


Figure 10. Household income of leadership development clientele and U.S. population. Data refer to representative work.

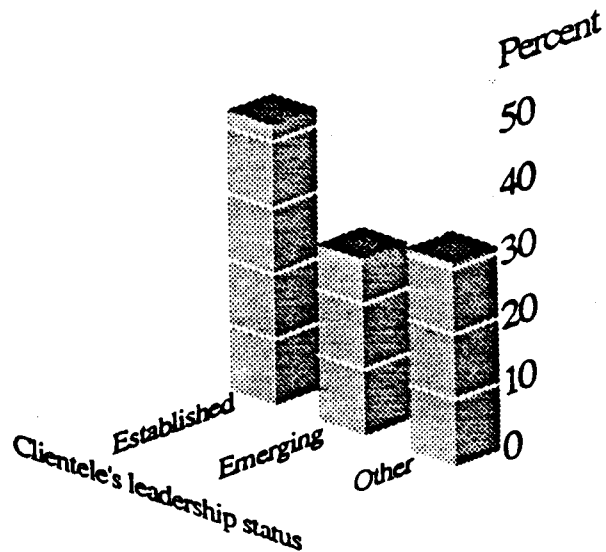


Figure 11. Leadership status of leadership development clientele. Data refer to representative work.

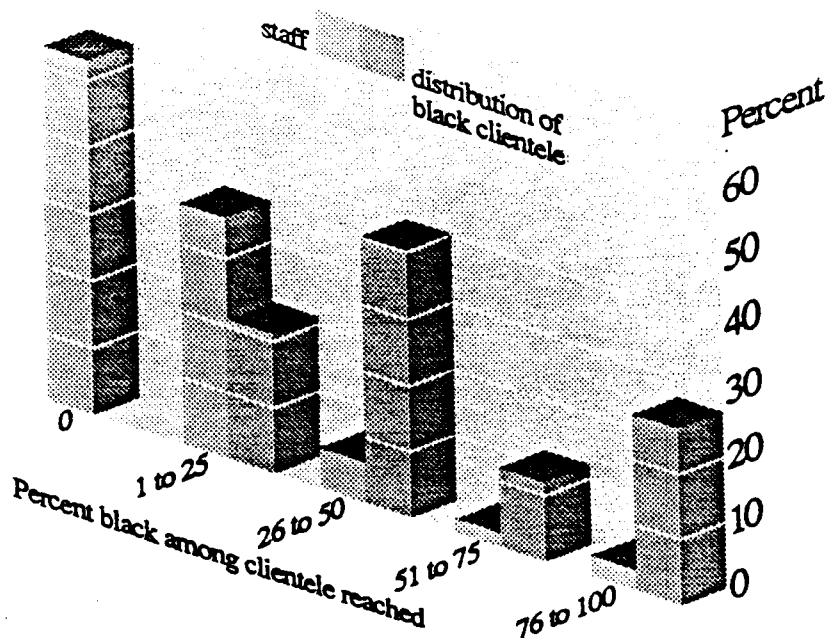


Figure 12. Distribution of black leadership development clientele among staff members. Data refer to representative work.

obtaining and managing resources from diverse places for their leadership development work.

Usefulness. Extension staff members received an average of thirteen different forms of assistance from internal and external sources during 1985. In their opinion, the most useful forms of assistance, when available, were financial support and help from agents, clientele, and specialists (Figure 13).

Organizational Inducements. Extension staff felt more responsible for leadership development when it was included in their plan of work, position description, and as a criterion for assessing job performance. Staff also felt a greater sense of responsibility when they believed their supervisors expected such work. Staff members with all these inducements spent an average of eighteen hours per week attempting to develop leadership, compared to one hour per week for those reporting no inducements.

However, more Extension staff felt responsible for developing leadership than might be predicted solely on the basis of organizational inducements. For example, while 84 percent of Extension staff reported feeling responsible, only 70 percent said their supervisors expected them to develop leadership. This suggests widespread support among staff for leadership development work.

Supervisors

Persons who were directly responsible for supervising the work of program-delivery personnel (para-professionals, agents, and specialists) in 1985 supported leadership development in many ways, albeit infrequently (Figure 14). The two most common practices reported by supervisors (counseling on importance of leadership development skills and raising leadership development as a topic at staff meetings) occurred on average at least once every few months. Supervisors were more likely to support staff directly (e.g., through counseling) than to seek help from third parties (e.g., by soliciting specialist assistance, or seeking outside funding). Seventy-three percent of the supervisors included leadership development in performance appraisals.

Supervisors lagged behind agents and clientele in supporting leadership development work, judging by survey reports from both supervisors and their staff. This is especially true of supervisors in agriculture and natural resources.

Supervisors were more likely to support leadership development work when:

- they were convinced that it was necessary to encourage personnel under their supervision to spend more time developing leadership;
- they felt able to judge the quality of leadership development work;
- they took courses of instruction

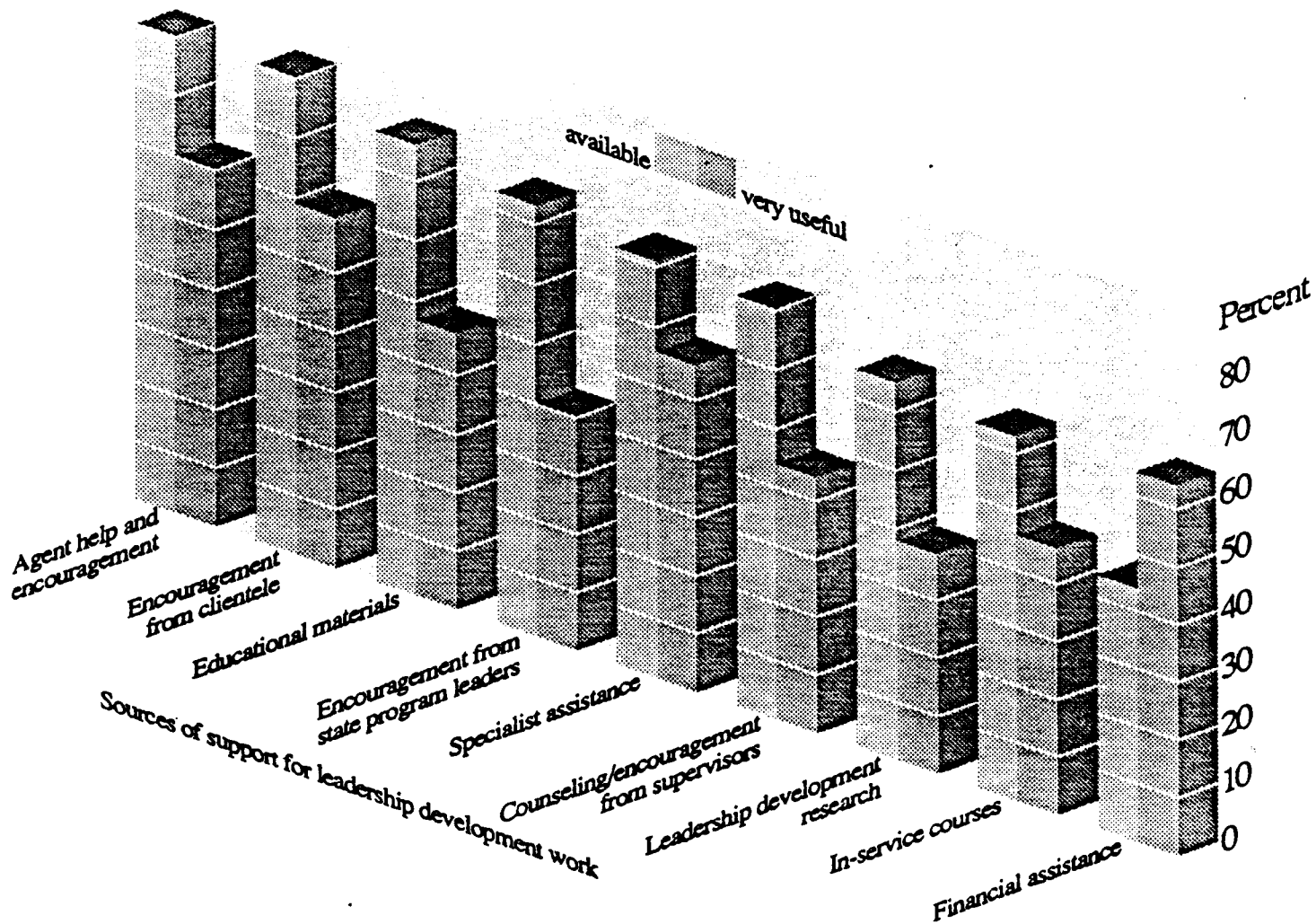


Figure 13. Availability and usefulness of support for leadership development work, by type and source of support.

in leadership development;

- they were employed by Extension less than 16 years; and
- they were female.

Half the supervisors indicated difficulty in judging the quality of leadership development work with Extension clientele (Figure 15).

Support from supervisors goes hand in hand with practice. Those staff members who received no support from their supervisor averaged two hours of leadership development weekly, compared to fourteen hours for those receiving many (ten or more) supports.

Staff Characteristics

Attitudes. Extension personnel held these views on leadership development work:

- 84 percent believed that developing the leadership skills of clientele is one of their responsibilities: 30 percent saw it as a primary responsibility, and 54 percent as a secondary responsibility.
- 73 percent felt that developing the leadership skills of clientele is at least as important as teaching other subject matter.

In sum, Extension staff appear highly motivated about leadership development work.

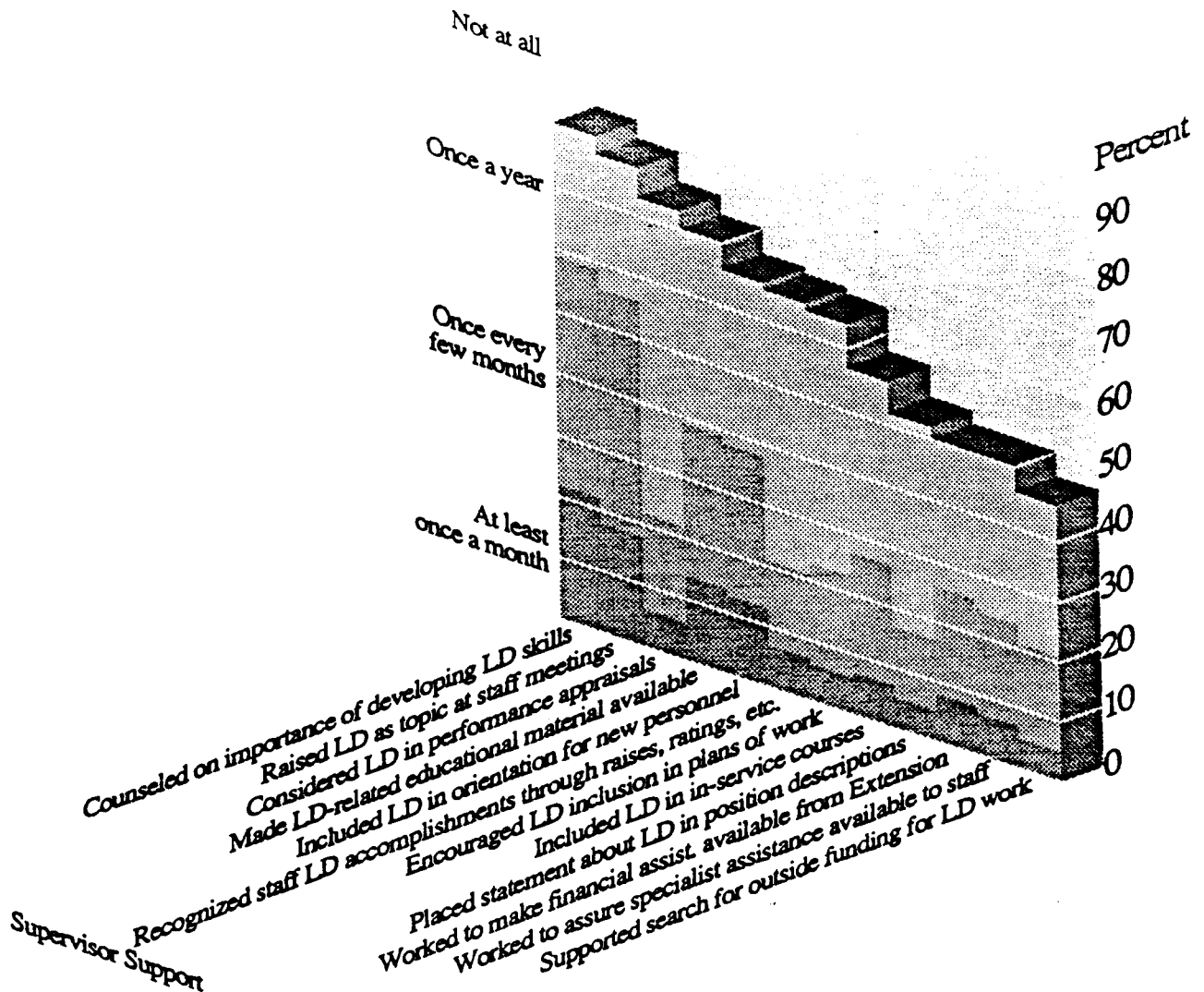


Figure 14. Frequency of supervisor support for leadership development, by type of support.

Preparation. Staff were somewhat reserved about their preparedness for this kind of work. A majority (58 percent) felt somewhat prepared to teach leadership skills, while another 27 percent felt very well-prepared. Approximately two-thirds of the staff had received instruction on leadership development. Roughly a quarter of the staff were developing leadership skills among clientele without training on this subject.

Employment. Most of the staff were closely associated with Extension. Over two-thirds had been Extension employees for over

6 years. Full-time employment with Extension was the norm for all but state specialists, three-fourths of whom worked full-time for Extension.

Demographic Traits. Demographic questions in the survey reveal the following about Extension staff:

- 92 percent were white;
- 73 percent held one or more advanced degrees;
- males outnumbered females by almost two to one (64 versus 36 percent); and
- 53 percent were over 40 years of age.

Profile of Frequent Leadership Developers. Nearly a quarter of the staff (23 percent) spent sixteen or more hours per week trying to develop leadership among clientele during 1985. This group accounted for nearly half of Extension's 13.7 million leadership development clientele during 1985. In disproportionate numbers these staff:

- felt that developing the leadership skills of clientele was more important than teaching other subject matter;
- regarded this area of work as a primary responsibility;
- thought of themselves as very well-prepared to teach leadership skills;
- were credentialed with some form of training in leadership development;
- worked full-time for Extension;
- were black;
- held a bachelor's degree, but no advanced degree;
- were female; and
- were age 40 or under.

Relating Staff Characteristics to Their Work. Staff attitudes and qualifications are more strongly correlated with the number of hours spent on leadership development than ties to Extension or demographic traits. Illustrating this, the survey data show a close, direct correspondence between the amount of responsibility that staff members feel and the amount of time devoted to leadership development. Those who considered leadership development a primary responsibility spent eighteen hours per week trying to develop these skills; those perceiving it as a secondary responsibility averaged six hours weekly; and those who felt no responsibility spent three hours per week, on average.

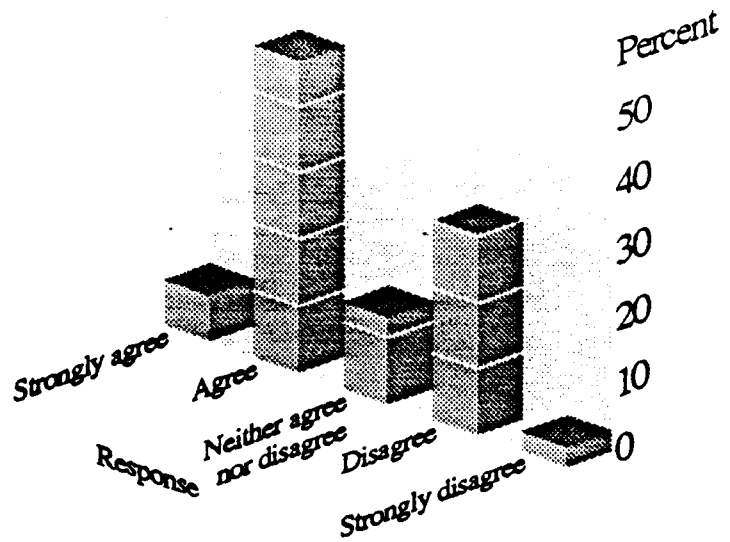


Figure 15. Supervisors' response to statement, "I find it difficult to judge the quality of leadership development work with Extension clientele."

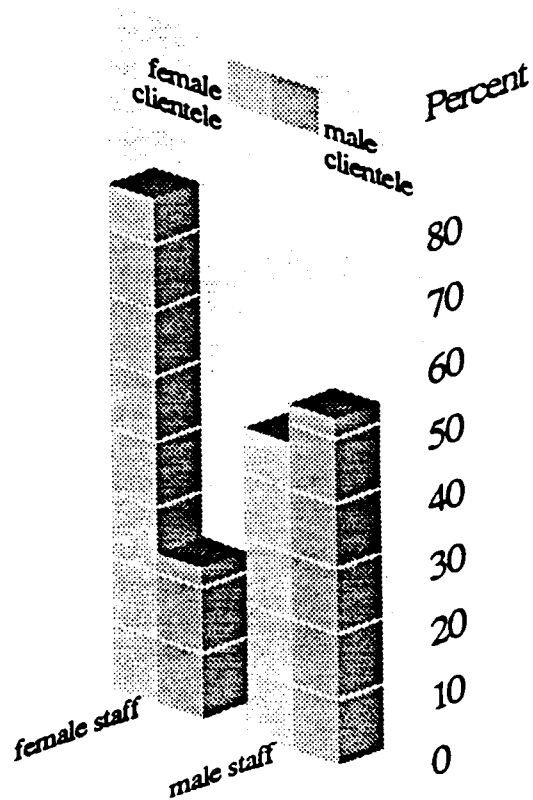


Figure 16. Gender of leadership development clientele, by gender of staff member. Data refer to representative work.

Similarity in Staff and Clientele Characteristics. Extension personnel most often tried to develop leadership among clientele with characteristics similar to their own. The following examples come from an analysis of staff reports about representative work.

- Staff 30 years of age and under estimated that 51 percent of their clientele were under the age of 20. The comparable statistic for older staff ranged from 16 to 22 percent. Younger personnel tended to develop the leadership skills of younger clientele.

- Personnel tended to develop leadership skills among clientele having racial or ethnic characteristics similar to their own. White staff members estimated that 88 percent of their leadership development clientele were white. Black personnel estimated they reached more blacks (57 percent) for leadership development purposes than whites (40 percent) and other minorities (3 percent). The other minorities reached an estimated 48 percent classified as other minority, 29 percent black, and 23 percent white.

The tendency for staff to reach clientele with traits similar to their own is more apparent for some groups than others. For example, female personnel estimated that 77 percent of their leadership development clientele were female. The comparable figure for male personnel was 47 percent. In other words, male staff members developed leadership skills among both genders more often than their female colleagues (Figure 16).

Knowledge Base

Research. The large body of research on leadership almost totally ignored leadership development, the study's literature review reveals. The research base is scattered across many disciplines. Agricultural experiment stations

rarely sponsor research on leadership development. These conditions suggest problems in accessing the research base and using it to guide leadership development work.

The NISLDE survey confirmed this suggestion. Nearly four out of ten staff members made no use of reference materials when planning or conducting leadership development work. One third of the staff received no research-based information in support of their leadership development work. Of those who did receive research-based information, three-fifths did not find it very useful, making leadership development research the least useful of all the supports studied. *This implies a need to pay more attention to when and how Extension staff make use of research for leadership development purposes.*

Resident Instruction. *The Chronicle of Higher Education* reports that virtually every U.S. institution of higher education will have some sort of leadership program by 1990. Yet, from interviews conducted in 1985, this study finds that only a handful of Extension campus-based staff who are highly knowledgeable about leadership development were associated with campus-based leadership efforts. Most were not aware of related activities on campus.

In sum, this study observed few mutually supportive ties concerning leadership development between Extension personnel at land-grant institutions and research or resident instruction personnel. *This implies isolation from the academic knowledge base.*

Policy

A review of national documents about Extension work failed to uncover a policy on leadership development.

Recommendations

This report offers three recommendations to improve Extension's leadership development effort. Each recommendation appears below along with suggestions for its implementation.

Policy. Produce a formal statement about the importance of leadership development work. Extension needs to make an official statement on the nature and scope of leadership development; its relevance to Extension's mission, the current initiatives, and other educational activities; the rationale for developing leadership; and the potential to be realized through collaboration with other organizations. The statement should advance the view that leadership skills are learned and that nearly everyone can learn them. It should also inspire common language and understanding.

Procedures. Establish procedures that will aid and encourage leadership development. Aid and encouragement can occur in many ways, such as:

Organizational Structure Stating the roles and responsibilities of local, state, and federal personnel in leadership development work and explaining how they interface.

Educational Practices Including leadership development as a part of each state and national initiative.

Accountability Finding out whether leadership development makes a difference in the lives of individuals and their families, organizations, and communities.

Resources Allocating enough resources to allow staff to fulfill Extension's policy and level of commitment to leadership development work.

Personnel Practices Providing inducements for staff to carry out leadership development work and rewarding them through performance appraisal, promotion, and awards.

Research. Ensure the quality of leadership development work by strengthening its research and knowledge base. Extension needs to draw upon the resources of the entire land-grant system, other universities, public and private organizations, and agencies for its leadership development research and knowledge base. Strategies are needed to foster working relations between Extension personnel and others engaged in leadership instruction and research. Basic and applied research interests should also be identified and pursued.

About the Authors

- John A. Michael is a National Program Leader in Evaluation with the Extension Service, U.S. Department of Agriculture.
- M. Chris Paxson is an Assistant Professor in Hotel and Restaurant Administration, Washington State University.
- Robert E. Howell is an Extension Sociologist in the Department of Rural Sociology, Washington State University.

About the Project

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The contents of this publication do not necessarily reflect the views or policies of the U.S. Department of Agriculture, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

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Overhead 33

REGIONAL OPTIONS

Form a Western Regional Task Force on Leadership Development for linking NISLDE findings and recommendations to the needs of extension, research, and resident instruction in the Western Region.

- Link findings and recommendations to Western Region needs
 - Develop a policy statement
 - Identify relevance of leadership development to state initiatives/priorities
 - Recommend organizational procedures
-

Overhead 34

POTENTIAL COLLABORATORS

Through CAHA, design a collaborative mechanism to assure the continuing integration of leadership development concerns and needs into regional extension, research, and resident instruction programs and initiatives.

Overhead 35

Fix Responsibility

Identify an individual, preferably at the state management level, to assume organizational responsibility for the development and integration of leadership development policies and procedures across all programs and initiatives.

Overhead 36

Staff Seminar

Support a half-day staff seminar on state implications of the NISLDE study for administrators, program managers, and others potentially responsible for the integration of leadership development in state programs and policies.

APPENDIX L

**National Grape Importation and Clean Stock Facility
at Davis, California
June 1990**

Status of Project

In last year's Agriculture Appropriations Bill, Congress appropriated \$130,000 to plan a Grape Importation and Clean Stock Facility at Davis, California, in the Cooperative State Research Service (CSRS), United States Department of Agriculture (USDA) budget. Project planning is currently in progress at Davis.

Needs this Project Will Serve

There is a shortage of grape importation facilities in the United States. As a result of this shortage, our grape industry and citizens must frequently wait many years to import foreign grape materials, and sometimes are unable to find a legal method. The incidence of illegal importation, as a consequence, has been reported to be quite high.

Importing foreign exotic pests and diseases is a serious threat that can have tragic consequences. The terrible damage Dutch Elm disease wrought in the American urban landscape is just one example we are all familiar with. Another famous example occurred last century when the vineyards of Europe were devastated by the downy mildew disease and phylloxera pest introduced from the United States. The threat of a similar disaster occurring in this country is very real. There are several foreign grape diseases, flavescence doree and grapevine bacterial blight, which could cause catastrophic damage to the grape industry if introduced into U.S. vineyards.

Potential benefits from foreign grape introductions are well recognized. Table and raisin grape producers need access to new varieties developed in South America, Europe, South Africa and Australia so they can compete with fruit and raisin producers outside the U.S. Researchers need to import and test rootstock materials to solve recently detected, phylloxera resistance problems and to search for new pathogen resistance in general. Winemakers want new wine grape clonal selections that have already been evaluated in other wine producing regions. Researchers also continually need foreign materials to use as a reference to aid in correctly identifying many grape varieties for which there is some uncertainty in identity.

Procedures used to qualify grape material for release from quarantine currently entail two to ten years or more to complete. Much of the time required is spent conducting lengthy field indexes to test for disease and treating selections to eliminate disease. Facilities in which to develop and implement faster disease detection and elimination methods are needed in order to shorten the quarantine time period in the future.

Project Goals

Accordingly, the goals for the Grape Importation and Clean Stock Facility are to:

1. Provide readily accessible grape importation services for the nation
2. Protect the national grape industry from dangerous foreign pathogens
3. Improve grape disease detection and treatment techniques used for grape quarantine procedures

FPMS Qualifications

Foundation Plant Materials Service (FPMS) is a self-supporting organization ideally suited to provide grape importation services, and since 1958 has had a reputation for providing quality grape materials nationwide. University and USDA scientists serving as FPMS advisors are experts in grape identification, disease detection and disease elimination methods. Several advisors are qualified to hold a grape importation permit from APHIS so federal requirements can be satisfied on an ongoing basis. The staff is trained in recordkeeping, grape maintenance, material distribution, and current techniques for grape disease detection and elimination, so start up training and organization for an importation program would be minimal. Unique grape variety and disease collections at the University are a valuable resource to FPMS and are not available at any other location. Davis has an optimum climate for grape field disease testing, maintaining quarantine materials, and fruiting many grape species for identification. Since Davis is in close proximity to this country's major grape producing areas, FPMS benefits from many active industry advisors who keep the program updated on industry needs.

Project Costs

Based on preliminary planning, construction is estimated to cost approximately \$2,500,000. The University of California is contributing land for the building site, 12 acres of land for a field testing block and 5 acres of land for a field quarantine block. In addition, the donated staff time to plan the project is valued at \$39,991. The facility operating costs will be paid with fees charged to users for importation services.

APPENDIX M

Western Director's Summer Meeting

Newport, Oregon

Report of Committee of Nine

June 26, 1990

1. The Committee of Nine met May 23-25, 1990 at USDA/CSRS in Washington D.C.
2. The Committee of Nine reviewed a total of 20 Regional Research project proposals. Of these total, 6 were approved, 11 were conditionally approved, 2 were deferred and 1 rejected. W-150: "Genetic Improvement of Beans for Yield" was conditionally approved.
3. A total of 7 requests for extension were approved, including 2 from the Western Region, W-174 and W-175.
4. IR-6 received a one year extension with the off-the-top finding. The vote was 6 to 2 with all other 3 regions voting in favor of the off-the-top finding.
5. The Committee of Nine sponsored a regional research workshop May 21-22 on evaluation criteria used by the Committee of Nine in reviewing proposals for RRF funding. As a result of this workshop, a revised CSRS Form 89 was adopted for future use. It was recommended that the same form would be used by the regional research committees.
6. A subcommittee (Koong, Brown, Firebaugh) was appointed to evaluate the possibility of establishment of a National Research Coordination Project.

Submitted by:

L. J. KOONG

APPENDIX N

ACCOMPLISHMENTS REPORT
JOINT COUNCIL ON FOOD AND AGRICULTURE
NATIONAL AGRICULTURAL RESEARCH COMMITTEE

REVISED STATEMENT OF PURPOSE AND PROCEDURES
April 23, 1990

BACKGROUND AND PROBLEMS

The Accomplishments Report is mandated by the 1985 Farm Bill, which continues the authorization of the Joint Council. Over the last two years, the Council has found the utility of this report to be limited. Despite a concerted marketing effort this year, the 1989 report has not received a great deal of recognition as a source of new and interesting information about the performance of the research, extension and education system of Science and Education.

The Council began a redirection of the acquisition of input and the format for presentation of the report two years ago. The intent was to be more selective in the material used, to take a more global approach and to move from the concept of annual reports of progress to statements covering a sufficient period of time to make a more complete story. Also, the Council began to solicit inputs that showed accomplishments in areas where previous plans and priorities reports established an intent to perform. The Council staff have increased the attractiveness of the report with relevant pictures and improved format.

The results of this effort have, however, not made this document as useful as it should be relative to the effort and expense of producing it. We believe that part of the problem is a failure to effectively communicate with those who we ask to help by identifying topics for the report. The traditional approach for developing material in the SAESs is well established. What is needed now is a clear message that the NARC and Joint Council are looking for a different kind of material, probably developed at a different level within the office of the director of the SAESs. The purpose of this report is to define the new approach and process for gaining input for the Accomplishments Report.

REVIEW OF THE PURPOSE:

Identifying the purpose and audience for the report is the first critical step in planning its content. The Accomplishments Report is intended to be a document that succinctly illustrates and demonstrates the effectiveness and utility of the research, extension and education system of the USDA Science and Education function to an informed lay reader. The reader of the report is intended to be Congressional members and staff, policy and decision makers in the Administration, organizations charged with evaluation of performance of the S&E system and users of the products of research, extension and education. The report should demonstrate the ability of the system to effectively perform in the areas selected for emphasis in the Council's five year (strategic) plan and in its

annual statement of priorities. A desired secondary function of the report is to provide identification of newsworthy information for regional and national press. The document is not intended to be a vehicle for documenting annual progress on individual research projects; although this kind of input was sought and used in earlier reports. At one stage of evolution, part of the report was constructed to show integrated efforts of one or more parts of the system (research, extension, education). While the report is still recognized as an opportunity to show the synergy of related efforts, the Council no longer takes this as a prime objective. The over-riding criterion for input should be that it is exciting, contemporary and relevant.

INDIVIDUAL STATE VERSUS SYSTEM ACCOMPLISHMENTS

University input, solicited at the state level (SAESs) has been completed to gain a specificity that makes accomplishment reports factual, crisp and believable. In the past, this input has tended to present somewhat fragmented examples of the broader accomplishments of the total system. Earlier, there had been a tendency to identify annual progress on individual projects that were interesting and contemporary. This has tended to exacerbate the problem of fragmentation. For several years, the NARC has aggregated individual state inputs on common areas of accomplishments and suggested that writers use specific examples from individual states (identified in the document) to flesh out more general accomplishment statements.

In the next generation of NARC input, SAESs will be asked to identify more global areas of accomplishment. But, they will continue to be asked to provide specific examples from their state (region or other states) that could be used to illustrate the key points. NARC has, with the guidance of the Joint Council, provided the SAES directors with areas of accomplishment that might be considered, sought specific state input to address topics that have high national visibility or that are prominent in the strategic plan and priorities documentation. NARC will probably continue to provide this kind of framework, but it is also important to leave the opportunity for individual SAES directors to identify topics that are new, exciting and contemporary which might not be recognized by NARC members. Where appropriate, NARC will continue to recognize the institutional origin of input where specifics are cited.

DISCONTINUE JOINT REQUESTS FOR ACCOMPLISHMENTS WITH CSRS

The Cooperative State Research Service continues to have need for rather specific annual accomplishments types of input. Previously, the ESCOP Planning Group has joined with CSRS to make a single request of the SAESs for input to be jointly used. With the new direction of the Accomplishments Report, the ESCOP Planning Group proposes to seek separate inputs from the SAESs to avoid confusion and to clearly separate the annual reports type of input from the more global input that NARC is trying to capture.

REVISED SCHEDULE:

The NARC will hold its annual meeting in early November, rather than February beginning in 1990. This means that the input for the Accomplishments Report will be solicited in the summer, rather than in December and January. This has advantage in that it avoids the holiday season.

The ESCOP Planning Group, via its regional representatives and DAL members, will solicit input on the Accomplishments Report about August 15, 1990, asking directors to respond by October 1, 1990. This will allow time for the Planning Group to analyze input, integrate input from other elements of NARC and have draft material mailed out prior to the NARC meeting in early November.

There will be continuous need for review and re-prioritization of the initiatives for the annual ESCOP and NARC priorities reports. We estimate the call for priorities evaluation will be sent out about September 5, 1990, with results of voting by individual SAES directors due on October 15, 1990.

SUMMARY

- A substantial revision of the approach and content of topics for the Accomplishment Report is needed.
- Topics identified by individual SAES directors should be broader and more global in nature, aimed at capturing broad areas of recent achievement.
- Topics should include those related to commitments made by the Joint Council Strategic Plan and Priorities reports of previous years, i.e. that show the system did what it said it would do.
- Other topics that are relevant, exciting and contemporary that are not within the guidelines provided by NARC are also sought.
- Specific accomplishments of individual SAESs should be identified where appropriate to illustrate or amplify the more general topic that is recommended. Specific accomplishments from regional efforts or joint efforts with research and education are also appropriate.
- It continues to be critical to propose a relatively short and highly descriptive title for the accomplishment topic. With this should be a few sentences that clearly convey a complete thought about the scope and gist of the accomplishment being proposed and of the specific examples associated with it.
- Also critical to the report is the identification of a few broadly knowledgeable scientists or administrators that can be asked to actually prepare the documentation of the accomplishment, if it is selected by the Joint Council for the publication.

- The input from individual SAESs does not have to deal with the details of the accomplishment; rather it needs to clearly identify an appropriate topic and writers that can provide that detail in the final document, if the topic is selected. Examples from individual states that are suggested to illustrate the broader topic should contain enough detail so that the selected writer can understand what has been done and can find a contact in the SAES for further information.

Respectfully submitted,



Neville Clarke
Co-Chairman, NARC

REPORT OF THE RESEARCH PLANNING GROUP
OF
THE SUBCOMMITTEE ON PLANNING AND BUDGET

TO

THE EXPERIMENT STATION COMMITTEE
ON ORGANIZATION AND POLICY

APRIL 23, 1990

The document "Research Agenda for the 1990's, A Strategic Plan for the State Agricultural Experiment Stations" (ESCOP 90-1), February, 1990 was published as scheduled and distributed broadly; personal letters to each member of Congress transmitted a copy to them.

Attachment 1 shows the results of the directors votes on the priority of initiatives contained in the new strategic plan. The consensus between regions, especially in the upper and lower quartiles, is as good or better than has been achieved in previous years. There has been a substantial evolution of perceptions of priorities in the last three years; it is more specifically demonstrated in this latest round of voting. The ranking of NARC for a similar list of priorities is shown for comparison (Attachment 2).

It is recommended that ESCOP hold a briefing seminar for Congressional members and staff on the Hill regarding the new plan sometime before the end of June. In our opinion, we need to give substantially more visibility to the plan than was done with the previous document. It is suggested that the chairs of the subgroups which developed the six major sections of the plan present their results. Perhaps a reception following the seminar would enhance attendance and opportunity for informal discussion.

This group met on February 21, 1990 in conjunction with the meeting of the National Agricultural Research Committee (NARC). It reviewed the ESCOP input to the NARC on national priorities and annual accomplishments. It also reviewed recent deliberations of the JOINT COUNCIL relative to the activity of NARC.

The group agreed to undertake an effort to expand the section of the new ESCOP Strategic Plan dealing with the "Science Dimension". This was initiated in the new plan, but needs more effort to define and briefly describe the disciplinary dimension of the plan. This should facilitate communication with other parts of the land grant university community as well as with other parts of the federal science system. The CRGO staff in CSRS may be a valuable source of input for this effort. Selected scientists in the system will also be asked to contribute. This is envisioned as either a small publication or a section in the update of the priorities report.

The group will meet in late summer to review priorities for the annual NARC-JOINT COUNCIL input. In accordance with the four year planning cycle, this first year after the major revision of the plan will involve a relative cursory review of the current document by the group. Revisions will be made as necessary and the initiatives will be submitted to each director for review, comment and prioritization. The report will be published in

Report of the Research Planning Group of
the Subcommittee on Planning and Budget
Page 2

January, 1991 as an update to the ESCOP Strategic Plan, thereby continuing to have a current document available as part of the communication process for Congressional appropriations.

The group wants to undertake a substantially different method for soliciting and preparing the material for the annual accomplishments report that is required by NARC. Over the last three years, the JOINT COUNCIL has moved toward a more global set of statements of accomplishment for the system. The earlier process sought "annual" inputs - which have been translated as accomplishments within the last year. What is now being asked for is a smaller number of reports on contemporary issues that respond to the previous JOINT COUNCIL plan and priorities reports; inputs that cover a sufficient period of time to provide an impressive statement of accomplishment.

In previous years, the group has joined with CSRS in seeking a common set of annual accomplishments; CSRS uses this material for a variety of communications, including those associated with the budget process. However, as the new needs of the JOINT COUNCIL are recognized, there is a divergence of need for this kind of input. Therefore, the group will solicit input separately from CSRS on accomplishments in the future. The group feels attempting to tie these two efforts together, in an attempt to reduce burden on directors has caused us to fall short of the mark for both areas of need.

There is a need for communication of this change of intent to each director. The group recommends discussion of this issue at regional meetings in the spring and summer of 1990, with regional representatives of the group and the DALs providing input. The group discussed the possibility of conducting a brief "workshop" on the new accomplishments report at regional meetings. We seek guidance from ESCOP on this thought.

It is important to recall that in the new format, we are not seeking detailed documentation of an individual piece of science, but identification of a broader, more global topic, showing accomplishment in an area of science; accomplishments that often reflect efforts of multiple states. We believe that the identification of these topics might be better done at the level of the director's office than with the individual scientist. The format now calls for a title that clearly conveys the area of accomplishment in an exciting way and a very brief interpretive description, perhaps only three or four sentences in length, that elaborates on the title sufficiently to assure an effective communication of the idea. With this, we seek nominations of key individuals who might be enlisted by the JOINT COUNCIL staff to actually write the accomplishment report on the subject.

As part of the next solicitation, the group has agreed that it will prepare a new and better goal statement, trying to assure that we break the pattern of previous solicitations and clearly identify that we are seeking a new kind of input from a different level for the accomplishments reports, and that we clearly want to uncouple this from the annual reports related to Hatch, Regional and other projects.

Report of the Research Planning Group of
the Subcommittee on Planning and Budget
Page 3

ACTION REQUESTED:

1. Discussion and specific guidance on the proposed Congressional seminar on the Strategic Plan.
2. Discussion of the revised solicitation for accomplishments at regional meetings in the Spring and Summer of 1990, including the possibility of regional workshops on the new content and format of the solicitation to individual directors.
3. Response to an earlier solicitation of input for accomplishments in the July-August, 1990 time frame.
4. Review and possible reassignment of responsibilities in each director's office for identification and documentation of topics for the accomplishment's report.
5. A better effort for quality of product to make the JOINT COUNCIL publication more useful.
6. Support from regional leaders, DALs and individual directors in reviewing and prioritizing the planning initiatives, when they are submitted in the early fall.

Respectfully submitted,



Neville P. Clarke
Chairman

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1990 ESCOP PLAN - NEW INITIATIVES *Attachment 1*

| Priority | Initiative | Average Score of 4 Regions | Quartile Ranking | Quartile Ranking by Region | | | |
|----------|--|----------------------------|--------------------|----------------------------|----|----|----|
| | | | | NE | NC | SO | WE |
| 1. | Protecting Water Quality | 1.00 | | 1 | 1 | 1 | 1 |
| 2. | Ensure the Safety and Stability of Consumer Foods | 2.00 | (1) | 1 | 1 | 1 | 1 |
| 3. | Safe and Effective Management of Pests | 3.00 | Top | 1 | 1 | 1 | 1 |
| 4. | Compatibility of Agriculture, Natural Resources, and Environment | 4.25 | Quartile | 1 | 1 | 1 | 1 |
| 5. | Genetic Enhancement of Plants | 5.00 | | 1 | 1 | 1 | 1 |
| 6. | Animal and Plant Production Systems | 9.50 | | 2 | 2 | 2 | 2 |
| 7. | International Markets and Trade | 10.00 | | 2 | 2 | 2 | 1 |
| 8. | Controlling Composition and Nutritional Quality of Animal Products | 10.25 | | 2 | 2 | 2 | 2 |
| 9. | Develop New Processing Technologies for Added Value | 11.00 | (2) | 2 | 1 | 2 | 3 |
| 10. | Sustaining Natural Resource Productivity | 11.25 | Upper | 3 | 2 | 1 | 2 |
| 11. | Optimal Health Through Improved Nutrition | 11.50 | Middle | 1 | 3 | 3 | 2 |
| 12. | Animal Health and Well-Being | 12.00 | Quartile | 3 | 1 | 1 | 2 |
| 13. | Improving Marketing Efficiency and competitiveness of Agricultural Products | 12.25 | | 2 | 2 | 2 | 2 |
| 14. | Conservation and Efficient Use of Water | 12.50 | | 3 | 3 | 2 | 1 |
| | Enhancing Rural Community and Economic Development | 14.25 | | 2 | 2 | 3 | 2 |
| 16. | Genome Enhancement of Animal Efficiency | 16.25 | | 2 | 3 | 2 | 3 |
| 16. | Understanding the Biology of Animal Production Performance | 16.25 | (3) | 2 | 2 | 3 | 3 |
| 18. | Impacts of New Agricultural Technologies on Environment, People, and Communities | 17.25 | Lower | 2 | 2 | 3 | 3 |
| 19. | Expand Biomaterials Utilization and Devise Alternate Uses of Plant Materials | 19.00 | Middle Quartile | 3 | 3 | 3 | 3 |
| 19. | Understanding Impacts of Global Environmental Change | 19.00 | | 2 | 3 | 3 | 4 |
| 21. | Molecular and Cellular Basis of Human Nutrition | 19.75 | | 3 | 3 | 3 | 3 |
| 22. | Development of Analytical Methods for Monitoring Nutrient, Toxicant, and Bioactive Agents in Foods | 21.00 | | 2 | 3 | 3 | 3 |
| 23. | Stability and Well-Being of Families, Youth, and Elderly | 21.25 | | 3 | 4 | 4 | 4 |
| 24. | Dietary Patterns, Health, and Behavior of the Food Consumer | 22.75 | | 3 | 3 | 3 | 3 |
| 25. | Range and Pasture-Based Animal Systems | 23.75 | (4) | 4 | 4 | 4 | 4 |
| 26. | Determination of the Physicochemical Properties of Food and Biomaterials | 25.50 | Bottom Quartile | 4 | 4 | 4 | 4 |
| 27. | Develop Novel Food and Fiber Bioconversions | 27.50 | | 4 | 4 | 4 | 4 |
| 28. | Use of Plants to Enhance the Urban Environment | 28.00 | | 4 | 4 | 4 | 4 |
| 29. | Research and Education Policy for Agriculture and Rural Society | 29.00 | | 4 | 4 | 4 | 4 |
| 30. | Quantification of Sensory and Quality Attributes of Consumer Products | 29.25 | | 4 | 4 | 4 | 4 |
| 31. | Develop New and Novel Packaging Systems | 30.50 | | 4 | 4 | 4 | 4 |

NATIONAL AGRICULTURAL RESEARCH COMMITTEE
FY 1992 RESEARCH INITIATIVES

1. Protecting Water Quality
2. Ensure the Safety and Stability of Consumer Foods
3. Compatibility of Agriculture, Natural Resources, and Environment
4. Plant Genome Mapping and Genetic Enhancement
5. Safe and Effective Management of Pests
6. Optimal Health Through Improved Nutrition
7. Sustaining Natural Resource Productivity
8. Improving Marketing Efficiency and Competitiveness of Agricultural and Forest Products
9. Develop New Processing Technologies for Added Value
10. Animal Genome Mapping and Genetic Enhancement
11. Animal Health and Welfare
12. Understanding Impacts of Global Environmental Change
13. Animal and Plant Production Systems
14. Controlling Composition and Nutritional Quality of Animal Products
15. Impacts of New Agricultural Technologies on Environment, People, and Communities
16. Enhancing Rural Community and Economic Development

APPENDIX P

REPORT OF THE ESCOP
PEST CONTROL SUBCOMMITTEE
TO
WESTERN ASSOCIATION OF EXPERIMENT STATION DIRECTORS
NEWPORT, OREGON
JUNE 26, 1990

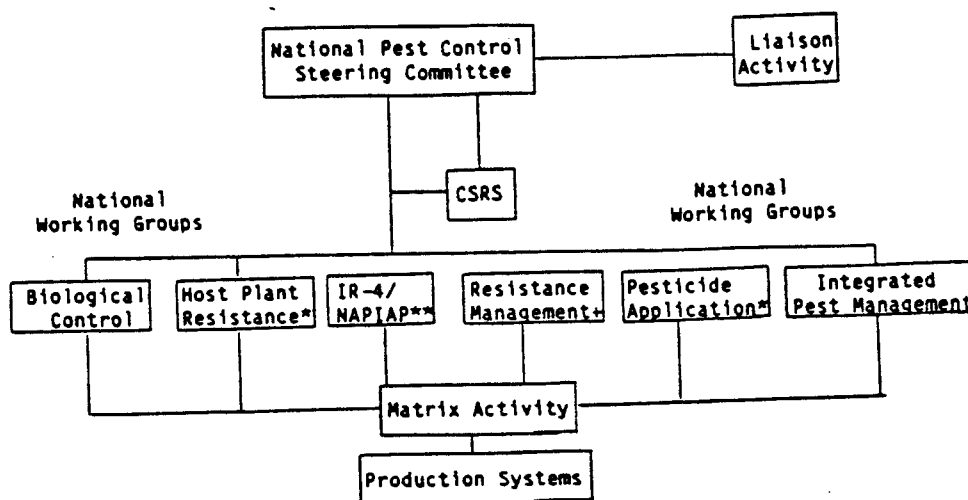
The final meeting of the "old" Pest Control Strategies Subcommittee was held in Kansas City on August 30-31, 1989, with ESCOP Chairman Elect, Jim Davidson, in attendance. The meeting focused on a white paper prepared by Drs. Bob Riley, Ed Glass, Gary McIntyre, and Dave Schlegel. From this emerged a number of recommendations which were forwarded to ESCOP, and ultimately acted on at its NASULGC and April 23-25 meetings.

ESCOP then re-named it the ESCOP Pest Control Subcommittee, dropping Strategies from the title, and appointed Dick Lower (WI) as its Chairman. The Subcommittee is to be comprised of a National Pest Control Steering Committee and National Pest Control Working Groups. The Steering Committee consists of the four regional administrative representatives and a Chair (Dick Lower, Chair; Ben Jones, North Central; Dick Rohde, North Eastern; Clive Donoho, Southern; and George Ware, Western). National Pest Control Working Groups will be composed of an administrative advisor and multiregional, interdisciplinary science representatives. The AA and one technical representative will be appointed by ESCOP to the Pest Control Subcommittee. The Working Groups currently include Biological Control, Host Plant Resistance, IR-4/NAPIAP, Resistance Management, Pesticide Application, and IPM. Its proposed structure is shown.

Liaison activity is intended to reach the following groups: ECOP, RICOP, ICOP, 1890's, CAHA, C/9, Forestry, National Plant Board, National Plant Genetics Resources Board, LISA, Water Quality, Biotechnology, NASULGC, UAB/Joint Council, USDA's Secretary's Office and the IPM Coalition. Our first meeting is scheduled for July 17-18, in Kansas City.

Figure 1. Structure of the ESCOP PEST CONTROL SUBCOMMITTEE

George Ware



* Working groups currently being organized.

** IR-4/NAPIAP = Interregional Project 4/National Pesticide Impact Assessment Program

+ Resistance Management (Resistance of Pests to Pesticides and to Resistant Germplasm)

FY1992

ESCOP BUDGET GROUP REPORT

Prepared for the

Meeting of the

WESTERN ASSOCIATION OF

AGRICULTURAL EXPERIMENT STATION DIRECTORS

The Hotel Newport, Newport, Oregon

June 25-26, 1990

V. L. Lechtenberg, Chair

Helen F. McHugh, Western Region Representative

L. L. Boyd, Executive Vice Chair

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FY1992 ESCOP BUDGET DEVELOPMENT GROUP
June 22, 1990

Dr. Victor L. Lechtenberg, Chair
Executive Associate Dean
School of Agriculture
Purdue University

Dr. William J. Benton, Assoc Director
Agricultural Experiment Station
University of Delaware

Dr. Landis L. Boyd, DAL
Western Directors Association
Colorado State University

Mr. Paul Brower, CARET Liaison
Gold Kist Inc.
Atlanta, GA

Dr. Neville P. Clarke, Associate
Deputy Chancellor for Agriculture
Texas A & M University System
(CARAFE Coordinator)

Dr. Kurt C. Feltner, DAL
North Central Directors Association
Kansas State University

Dr. James R. Fischer, Director
Agricultural Experiment Station
Clemson University

Dr. James E. Halpin, DAL
Southern Directors Association
Clemson University

Dr. Mary E. Heltsley, Dean
College of Home Economics
University of Minnesota

Dr. Kirklyn Kerr, Director
Ohio Agr Research & Development Center
Ohio State University

Dr. Helen F. McHugh, Interim Director
Agricultural Experiment Station
Colorado State University

Dr. Robert G. Merrifield, Deputy Director
Agricultural Experiment Station
Texas A & M University System
(Chair, ESCOP FY1993 Budget Group)

Dr. Bennie I. Osburn, Assoc Dean
School of Veterinary Medicine
University of California

Dr. Alden Reine, Research Administrator
Department of Agriculture
Prairie View A & M University

Dr. Bart Thielges, Head
Department of Forestry
University of Kentucky

Dr. Neal P. Thompson, Asst Director
Agricultural Experiment Station
University of Florida

Dr. Robert Todd, Asst Director
Agricultural Experiment Station
Pennsylvania State University

Dr. Dale W. Zinn, DAL
Northeast Director-at-Large
West Virginia University

Others Working Closely with the Group

Dr. John Patrick Jordan, Administrator
Cooperative States Research Service
United States Department of Agriculture

Dr. James M. Davidson, Director
Agricultural Experiment Station
University of Florida
(1990 ESCOP Chair)

Dr. Charles R. Krueger, Assoc Director
Agricultural Experiment Station
Pennsylvania State University
(1991 ESCOP Chair)

Dr. James W. Cowan, Director
Federal Relations-Agriculture,
Natural Resources & Int Affairs
NASULGC

Dr. Terry Nipp, Water Coordinator
Federal Relations-Agriculture
NASULGC

FY1992 ESCOP BUDGET GROUP REPORT
Western Association of Agricultural Experiment Station Directors
Hotel Newport, Newport, Oregon
June 25-29, 1990

The 1992 Budget Development Group met on October 26, 1989 with CSRS staff to review current programs and the initial budget ideas of the CSRS staff. Dr. Jordan and his staff presented an excellent summary of current programs and an excellent justification for increased program funding.

The Group next met, in conjunction with the 1991 Budget Group, at the Land Grant meetings in November, 1989. The National Initiative was discussed. There was general agreement that specific budget numbers for 1992 could not be developed until after the Executive Budget for 1991 was introduced.

On February 20-21, 1990 the Group met in Washington to develop specific recommendations. The 1991 Executive Budget and the NASULGC recommendations were carefully reviewed. It was agreed that the 1992 Budget should be based on the following:

- 1) 1991 Land Grant recommendations should be the base line for 1992 recommendations.
- 2) The National Research Initiative should be substantially increased.
- 3) Increase in formula funds should not be tied to specific program initiatives.
- 4) The possibility of grouping special grants on related topics should be considered.

The National Initiative and its relation to base programs was discussed at length. The Group overwhelmingly agreed that base formula funds must be maintained. While 1991 funding for NRI was unknown, the Group agreed that it must remain a high priority in 1992.

Significant increases in special grants for pest control and water quality were believed necessary to help solve specific regional problems. These programs will build on the basic knowledge generated by proposed NRI competitive grants in water quality and pest science.

The budget group identified five high priority areas for emphasis in 1992:

- 1) Water quality
- 2) Food safety and stability
- 3) Compatibility of agriculture, natural resources and environment
- 4) Genetic enhancement of plants
- 5) Safe and effective management of pests

Each of these priorities has been designated for increased funding in competitive and/or special grants.

The specific 1992 Recommendation include the following:

- 1) Increase funding for the National Research Initiative to \$300 million.
- 2) Increase formula funding, and special authorities by 10% over 1991 NASULGC recommendations.
- 3) Group pest related special grants and increase funding to \$15 million.
- 4) Increase water quality special grants to \$15 million.

Specific funding level recommendations are shown in Tables 1, 2 and 3. Table 4 shows the Group's recommendation for the various items in the CSRS plan for the National Initiative at the \$300 million level.

Chairman Vic Lechtenberg and Executive Vice Chair Lannie Boyd participated in the NASULGC Division of Agriculture Budget Committee meeting in Washington, DC on June 11-12, 1990 after which some changes were made. This meeting included a session with Assistant Secretary Charley Hess and agency heads Pat Jordan and Myron Johnsrud. Jane Coulter and some other USDA people also participated. At these meetings the decision was made to request an 8.4% increase in all base (formula) fund lines. Because of Congressional and public interest, pesticide clearance was increased an additional \$1,500,000 and global change an additional \$4,500,000. Because of the latter increase, Chairman Lechtenberg and I decided to shift \$5,000,000 in the National Research Initiative allocation recommendations under Atmospheric and Climate Change to Quality and Productivity of Soil. These are under the Natural Resources and Environment area. These are highlighted in Table 4.

Table 1. Federal Funding of State Agricultural Experiment Stations and Affiliate Groups Through CSRS/USDA (Thousands of Dollars) as Approved by the FY1992 NASULGC Division of Agriculture Budget Committee

| Funds/Grants/Authorizations | FY1990 G-R-H | ESCOP Req FY91-8/89 | EXEC91 1/28/90 | ESCOP91/a 2/2/90 | ESCOP92 2/20/90 | Commentary | ESCOP92 6/12/90 | Commentary |
|--|-----------------|------------------------|-------------------|---------------------|--------------------|------------------------------|--------------------|-------------------|
| BASE RESEARCH PROGRAMS | | | | | | | | |
| Hatch Act | 155,058 | 222,400 | 158,545 | 164,361 | 180,798 | ESCOP91 plus 10% | 178,168 | ESCOP91 plus 8.4% |
| McIntire-Stennis Act | 17,279 | 25,000 | 12,975 | 18,316 | 20,147 | ESCOP91 plus 10% | 19,854 | ESCOP91 plus 8.4% |
| Evans-Allen Program | 25,012 | 33,360 | 26,169 | 26,513 | 29,164 | ESCOP91 plus 10% | 28,740 | ESCOP91 plus 8.4% |
| Animal Health (Sec 1433) | 5,407 | 10,400 | 0 | 5,731 | 6,305 | ESCOP91 plus 10% | 6,213 | ESCOP91 plus 8.4% |
| Subtotal | 202,756 | 291,160 | 197,689 | 214,921 | 236,413 | | 232,975 | |
| RESEARCH GRANTS (89-106)/b | | | | | | | | |
| Special Grants (Sec c) | 55,828 | 102,607 | 25,597 | 61,019 | 71,547 | See Table 2 | 77,547 | See Table 2 |
| Competitive Grants (Sec b)/c | 42,521 | 107,242 | 100,000 | 150,000 | 300,000 | See Table 3 | 300,000 | |
| Subtotal | 98,349 | 209,849 | 125,597 | 211,019 | 371,547 | | 0 | |
| OTHER AUTHORIZATIONS | | | | | | | | |
| Rangeland (95-113) | 469 | 1,500 | 0 | 0 | 0 | Covered under NR | 0 | |
| Critical Materials (98-284) | 5,300 | 668 | 0 | 0 | 0 | Moved to Alterna | 0 | |
| Aquaculture Centers (95-113) | 3,703 | 4,410 | 0 | 3,703 | 4,073 | ESCOP91 plus 10% | 4,073 | |
| Agricultural Productivity/d (98-198) | 4,394 | 7,500 | 4,450 | 4,450 | 4,895 | ESCOP91 plus 10% | 4,895 | |
| Alternative Crops (95-113) | 321 | 1,025 | 918 | 918 | 1,010 | ESCOP91 plus 10% | 1,010 | |
| International Trade Development Centers (95-113) | 3,112 | 3,152 | 0 | 3,112 | 3,112 | FY90GRH-See foot | 3,112 | |
| Groundwater Quality Research/f | 17,299 | 18,255 | 5,368 | 12,183 | 13,090 | See Table 2 - Special Grants | 13,401 | |
| Subtotal | | | | | | | | |
| FEDERAL ADMINISTRATION | | | | | | | | |
| Direct Federal Administration | 1,172 | 1,212 | 1,212 | 1,239 | 1,363 | ESCOP91 plus 10% | 1,363 | |
| 1890 Capacity Building Grants/g | [5,430] | [11,000] | [11,000] | [11,000] | [12,100] | ESCOP91 plus 10% | [12,100] | |
| Other | 6,734 | 0 | 0 | 0 | 0 | | 0 | |
| Subtotal | 7,906 | 1,212 | 1,212 | 1,239 | 1,363 | | 1,363 | |
| TOTAL | 326,310 | 520,476 | 329,866 | 439,362 | 622,414 | | 625,286 | |
| Total Less Competitive Grants | 283,789 | 229,866 | 229,866 | 289,362 | 322,414 | | 325,286 | |
| Percent change | 5.14% | 29.00% | 1.09% | 34.65% | 41.66% | | 42.32% | |
| Excluding Competitive Grants | 4.86% | -19.00% | 1.96% | 11.42% | 11.42% | | 12.41% | |
| ovr89app | ovr90req | ovr90GRH | ovr90GRH | ovr90GRH | ovr91ESCP | | ovr91ESCP | |

Footnotes for Table 1

- a - These are the Division of Agriculture, NAUSLGC/ESCOP agreed levels
- b - Details for Special and Competitive Grants are shown in Tables 2 & 3
- c - FY1989 amount includes \$5,000,000 competitive forestry grants moved from Interior
- d - This program emphasizing sustainable and environmentally neutral agriculture is funded in CSRS, but is jointly planned and conducted with ES
- e - The NASULGC Division of Agriculture Budget Committee recommends that any future increases for these programs come from Competitive Grants
- f - Funding for water quality was moved to special grants in FY1990
- g - The 1890 Capacity Building grants are administered by the Higher Education office; even though a sizeable portion is used for research activities; therefore they are bracketed and not included in the totals.

Table 2. Special Grants (PL 89-106, Sec c)

| Funds/Grants/Authorizations | FY1990 G-R-H | ESCOP Req FY91-8/90 | EXEC91 1/29/90 | ESCOP91/ ^a 2/2/90 | ESCOP92 2/20/90 | Commentary | ESCOP92 6/12/90 | Commentary |
|---|-----------------|------------------------|-------------------|---------------------------------|--------------------|----------------------------------|--------------------|---------------------------------|
| CONTINUING NATIONAL RESEARCH PROGRAMS/^b | | | | | | | | |
| Acid Precipitation | 653 | 0 | 0 | 692 | 761 | ESCOP91 plus 10% | 761 | |
| Animal Health (sec 1414) | 5,633 | 11,705 | 0 | 0 | 0 | Covered under NRI | 0 | |
| Aquaculture Research(General) | 563 | 0 | 0 | 0 | 0 | Covered under NRI | 0 | |
| Global Change | 0 | 0 | 5,000 | 5,000 | 5,500 | Exec91 & ESCOP91 plus 10% | 10,000 | USDA recommendation (IR-4) |
| Pest Control Strategies | 2,903 | 3,440 | 4,000 | 4,000 | 14,575 | ESCOP92-Highly important area | 16,175 | USDA recommendation (IR-4) |
| Integrated Pest Management | 2,437 | 3,218 | 2,968 | 2,968 | [7500] | | [7500] | (See Pesticide Clearance below) |
| Pesticide Impact Assessment | | | | | [3300] | | [3300] | |
| Pesticide and Drug Clearance | 226 | 250 | 329 | 329 | [375] | | [375] | |
| Minor Use Animal Drugs | 1,975 | 4,400 | 3,000 | 3,000 | [3500] | | [5000] | USDA recommendation (IR-4) |
| Pesticide Clearance | 123 | 250 | 300 | 300 | 350 | ESCOP92 - Highly important area | 350 | |
| Nat Biological Impact Assessment | 494 | 725 | 0 | 524 | 725 | /cESCOP91 -Highly important area | 725 | |
| Rural Development Centers/ ^c | | | | | | | | |
| Tropical and Subtropical | 3,299 | 3,341 | 0 | 3,299 | 3,629 | ESCOP91 plus 10% | 3,629 | |
| Water Quality/ ^d | 6,615 | 25,000 | 10,000 | 10,000 | 15,000 | ESCOP92 - Highly important area | 15,000 | |
| Other Regional/National/ ^e | 13,493 | 11,157 | 0 | 13,493 | 13,493 | FY90 GRH & ESCOP91 Level | 13,493 | |
| Subtotal-National/Regional | 38,414 | 63,486 | 25,597 | 43,605 | 54,133 | | 60,133 | |
| NEW NATIONAL RESEARCH INITIATIVES - FY1990 | | | | | | | | |
| Family Well-Being | 0 | 4,000 | 0 | NI | | Covered as part of NRI | | |
| Rural Viability | 0 | 10,000 | 0 | NI | | Covered as part of NRI | | |
| Plant Germplasm Resources | 0 | 2,000 | 0 | NI | | Covered as part of NRI | | |
| Subtotal-New National | 0 | 26,000 | 0 | 0 | | | | |
| SPECIAL PROBLEM RESEARCH/^f | 17,414 | 13,121 | 0 | 17,414 | 17,414 | FY90 GRH & ESCOP91 Level | 17,414 | |
| TOTAL | 55,828 | 102,607 | 25,597 | 61,019 | 71,547 | | 77,547 | |
| Percent change | 33.29% | 83.79% | -54.15% | 9.30% | 17.25% | | 27.08% | ovr91ESCOP |
| | ovr89app | ovr90GRH | ovr90GRH | ovr90GRH | ovr91ESCOP | | | |

FY82SPG2.WF5-900724

a - These are the Division of Agriculture, NAUSLGC/ESCOP agreed levels
 b - Awards are made on a competitive basis to fund national programs, except those state specific grants identified by Congress
 c - The Rural Development Centers are jointly funded by the Extension Service and the State Agricultural Experiment Station via CSRS
 d - This water quality research along with that done by ARS forms the principal data base for the action/regulatory agencies.
 e - It has been the policy of budget committees to carry these forward at the level of the last appropriated amount
 f - Special problem grants are established, usually by Congress, to deal with acute situations in specific states. It has been the policy of budget committees to carry these forward at the level of the last appropriated amount

Table 3. Competitive Research Grants (PL 89-106, Sec b), Thousands of Dollars/^a
 (The only changes made by the FY1992 NASULGC Budget Committee were in the proposed distribution of funds under the Natural Resources and Environment area)

| Funds/Grants/Authorizations | FY1990 G-R-H | ESCOP FY91-8/89 | Req 1/29/90 | EXEC91 1/29/90 | ESCOP91/ ^b 2/1/90 | ESCOP92/ ^b 2/20/90 | Commentary |
|---|-----------------|--------------------|----------------|-------------------|---------------------------------|----------------------------------|-----------------------|
| Plant Sciences | 7,751 | 18,126 | | | 0 | | Covered under the NRI |
| Plant Science Centers/ ^c | 0 | 0 | | | 0 | | Covered under the NRI |
| Human Nutrition | 1,481 | 6,000 | | | 0 | | Covered under the NRI |
| Animal Science | 4,937 | 14,000 | | | 0 | | Covered under the NRI |
| Biotechnology | 18,775 | 32,116 | | | 0 | | Covered under the NRI |
| Pest Science | 1,975 | 5,000 | | | 0 | | Covered under the NRI |
| Stratospheric Ozone | 3,653 | 10,000 | | | 0 | | Covered under the NRI |
| Food Science | 0 | 8,000 | | | 0 | | Covered under the NRI |
| Soil Science | 0 | 6,000 | | | 0 | | Covered under the NRI |
| Forest Science/ ^d | 3,949 | 8,000 | | | 0 | | Covered under the NRI |
| NRI-Nat Resources & the Environment | | 15,000 | | | 30,000 | 84,000 | ESCOP92 |
| NRI-Nutrition, Food Quality & Health | | 5,000 | | | 19,000 | 39,000 | ESCOP92 |
| NRI-Plant systems | | 50,000 | | | 50,000 | 75,000 | ESCOP92 |
| NRI-Animal Systems | | 30,000 | | | 30,000 | 57,000 | ESCOP92 |
| NRI-New Products & Processes | | 0 | | | 11,000 | 27,000 | ESCOP92 |
| NRI-Markets, Trade & Rural Revitalization | | 0 | | | 10,000 | 18,000 | ESCOP92 |
| TOTAL | 42,521 | 107,242 | 100,000 | 150,000 | 300,000 | ESCOP92 to reach \$500M in FY93 | |
| Percent change | 7.06% | 152.21% | 135.18% | 252.77% | 100.00% | ovrESCOP91 | |

FY92CMGR.062290

- a - This program is supported as a funding mechanism to enrich and expand research in several fundamental areas important to the agricultural and general economy of this nation.
- b - These are the Division of Agriculture, NAUSLGC/ESCOP agreed levels
- c - Funding for pest science was incorporated into the plant and animal sciences research programs in the FY1989 recommendations
- d - This program was moved in FY1989 from the USDA Forest Service budget to the USDA CSRS budget. ESCOP has always strongly supported this activity, but has not previously included the amounts in the ESCOP CSRS budget requests or projections.

Table 4. Proposed National Research Initiative Resource Distribution to Program Areas and Initiatives (CSRS Program Plan of January 29, 1990 modified by the NASULGC FY91 Budget Committee, the ESCOP FY92 Group and the NASULGC FY92 Budget Committee)

| Proposed National Research Initiative Appropriations | Allocation of Funds (in Millions) | | | |
|---|-----------------------------------|---------------|---------------|-----------------|
| | Exec91 \$100 | FY91 \$150 | FY92 \$300 | LGFY92 \$300 |
| Natural Resources and Environment | 15.0 | 30.0 | 84.0 | 84.0 |
| Water Quality and Management | 5.6 | 5.6 | 25.0 | 25.0 |
| Quality and Productivity of Soils and Land Use Including Sustainable Agriculture | | 7.2 | 20.0 | 25.0 |
| Forests, Rangelands and Wildlife | | 7.8 | 10.0 | 10.0 |
| Biological and Genetic Diversity | | | 5.0 | 5.0 |
| Atmospheric and Climatic Change | 9.4 | 9.4 | 24.0 | 19.0 |
| Nutrition, Food Quality and Health/^a | 5.0 | 19.0 | 39.0 | 39.0 |
| Optimal Nutrition, Food Design and Safety | 3.0 | 6.0 | 10.0 | 10.0 |
| Quality Specifications, Processing and Health | 1.0 | 4.0 | 5.0 | 5.0 |
| Food Contaminants and Microbial Hazards | 1.0 | 7.0 | 12.0 | 12.0 |
| Packaging and Distribution Methods | | 2.0 | 2.0 | 2.0 |
| Dietary Patterns, Health and Behavior of the Food Consumer | | | 3.0 | 3.0 |
| New Dimensions of Nutritional and Food Science | | | 3.0 | 3.0 |
| Food Biotechnology | | | 4.0 | 4.0 |
| New Products, Processes and Value Enhancement | | 11.0 | 27.0 | 27.0 |
| Sensor Technology | | 1.0 | 5.0 | 5.0 |
| Bioengineering | | 5.0 | 10.0 | 10.0 |
| Bioprocessing and Computer Information, Management and Control | | 5.0 | 12.0 | 12.0 |
| Markets, Trade, Policy and Rural Revitalization | | 10.0 | 18.0 | 18.0 |
| Markets and Trade | | | 6.0 | 6.0 |
| Economic Performance | | | 3.0 | 3.0 |
| *Markets & Trade, Economic Performance | | 5.0 | | |
| Rural Development | | | 2.0 | 2.0 |
| Stability and Well-Being of Families, Youth and Elderly | | | 3.0 | 3.0 |
| Impacts of New Technologies on Environment, People and Communities | | | 4.0 | 4.0 |
| Research and Education Policy for Agriculture and Rural Society | | | 0.0 | 0.0 |
| #Rural Revitalization: Families, Youth and Community | | 5.0 | | |
| Plant Systems | 50.0 | 50.0 | 75.0 | 75.0 |
| Plant and Pest Interactions | 17.0 | 17.0 | 20.0 | 20.0 |
| Genomes, Genetics and Diversity | 15.0 | 15.0 | 25.0 | 25.0 |
| Plant Developmental Biology | 12.0 | 12.0 | 19.0 | 19.0 |
| Energy and Metabolism | 6.0 | 6.0 | 6.0 | 6.0 |
| Ecology and Plant Populations:/ ^b Plant Production Economics | | | 5.0 | 5.0 |
| Animal Systems | 30.0 | 30.0 | 57.0 | 57.0 |
| Cellular Growth, Composition and Development | 8.0 | 8.0 | 12.0 | 12.0 |
| Molecular Basis of Disease | 14.0 | 14.0 | 26.0 | 26.0 |
| Genetics and Reproduction | 8.0 | 8.0 | 14.0 | 14.0 |
| Animal Production Systems and Economics | | | 5.0 | 5.0 |

FY92NIDS.900724

* & # - Groupings made by the NASULGC FY1991 Budget Committee

a - The FY1992 Budget Group believes nutrition needs more emphasis and increased it significantly.

b - The FY1992 Budget Group recommends a rewrite on the narrative for the plant systems area, possibly moving the ecology of this issue to the natural resources and environment area.

APPENDIX R

Report on
ESCOP Special Initiatives Committee
to the
WAAESD, Summer Meeting
by
Gary A. Lee

The ESCOP Special Initiatives Committee met in Orlando, Florida on March 8 and 9, 1990. The committee activities were reported at the WAAESD meetings in Guam.

The only interim activity to report is that Dr. George Kriz, Director, North Carolina Agricultural Research Service has been appointed to represent the Southern Region on the Special Initiatives Committee. The committee will meet in the San Francisco area in September.

All Directors are invited to submit proposal topics to representatives (Lee, Schlegel, Koong, and Muntiferring) for consideration by the Special Initiatives Committee.

APPENDIX S

NASULGC DIVISION OF AGRICULTURE STAFFING PLAN
 Western Association of Agricultural Experiment Station Directors
 The Newport Hotel, Newport, Oregon
 June 25-29, 1990

L L Boyd

Chuck Krueger, ESCOP Chair-Elect, presented a revised plan at the ESCOP meeting in Honolulu, Hawaii, April 23-25, 1990. It was a great improvement over the previous plan that recommended only two DALs and a person in Washington, DC. Decide to try to make a major input prior to a Division meeting on May 8, 1990. I sent Krueger some organizational diagrams, one of which I am including in this report and the following assumptions and suggestions of things to be included in position descriptions. I also did a spreadsheet to show what the costs might be for a three year phase in for the various elements of NASULGC. Attached are organizational diagrams from the May 8 meeting that Krueger sent.

The following assumptions are made:

- 1) That a full time Director for the Division of Agriculture in possible over some reasonable time period, i.e., probably no more than three years. Also that with a strong support staff no Associate Director would be needed. The "optimum" proposal that Krueger brought to ESCOP showed an Associate Director and three Assistant Directors. It also did not indicate any staff support. With no Associate Director the three Assistant Directors could be designated Associate Directors.
- 2) That the additional positions including the very important support staff and the staff assistant also are possible in the same time frame.
- 3) That Deans and Directors of Resident Instruction, Extension, International Programs and Research are willing to approach the Presidents of their respective Universities to seek additional funds for NASULGC to make this possible. This includes the possibility of a differential assessment for the Land Grant Universities compared to their State University counterparts.
- 4) That James Cowan and Liz Allred will retain their positions until either chooses to leave NASULGC. Also, that Bob Crom would retain a position within NASULGC, even if the source of funding for his position shifted from the State Extension Services' assessment to NASULGC funding. I make no assumption relative to Eddie Gouge, because he has only been there a short time and I do not know the commitments made to him.

Year 1 - Hopefully, calendar year, 1991

- 1) Move Jim Cowan as Director from 0.75 time to 1.00 time for the Division of Agriculture and ask him to handle the Resident Instruction and International Programs activities. He has the experience and qualifications to do this. RICOP including 1890 resident instruction and ICOP should pick the following parts of Cowan's salary to help ease the transition: 75% in 1991, 50% in 1992, 25% in 1993 with NASULGC covering all again in 1994.
- 2) Employ a full time Associate Director for Research with NASULGC assuming responsibility for 25% of his salary in 1991, 50% in 1992, 75% in 1993 and all in 1994. During 1991-93 the portion of the salary not covered by NASULGC would come from an assessment of the Experiment Stations and the 1890 Research Programs. The basis for the assessment must be worked out, but I believe might involve program size based upon more than federal funds.
- 3) Designate Bob Crom as the Associate Director for Extension with NASULGC assuming responsibility for 25% of his salary in 1991, 50% in 1992, 75% in 1993 and all in 1994.
- 4) Employ one highly qualified support staff member to help Cowan, Allred as the Staff Assistant, the new Associate Director for Research and Bob Crom as the Associate Director for Extension.
- 5) That funding of Temporaries on either a full time or part time basis would continue, if needed, recognizing that there may be an "assessment strain" on the four functions and the 1890s until the entire plan in operational.

- 6) Putting such a plan in place will likely include both additional continuing space and some one time equipment costs. Over the years there also will be some equipment replacement, updating and perhaps new items costs that must be addressed.

Year 2 - 1992

- 1) Employ the second support staff person. There may be some support staff strain during the first year.
- 2) Include in the budgeting some equipment costs such as computers, software, LAN (local area networks), printers, etc.

Year 3 - 1993

- 1) This will be the first year of full salary and operational costs of the plan. There likely will be some additional equipment, etc. costs.
- 2) Consider the addition of more temporaries as needed.

In 1994 the entire cost will be carried by NASULGC, but of course it will be coming from the states and as suggested above perhaps with a greater share carried by the Land Grant Universities than by the State Universities.

BRIEF JOB DESCRIPTIONS/QUALIFICATIONS FOR THE POSITIONS

- 1) **Director:** Should be a person with CAHA role experience and also experience of some length as a Director of either Research or Extension. Experience in Resident Instruction was excluded purposely, because most do not have the degree of contact with state wide clientele that the others do. Of course, if the Resident Instruction Director moved to a CAHA position, he/she would have clientele experience, but likely not in depth of that of the other two positions. The person should be at a minimum computer literate and clearly interested in the use of computers to help in the management of the various activities of the Division. The Director should be a person, who cannot hold the position for longer than ten years (5-6 may be more desirable). It would be desirable to fill this position on a contract basis with a University to insure this. A contract basis also is desirable, so the person could remain in a viable retirement system, unless he/she chose retirement at the institution with acceptance of the NASULGC position. The person would be eligible for reemployment, but only with a new contract or an agreed time specified extension of the first one.
- 2) **Associate Director - Research:** The person filling this position should have had experience as a Director or Associate Director of Research in a state agricultural experiment station or as a 1890 Research Administrator for at least five years. Ideally he/she should have served on ESCOP and as an ESCOP budget group chair. Also, it would be helpful to have served as member of an ESCOP budget action group. People who also have held CAHA positions after the above experience should get priority consideration, particularly if they have held national CAHA leadership roles. The person should be at a minimum computer literate and clearly interested in the use of computers to help in the management of the various activities of the Division. The Associate Director - Research should be a person, who cannot hold the position for longer than ten years (5-6 may be more desirable). It would be desirable to fill this position on a contract basis with a University to insure this. A contract basis also is desirable, so the person could remain in a viable retirement system, unless he/she chose retirement at the institution with acceptance of the NASULGC position. The person would be eligible for reemployment, but only with a new contract or an agreed time specified extension of the first one.
- 3) **Associate Director - Extension:** The person filling this position should have had experience as a Director of Extension in a state agricultural extension station or as a 1890 Extension Administrator for at least five years. Ideally he/she should have served on ECOP and as an

ECOP budget group chair. People who also have held CAHA positions after the above experience should get priority consideration, particularly if they have held national CAHA leadership roles. The person should be at a minimum computer literate and clearly interested in the use of computers to help in the management of the various activities of the Division. The Associate Director - Extension should be a person, who cannot hold the position for longer than ten years (5-6 may be more desirable). It would be desirable to fill this position on a contract basis with a University to insure this. A contract basis also is desirable, so the person could remain in a viable retirement system, unless he/she chose retirement at the institution with acceptance of the NASULGC position. The person would be eligible for reemployment, but only with a new contract or an agreed time specified extension of the first one. Bob Crom should be "grandfathered in", so that he can hold the position as long as he chooses or as long as his contract with Extension assures him of a position.

- 4) **Associate Director - Resident Instruction and International Programs:** The person filling this position should have had experience as a Director of Resident Instruction or as Director of International Programs in a 1862 or 1890 Land Grant University for at least five years. Ideally he/she should have served on RICOP and as a RICOP budget group chair. It would be helpful if the person had served with a development program either as a chief-of-party, a team member or as a campus coordinator, who has made many trips overseas and interacted extensively with foreign governments and AID. People who also have held CAHA positions after the above experience should get priority consideration, particularly if they have held national CAHA leadership roles. The person should be at a minimum computer literate and clearly interested in the use of computers to help in the management of the various activities of the Division. The Associate Director - Resident Instruction and International Programs should be a person, who cannot hold the position for longer than ten years (5-6 may be more desirable). It would be desirable to fill this position on a contract basis with a University to insure this. A contract basis also is desirable, so the person could remain in a viable retirement system, unless he/she chose retirement at the institution with acceptance of the NASULGC position. The person would be eligible for reemployment, but only with a new contract or an agreed time specified extension of the first one. Jim Cowan should be "grandfathered in" and be able to hold the position as long as he chooses or whatever period of time NASULGC guaranteed him at the time of his employment.
- 5) **Staff Assistant:** The Director should write this position description to provide the kind of assistance that he/she desires. However, Liz Allred seems very qualified as a person, who can provide some leadership as well as excellently supporting the Director. I don't know Liz's computer qualifications or interests, but if she does not now have a least a minimum of computer literacy and interest in using computers in the management activities of the Division, she should find a way with NASULGC encouragement, i.e., covering part of the cost. Liz should be "grandmothered in" as appropriate.
- 6) **Staff Positions (2):** These positions should be filled with intelligent and ambitious people who want to make a difference. A positive attitude is critical. Each should possess clerical skills and between them a knowledge of desk top publishing, data base/spreadsheet development and management and graphical presentation. They should have people skills in taking messages from Deans and Directors and communicating these promptly and fully to the NASULGC professional staff and in giving callers as much information as possible including the precise time that they can expect a return call from the professional staff.

LGSTAFFNG June 22, 1990 Updated first cut proposal by L. L. Boyd

Possible Staffing Plan and Time Table for the Division of Agriculture, NASULGC

Developed for the alternative 1 diagram

Any salaries that are shown do not include fringe benefits; any salary and FTE can be changed easily in the spreadsheet

Salaries are estimates only!! All costs are assumed to inflate 5% per year

| Positions/Operations | 1990 | | | 1991 | | | 1992 | | | 1993 | | |
|-----------------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Total | NASULGC | RI/ICOP | Total | NASULGC | RI/ICOP | Total | NASULGC | RI/ICOP | Total | NASULGC | RI/ICOP |
| Director, James Cowan | | | | */# | | | | | | | | |
| FTE | 0.75 | 0.75 | 0.00 | 1.00 | 0.25 | 0.75 | 1.00 | 0.50 | 0.50 | 1.00 | 0.75 | 0.25 |
| Salary | 67,500 | 67,500 | 0 | 94,500 | 23,625 | 70,875 | 99,225 | 49,613 | 49,613 | 104,186 | 78,140 | 26,047 |
| Operations | 10,000 | 10,000 | 0 | 10,500 | 2,625 | 7,875 | 11,025 | 5,513 | 5,513 | 11,576 | 8,682 | 2,894 |
| Total salary/ops | 77,500 | 77,500 | 0 | 105,000 | 26,250 | 78,750 | 110,250 | 55,125 | 55,125 | 115,763 | 86,822 | 28,941 |
| Associate Director | | | | | | | | | | | | |
| FTE | 0.25 | 0.25 | | | | | | | | | | |
| Eddie Gouge | 12,500 | 12,500 | | | | | 110,250 | 55,125 | 55,125 | | | |
| Staff Assistant | | | | 1 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| FTE | 1.00 | 1.00 | | 1 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Liz Allred | 30,000 | 30,000 | | 31,500 | 31,500 | | 33,075 | 33,075 | | 34,729 | 34,729 | |

* Cowan as a full time Director also would handle the RICOP/ICOP activities.

RICOP including 1890s resident instruction and ICOP would split these 3 year costs, presumably equally

| | 1990 | | | 1991 | | | 1992 | | | 1993 | | |
|--|---------|---------|---------|---------|---------|--------|---------|---------|--------|---------|---------|--------|
| | Total | NASULGC | ECOP | Total | NASULGC | ECOP | Total | NASULGC | ECOP | Total | NASULGC | ECOP |
| Bob Crom, Associate Director-Extension | | | | | | | | | | | | |
| FTE | 1.00 | 0.00 | 1.00 | 1.00 | 0.25 | 0.75 | 1.00 | 0.50 | 0.50 | 1.00 | 0.75 | 0.25 |
| Salary | 100,000 | 0 | 100,000 | 105,000 | 26,250 | 78,750 | 110,250 | 55,125 | 55,125 | 115,763 | 86,822 | 28,941 |
| Operations | 10,000 | 0 | 10,000 | 10,500 | 2,625 | 7,875 | 11,025 | 5,513 | 5,513 | 11,576 | 8,682 | 2,894 |
| Total salary/ops | 110,000 | 0 | 110,000 | 115,500 | 28,875 | 86,625 | 121,275 | 60,638 | 60,638 | 127,339 | 95,504 | 31,835 |

| | 1990 | | | 1991 | | | 1992 | | | 1993 | | |
|------------------------------|-------|---------|--------|---------|---------|--------|---------|---------|--------|---------|---------|--------|
| | Total | NASULGC | ESCOPE | Total | NASULGC | ESCOPE | Total | NASULGC | ESCOPE | Total | NASULGC | ESCOPE |
| Associate Director, Research | | | | | | | | | | | | |
| FTE | | | | 1.00 | 0.25 | 0.75 | 1.00 | 0.50 | 0.50 | 1.00 | 0.75 | 0.25 |
| Salary | | | | 100,000 | 25,000 | 75,000 | 105,000 | 52,500 | 52,500 | 110,250 | 82,688 | 27,563 |
| Operations | | | | 10,000 | 2,500 | 7,500 | 10,500 | 2,625 | 7,875 | 11,025 | 2,894 | 8,131 |
| Total salary/ops | | | | 110,000 | 27,500 | 82,500 | 115,500 | 57,750 | 57,750 | 121,275 | 90,956 | 30,319 |

| | 1990 | | 1991 | | 1992 | | 1993 | |
|-------------------------------|-------|---------|--------|---------|--------|---------|--------|---------|
| | Total | NASULGC | Total | NASULGC | Total | NASULGC | Total | NASULGC |
| Support Staff, to be selected | | | | | | | | |
| #1 FTE | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| #1 Salary | | | 20,000 | 20,000 | 21,000 | 21,000 | 22,050 | 22,050 |
| #2 FTE | | | | | 1.00 | 1.00 | 1.00 | 1.00 |
| #2 Salary | | | | | 20,000 | 20,000 | 21,000 | 21,000 |
| Total salaries | | | 20,000 | 20,000 | 41,000 | 41,000 | 43,050 | 43,050 |

| Summaries | 1990 | | | 1991 | | | 1992 | | | 1993 | | |
|-------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Total | NASULGC | COPS | Total | NASULGC | COPS | Total | NASULGC | COPS | Total | NASULGC | COPS |
| Totals | 230,000 | 120,000 | 110,000 | 382,000 | 134,125 | 247,875 | 531,350 | 302,713 | 228,638 | 442,155 | 351,061 | 91,094 |
| Annual change - % | | | | 66.09% | 11.77% | 125.34% | 39.10% | 125.69% | -7.76% | -16.79% | 15.97% | -60.16% |

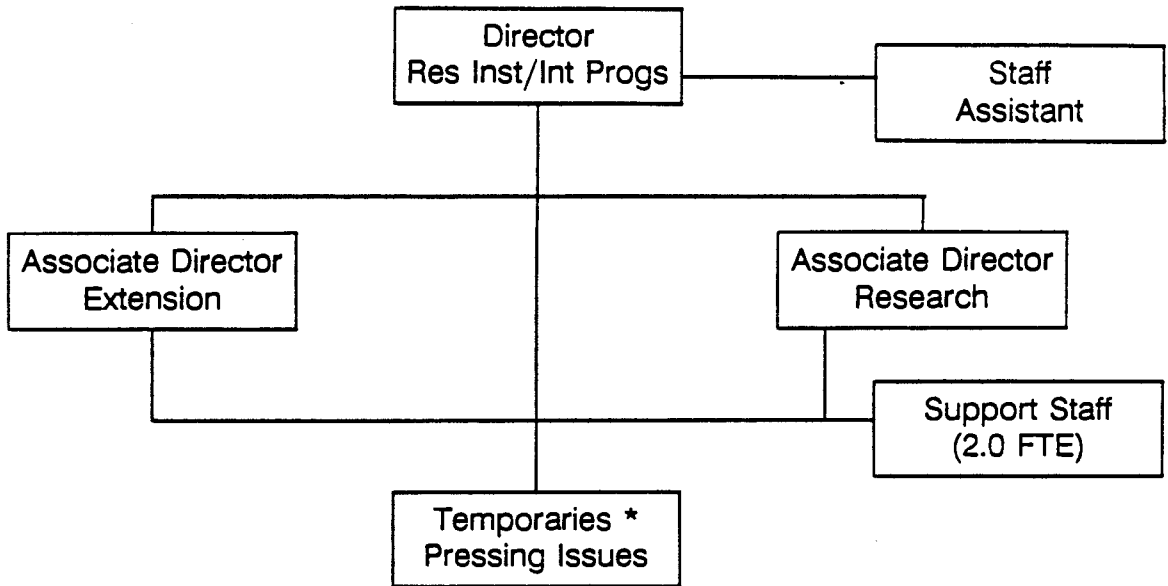
| Temporarily: | | | |
|------------------|--------|--------|--------|
| FTE | 1.00 | 0.50 | 0.50 |
| Terry Nipp | 55,000 | 27,500 | 27,500 |
| Operations | 7,500 | 3,750 | 3,750 |
| Total salary/ops | 62,500 | 31,250 | 31,250 |

Personnel Estimated FTE by Calendar Year and 1990 or Starting Salaries; Salaries increase by 5% per year

| | -----NASULGC----- | | | | -----ECOP/ESCOPE----- | | | |
|---------------------------|-------------------|----------|----------|----------|-----------------------|------|------|------|
| | 1990 | 1991 | 1992 | 1993 | 1990 | 1991 | 1992 | 1993 |
| Director | Salary 90,000 | FTE 0.75 | FTE 0.25 | FTE 0.50 | FTE 0.75 | | | |
| Gouge position | 50,000 | 0.25 | 0.25 | | | | | |
| Staff Assistant | 30,000 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Associate Director-Ext | 100,000 | 0.00 | 0.25 | 0.50 | 0.75 | 1.00 | 0.75 | 0.50 |
| Associate Director-Res | 100,000 | 0.00 | 0.25 | 0.50 | 0.75 | 0.00 | 0.75 | 0.50 |
| Support Staff #1 | 20,000 | 0.00 | 1.00 | 1.00 | 1.00 | | | |
| Support Staff #2 | 20,000 | 0.00 | 0.00 | 1.00 | 1.00 | | | |
| Assoc Director Operations | 10,000 | | | | | | | |
| Temporarily: | | | | | | | | |
| Terry Nipp | 55,000 | | | | 1.00 | | | |
| Temporary Operations | 7,500 | | | | | | | |
| -----RICOP/ICOP----- | | | | | | | | |
| | 1990 | 1991 | 1992 | 1993 | | | | |
| Director | Salary 90,000 | FTE 0.75 | FTE 0.25 | FTE 0.50 | FTE 0.25 | | | |

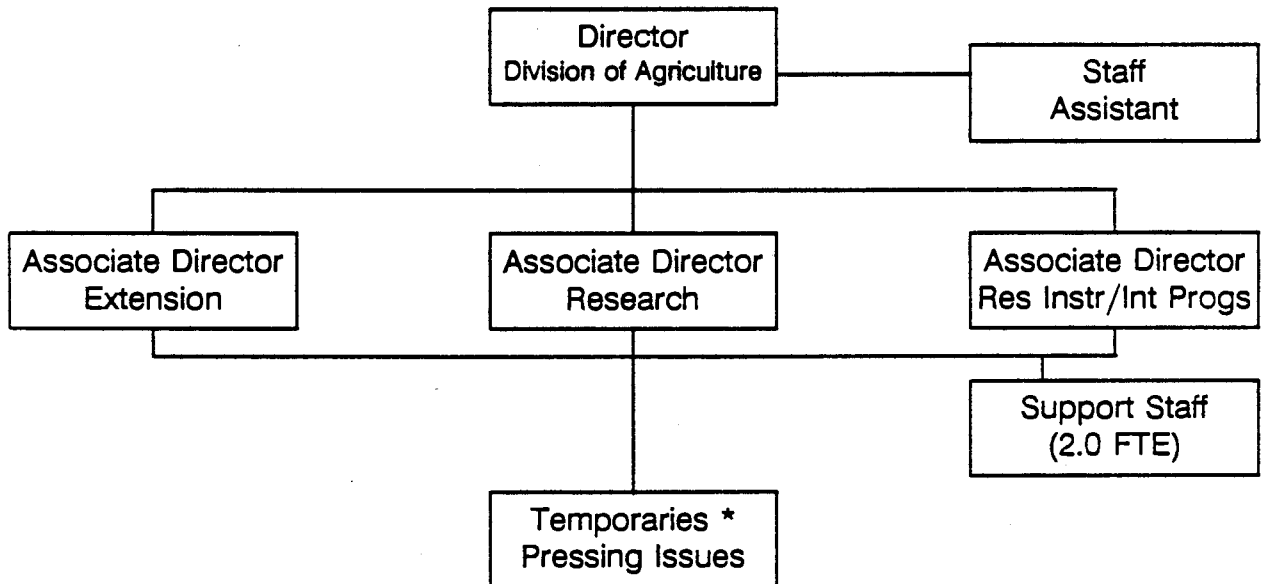
NASULGC DIVISION OF AGRICULTURE STAFFING

Alternative Plan - 1



NASULGC DIVISION OF AGRICULTURE STAFFING

Alternative Plan - 2



* Temporary personnel will be employed to help push specific initiatives with the Congress. Their salaries and operational costs always will be covered by assessment to the individual Experiment Stations and to other entities that plan to work jointly and closely with ESCOP.

PENNSTATE



Office for Research
Agricultural Experiment Station
College of Agriculture

TEL: 814/863-5410
FAX: 814/863-8152

229 Agricultural Administration
The Pennsylvania State University
University Park, PA 16802

DATE: May 17, 1990

TO: Landis L. Boyd
James M. Davidson
Kurt C. Feltner
James E. Halpin
Dale W. Zinn

FROM: Charles R. Krueger *Charles R. Krueger*

SUBJ: Staffing of the Division of Agriculture, NASULGC

Let me try to summarize the subject discussions at the ad hoc Steering Subcommittee meeting on May 7, chaired by Dean Hood, and the subsequent Division of Agriculture Board of Directors meeting on May 8, chaired by Dean Flatt. The meeting of the Steering Subcommittee with the COP chairs turned out to be devoted primarily to a philosophical discussion of the Association with Bob Bryan, the hired consultant from Florida, rather than the topic most of us thought we were convened to address. Unfortunately, little time remained and could be spent on the Division staffing issue. However, I did present the three attached optimal staffing plans.

Alternative Optimal Plan A is a modification of the Steering Subcommittee Optimal Plan, dated April 17. Plan A is based on our discussion at the last ESCOP meeting and my memo of suggested changes to Dean Hood, dated May 1. The chair thought the plan would be too expensive and not saleable to Dr. Clodius. I personally think this is the best optimal plan. It may be necessary to cost-share more significantly with the Association if this plan is implemented.

Alternative Optimal Plan B was based on your input and reduces the total FTEs requested from 8 to 6.5. The plan was not discussed, except that Jim Cowan thought that the workload of the Division budget during that critical four-month period was too demanding to consider other responsibilities. I think that with Jim hired as a full-time director of the Division, not .75 as presently, and with a .5 staff assistant added that this option is doable. Also, Jim has extensive foreign experience and is the logical person currently employed to be responsible for international.

Alternative Optimal Plan C is a further attempt to downsize. I originally proposed this in my memo of May 1, as a modification to the Steering Subcommittee Transitional Plan, dated April 17. It better balances the functional responsibilities of the two associate directors and adds needed support capacity. Dean Hood believes that this may be the most saleable plan to Dr. Clodius. I think it is the best transitional plan and the third ranking optimal plan. With more cost-sharing, one could move from Plan C to A.

Page 2
May 17, 1990

At the Division of Agriculture Board Meeting, Dean Hood presented another modification of Plan C which I have also attached. It links research with international and extension with resident instruction. I prefer the research linkage with resident instruction since this is the most common in our Colleges of Agriculture. Also, the current RICOP goals of increased scientific capacity and graduate education mesh well with ESCOP goals.

It is not clear to me what will be the next step. There was some discussion of a meeting with Dr. Clodius to determine what is "doable." I would prefer to approach Dr. Clodius with what we think is the optimal staffing plan. Then determine what the Association might cover in the way of additional permanent staff and determine what the system might cost-share through further assessments.

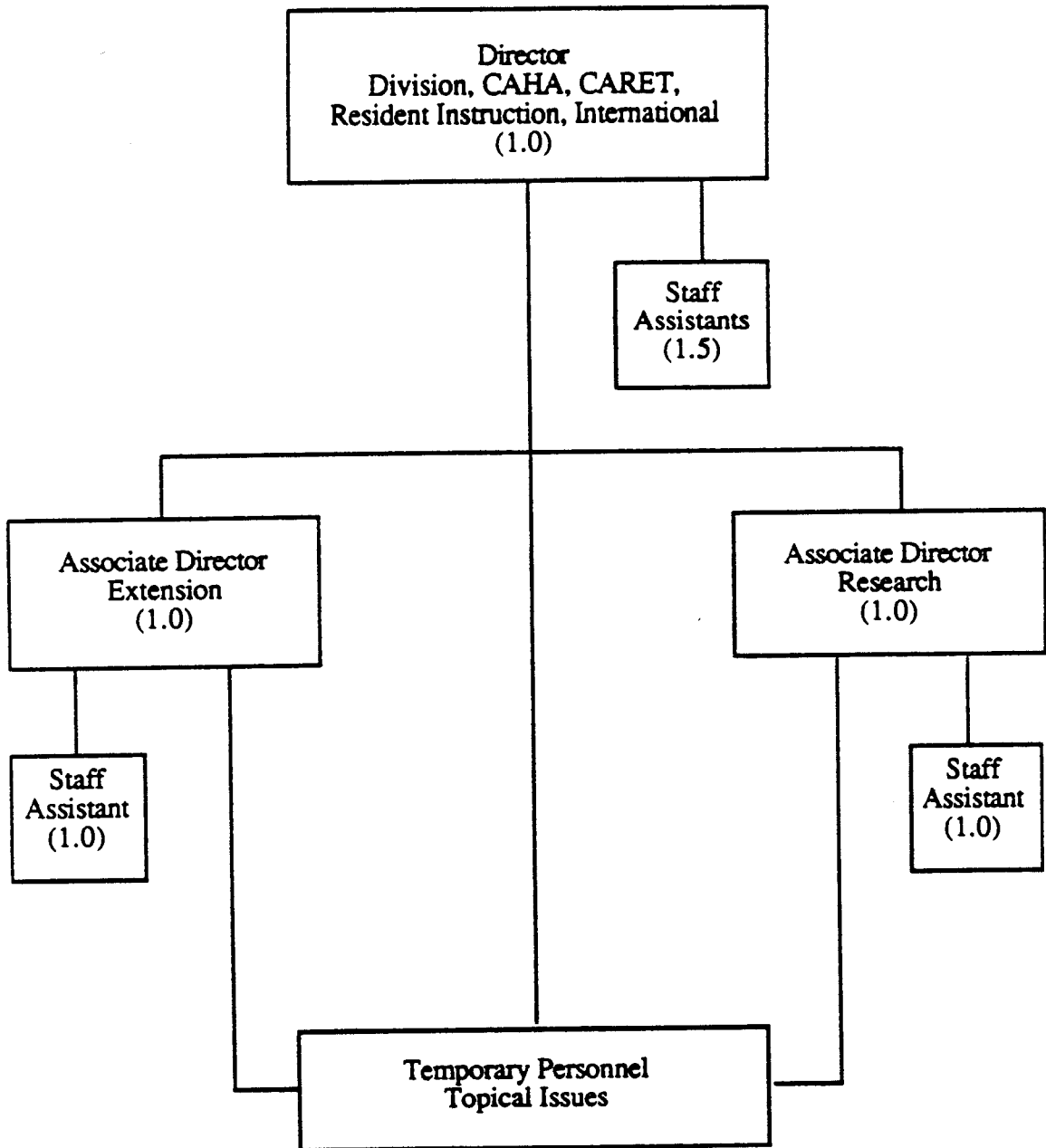
So much for my analysis and thoughts. Thanks for your ideas and input prior to these meetings. Jim Davidson should follow up as he thinks appropriate.

Attachments

cc: L. F. Hood (w/o attach)
R. G. Gast (w/attach)

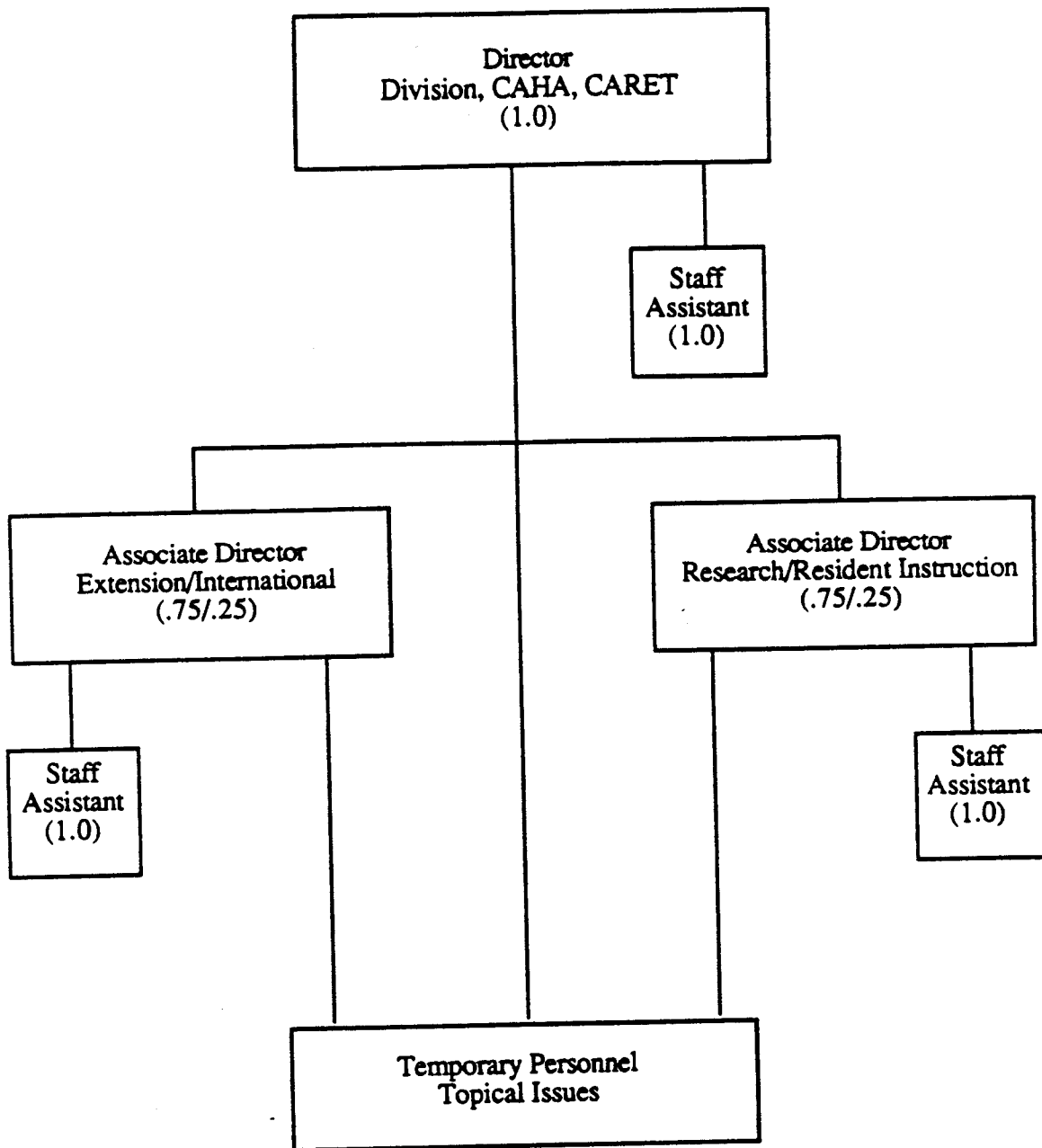
Alternative Plan B

Optimal Staffing Plan to Support the Division of Agriculture, NASULGC

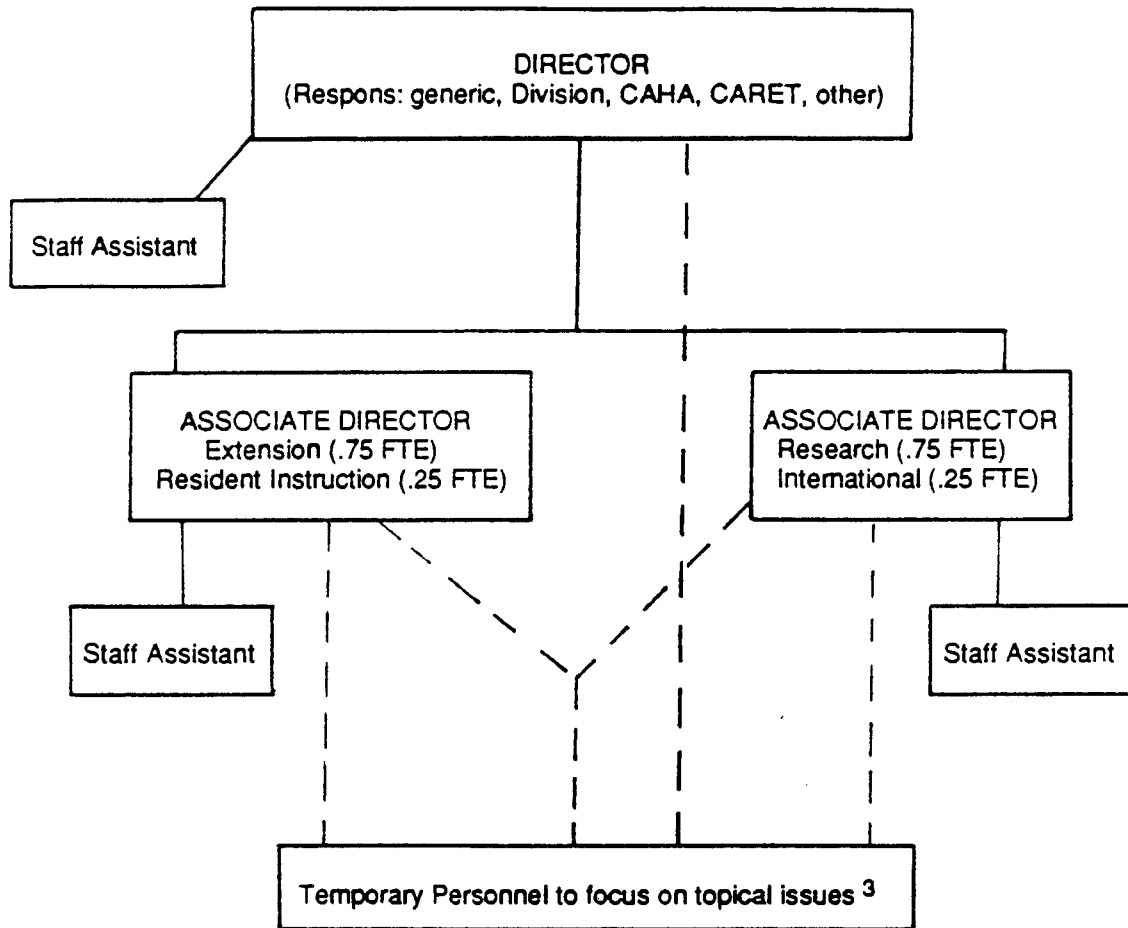


Alternative Plan C

Optimal Staffing Plan to Support the Division of Agriculture, NASULGC



Alternative ^mOptional Staffing Plan to Support the
Division of Agriculture, NASULGC ^{1, 2}



- 1 The plan that NASULGC will work to achieve by 1/94 so that can function in preparation for next Farm Bill.
- 2 Clerical staff are not shown. They are permanent costs that need to be budgeted.
- 3 To be funded by assessment.

APPENDIX T

DAL REPORT

**Western Association of Agricultural Experiment Station Directors
Newport Hotel, Newport, Oregon
June 25-29, 1990**

L L Boyd

This report covers the time period from the 1990 Spring meeting in Guam through last week. I participated on your behalf in the following activities that required travel during this period. I will have handout materials in addition to this report. In addition to some selected reports not included below, I likely will comment on some other things that I failed to include here.

- 4/4 - DAL meeting a.m. & p.m. on 4/5, Indianapolis, IN
- 4/4-5 ESCOP Leadership Development Subcommittee, University Ctr., Indianapolis, IN
- 4/11-12 PBAG meeting in Hawaii
- 4/17 Meeting in Denver with Dave Schlegel
- 4/22-25 ESCOP Spring meeting, Sheraton Waikkiki, Honolulu, Hawaii
- 5/13-16 UAB, Northern Regional Research Center, Peoria, IL
- 5/17-18 National Rural Studies Committee, Cedar Falls, IA
- 5/21-22 ESCOP Home Economics Research Subcommittee, Washington, DC
- 5/21-22 National Workshop on Regional Research, Washington, DC (presentation)
- 5/23 DAL meeting, 8:30 am - 5:00 pm, Washington, DC
- 6/5-7 California Grape Program review
- 6/11-12 (a.m.) NASULGC Division of Agriculture Budget Committee, Washington, DC
- 6/11 DAL meeting, 1:00-5:00 pm, Washington, DC
- 6/12-14 NERA Department Chairs/Heads Workshop (6/12 pm presentation)
- 6/13 USDA Awards Ceremony, Washington, DC
- 6/21 IR-6 meeting Kansas City - Schlegel & I represented the West

ESCOP Leadership Development Subcommittee: This subcommittee has been very active under the hard driving leadership of Chairman Gale Buchanan (GA-Tifton). I had to miss the last meeting in Washington, DC, June 4-5, when they narrowed down the list of possible instructors for the various topics. The first part is tentatively scheduled for September, 1991 at the University Center (Purdue and the University of Indiana) in Indianapolis. The facilities are outstanding for such an activity. I have a copy of the brochure describing it, if anyone is interested.

PBAG Meeting: The Special Grant program on Tropical and Subtropical agriculture is doing much for the institutions in the American Pacific. The research proposals continue to improve and the reports of the research, which has been conducted, are very good. Ned Kefford and his colleagues in Hawaii and Chin Lee and his colleagues in Guam are to be congratulated. A former faculty member of mine at Minnesota, Ray Smith, provides much of the local leadership. While it is not directly a part of the PBAG program, ARS also has some excellent research underway there. Bill Chace always makes good contributions to the proposal review process.

ESCOP Spring Meeting: The meeting was held in Honolulu at the Sheraton-Waikkiki hotel. Ned Kefford provided excellent introductory comments describing how research in a somewhat isolated location and in the tropical area differs from what most of the participants had experienced. Ned's faculty also provided an interesting half day view of some of their research programs. Paul Brower of Goldkist in Atlanta, the CARET representative to ESCOP, hosted a Sunday night reception. He also will host the fall Interim meeting in September in Atlanta. ESCOP members from the Western region will be reporting, so I will not comment further. You received the Electronic Communications subcommittee report that I gave with the communications survey forms. I will give a preliminary report on the survey during the meeting.

Users Advisory Board: The UAB met at the Northern Regional Research Center in Peoria, IL. The major focus was on the commercialization of research findings. The NRRC and ARS in general has a

number of agreements with private industrial organizations. I wonder how the SAESs compare. Perhaps we should consider ways to make an appraisal. Their utilization research overall is health and safety oriented. At least two members have resigned and some others were absent. The Board definitely will miss Bill Hudson, formerly of the Andersons of Ohio and now a private consultant. Some of you may subscribe to his Vision 2020 newsletter. He is a keynote speaker at the American Society of Agricultural Engineers meeting that I am missing this week. Some of the new members appear to be excellent contributors. I'll miss Betty Hamlin as the CARET liaison, but Chuck Schroeder of Nebraska is an excellent replacement. He served as the Director of the Nebraska Department of Agriculture during Kerrey's term as Governor. The Board still does not spend enough time in discussion of important issues about which they are to provide an opinion and advice.

National Rural Studies Committee: The Committee met the same week as the UAB in Cedar Falls, IA. Iowa State had done an excellent job of developing the program, which included an opportunity to interact with officials of a small town, Allison, that was trying develop opportunities that would attract industry to provide employment for its citizens. Russ Youmans was a participant and likely will include this in his report.

National Workshop on Regional Research: The Workshop was went conducted and participation was lively. The West probably was the best represented with Dave Schlegel, Jim Zuiches, Kelvin Koong, George Ware, Harriet Sykes and me. I gave a presentation about how we evaluate our regional research projects. Jim Zuiches led the way in proposing ways to revise the CSRS Form 89 that is used in the evaluation of project proposals. I understood that it was very favorably received and expected it to be adopted. However, the Digest of the minutes of the Committee show otherwise. I hope that Kelvin and George will shed some light on this in their reports. I missed some of the Workshop because of an ESCOP requested meeting with people at ISEC. Ray Moore (SD), Dale Zinn and I already were in Washington, DC, so it was an ideal time. I also participated briefly in the meeting of the Home Economics Research Subcommittee of ESCOP for which I am the ESCOP liaison.

California Grape Importation Facility Site Visit: John Naegele asked me to join him, Keith Huston and ARS scientist from Fresno in reviewing the site and plans for which Congress has made a planning appropriation. A major purpose of the site visits are to try to head something that isn't in the realm of CSRS's responsibilities and otherwise try to strengthen the planning process that will follow. Certainly importation facilities are badly needed for not only grapes but also ornamentals as well as others. Long delays occur, because of the lack of facilities. The California program is sound and was well presented. This was the first site review in which I have been involved. It was an interesting and rewarding experience.

Northeast Regional Research Administrator Workshop: The workshop was well attended and included four participants from the west. One from the West was unable to participate for medical reasons. Among the participants were Glenn Schmidt and Al Gale. They are invited to comment, because I was able to participate only about three hours other than my presentation. I had conflicts with the FY1992 NASULGC budget committee meeting and follow up and the USDA Awards (CSRS part) breakfast and luncheon. I made a presentation on managing regional research. I'm still uncertain about the desirability of the Western region conducting a similar workshop.

USDA Award Ceremony and Associate Activities: I participated in the breakfast prior to the Awards ceremony, but did not go to it. I went to the ceremony last year and was impressed with it, but decided that I would not further impressed by going a second time, particularly when there were things associated with the budget to do. I also went to the luncheon, where ESCOP Chair Jim Davidson made presentation. The Western region had two honorees, James Brewbaker of Hawaii, and William Dawson of California - Riverside. Dawson was a Post Doc for Dave Schlegel at one time. I urge you to think early about whom you want to nominate for next year's awards. The call for nominations will be upon us soon. I also want to encourage, as I have in the past, team nominations. North Carolina had two team winners this year.

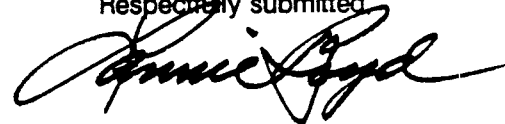
IR-6 Planning/Discussion Meeting: Dave Schlegel and I represented the Western region in a meeting in Kansas City last Thursday. I realize that the West never has been supportive of the things that IR-6 reports, but I believe that they have made several significant contributions to supporting the federal budget requests. We assessed along with representatives from the other regions both what we thought they should and should not do. We recommended that they not further develop a NRSP for Regional Research activities. We believe this is a CSRS responsibility using administration funding. Dave will give you a brief report. As time permits I may send you some of the materials that they have generated over the years. Chairman Burt Sundquist will be sending me a complete set of documents from their efforts. We recommended that a small group including the four Administrative Advisors meet with the Committee of Nine at its December meeting and with ESCOP at its 1991 Spring meeting.

DAL Meetings: The DAL meetings usually end without us addressing fully all of the issues we have on the agenda. We have spent considerable time trying to develop a way to interact usefully with private groups in the Washington, DC area that represent our clientele and others. We continue to struggle to try to find the best way to get useful research accomplishments information. We worked with Terry Nipp and other relative to water activities and the farm bill.

As we wrap up this fiscal year, I find that I made fewer trips this year yet I feel that I was gone more. I haven't checked that out and probably won't. All of the DALs seem to get an increasing number of national responsibilities that also has impact in our regions. That is one of the reasons that we were rather adamant that going to two DALs to have a staff person at NASULGC was not viable. I also am not getting in the state visits I would like. I had to cancel one to Nevada, because of the necessity of getting information in to support the budget activities. I appreciate Ron Pardini's tolerance of my canceling with rather short notice. We will reschedule it.

As in previous reports, I once more want to indicate my satisfaction in serving as your representative in a number of ways. I hope that Harriet and I are doing the things you want done in the way you would like them done. She is an invaluable partner in many of the activities of our office. Thanks!

Respectfully submitted



DALRPT22.908

ESCOPE ELECTRONIC COMMUNICATIONS SURVEY PRELIMINARY REPORT

Western Association of Agricultural Experiment Station Directors

The Hotel Newport, Newport, Oregon, June 25-29, 1990

L. L. Boyd, Chair, ESCOP Ad Hoc Subcommittee

This is a very preliminary report. A more comprehensive one will be prepared after consultation with Kevin Gamble, who has been making the contact with Extension. We still have a few Experiment Station reports to come in. We also have several 1890 reports to get, but they decided to contact them almost a month after we sent out the request to Experiment Stations. We have the following reports in:

| | |
|---------------|-----------|
| North Central | 11 |
| North East | 14 |
| South | 10 |
| West | 16 |
| 1890s | 4 |
| NASULGC | 1 |
| Total | <u>56</u> |

The most important questions were the network questions, so that we will know whether or not we can go on INTERNET effectively. The following is the information from the INTERNET questions. It will be interesting to see how closely it correlates with that from Extension. Some added comments about connecting to INTERNET and Bitnet via modem rather than from a campus or College network.

| | |
|--------------------------------|----|
| Connected to a campus network | 32 |
| Plans for connecting | 11 |
| Connected to a College network | 28 |
| Plans for connecting | 10 |
| Connected to INTERNET | 37 |
| Several apparently via Bitnet | |

The Dialcom questions indicated that 51 had used Dialcom and 41 still were. A few read it less than daily and one or two said weekly. I don't believe you can use it effectively reading less than three times per week and I recommend reading daily. Apparently some send little or no mail that way and get little back. Several indicate that Dialcom is expensive, but I don't know if this is intuitive or comparisons have been made with Fax and telephone when Dialcom would do as well (in my mind). More on Fax later. Those who have long distance charges to use Dialcom may want to investigate accessing Dialcom via an 800 number that Dialcom has available. I want to urge all who have Dialcom to stay with it until we have a good system to replace it. One of the problems with Dialcom now is that we can't reach everyone with it. We also can't do this now with INTERNET, but it appears that we can effectively interface the two, so we can contact all stations. We also will be able to contact Extension and USDA agencies. I am less certain about the latter.

It appears that most stations have or have access to Fax machines, although several did not give the name of their Fax machine, if they had one. The predominant machines are: Canon (10), Sharp (9) and Xerox (8). Most find them very valuable. Some commented on the very high cost of use, especially if you had the same message to send to many people and particularly if it has many pages. Very few had fax boards, so they could program the sending and not have to do it manually. Some may have programmable fax machines that will send unattended and at off hours when telephone rates are lower. Several (13) used WATS lines to send fax messages. About half of the stations (25) have scanning equipment. Several (6) of the units were either HP Scan Jets or Scan Jets Plus. Apple (4) and Datacopy (3) also were listed. Several differ scanning softwares were in use.

In the software arena, the leaders are as follows:

| | |
|--------------------|----------------------------------|
| Word processing | Word Perfect (32) & MS Word (11) |
| Data bases | DBASE (19) |
| Spreadsheets | Lotus (37) |
| Communications | Procomm (16) |
| Graphics | Harvard Graphics (9) |
| Desktop publishing | Pagemaker (12) |

RIVERSIDE: OFFICE OF THE DEAN AND DIRECTOR OF PROGRAMS
COLLEGE OF NATURAL AND AGRICULTURAL SCIENCES
DIVISION OF AGRICULTURE AND NATURAL RESOURCES
CITRUS RESEARCH CENTER AND
AGRICULTURAL EXPERIMENT STATION
COOPERATIVE EXTENSION

June 25, 1990

TO: DR. LANNY BOYD
1990 JOINT SUMMER MEETING OF WESTERN DEANS, DIRECTORS & CARET
REPRESENTATIVES
THE HOTEL NEWPORT

RE: College Brochures

I would appreciate it if each member of the Western Association of Agricultural Experiment Station Directors whose campus has published a brochure on their science college or their experiment station unit would send me copies of such publications.

My request does not extend to campus or college catalogues, since our Student Affairs Office has copies of these publications. Instead, I am interested in building our files of special publications about either your college or experiment station unit, or both.

Thank you.



Seymour Van Gundy
Dean
University of California
1140 Bachelor Hall
Riverside, CA 92521

Western Rural Development Center
Summary of Activities
July 1990

WESTERN RURAL DEVELOPMENT CENTER
Oregon State University, Corvallis OR 97331

Western Rural Development Center
Summary of Activities
July 1990

Merchants of Labor: The Effects of Farm Labor Contractors and Immigration Reforms in America. Principal Investigator: Phil Martin, University of California, Davis. The purpose of this research project is to determine why farm labor contractor (FLC) activity seems to be expanding in rural areas and how recent immigration reforms have and will affect FLC activities. The research will address a number of issues raised in recent reviews of rural America. The policy question addressed is whether or not rural areas are getting their "fair share" of State Legalization Impact Assistance Grant (SLIAG) legalization funds. The research will undertake a descriptive analysis of trends in farmworker employment in California and Washington and analyze unemployment insurance data to determine the importance of farm labor contractor activities in particular rural labor markets. The study will also examine the subset of illegal alien farm workers legalized under the Immigration Reform and Control Act (IRCA) of 1986 in California and Washington, and examine 1) allocation-to-state and 2) distribution-within-state criteria for IRCA in order to determine whether rural areas are getting their "fair share" of funds. In an amendment to this project, Oregon will also receive funding to research these same issues within the state.

North Asian Investment in Western Agriculture. Principal Investigator: Martin Kenney, University of California, Davis. The North Asian countries of Japan and Korea purchase over 30 percent of all agricultural products exported by the U.S. In recent years Korean, Chinese, and especially the Japanese have imported ever greater quantities of agricultural products from the western states. A new trend is emerging where entrepreneurs from these Asian countries are now integrating downstream by purchasing both agricultural land and processing facilities in the western states. These purchases, if they continue to grow, may have a very important impact on the current structure and ownership of western agriculture. This research project, funded by WRDC in late 1989, will create a database of North Asian foreign direct investment in California and Washington states. The data will include: the location, amount in dollars, size in acreage, crop involved, and activity. Personal interviews will be conducted with Asian investors regarding their reasons for investing in the U.S. and data will be gathered regarding the motivations for investment in western agriculture. The resulting research

report will focus on the level and type of North Asian investment in California and Washington in the context of total exports and total agricultural land under foreign control. A separate database will be created to include all information encountered on other western states. The research findings will be published in a publication suitable for assisting local government, community and business leaders in their economic decision-making. Findings will also be published in scholarly journals.

Strategic Planning for County Extension Faculty in Hawaii and the Pacific. Project Leader: Donna Ching, University of Hawaii at Manoa. In late 1989 WRDC approved funding for a seed project to undertake strategic planning training for county Extension faculty at the University of Hawaii and the American Pacific. Hawaii and a number of other western states have identified an interest in increasing Extension's capabilities in Organizational Development/Strategic Planning and Management. In January of 1990 the Western Extension Community Development committee endorsed the idea of regional cooperation on strategic planning training activities for Extension in the West. In July of 1990 representatives from the Montana, Hawaii, Utah, Oregon and Washington Extension faculty will meet to discuss the draft for a strategic planning training manual, and a possible regional training activity.

Reindustrialization of Rural Areas: Critical Appraisal of the Alternatives. Principal Investigator: David Barkley, Clemson University (formerly University of Arizona). Thirteen individuals have accepted responsibility for chapters in an edited volume entitled Economic Adaptation: Alternatives for Rural America. The papers will be focused around three themes: (1) recent trends in non-metro economic activity; (2) employment generation alternatives (small business, services, high tech, tourism, retirement communities, nontraditional agriculture, foreign direct investment); and (3) state and local development policies. In February 1990, two seminars on the project were given at the Western Regional Science Association's Annual Meetings. The authors' chapters are due in the Summer, 1990 and the book will be sent to a publisher in the Fall, 1990. A set of summary papers, targeted at local community audiences, is scheduled for Spring, 1991.

Potential for High-Technology Industries in Non-Metropolitan Areas.

Principal Investigator: David Barkley, Clemson University (formerly University of Arizona). Activity on this project was completed in 1989. Findings of the research have been published in four professional journals (American Journal of Economics, Growth and Change, Rural Development Perspectives, Journal of the Community Development Society); two professional proceedings (papers of the 1989 Western Agricultural Economics Association Meetings, and Pennsylvania Economics Association Proceedings); three WRDC papers (The Potential for High Technology Manufacturing in Non-Metropolitan Areas, Local Economic Impacts of High-Technology Industries in the Non-Metropolitan West, and High Technology Entrepreneurs in the Non-metro West: Who Is Starting What?); and a chapter in the 1988 U.S. Senate Subcommittee report entitled "To Identify Prospects for Economic Development in Rural Areas." Two additional papers currently are under review at professional journals. All three of the High Tech publications published by WRDC have been in high demand. The first two published papers (WREP 97 and 98) have sold in excess of 1,000 copies each.

Business Retention and Expansion. Project Leader: Dave Sharpe, Montana State University. WRDC began funding a regional business R&E project endorsed by the Western Extension Community Development Committee in 1989. Extension representatives from Arizona, Utah, Montana, Nevada, and Wyoming first attended a national conference by George Morse. In phase two of the project, representatives met in subcommittees and adapted a business retention/expansion manual, survey instrument and other tools for use in the western region. Under the leadership of Rudy Schnabel, University of Arizona, the Ohio State Project Handbook was revised for use in the West and possibly nationally. In phase three, Business Retention and Expansion pilot projects were conducted in two communities in Arizona, four in Utah, and two in Montana. The results are presently being tabulated. Each state ran the pilots and the tabulations differently. The next step will be meeting to compare experiences and refine the model before expansion to additional states and communities.

In-Reach for Indigenous People. Project Leader: Francis Mitchell, University of Alaska. In-Reach is a cross-cultural training and partnership-building process. The training is designed to increase cross-cultural understanding, identify goals and needs of the Indigenous groups, offer information on Extension services, solicit ideas on how Extension could improve its usefulness, and initiate partnership building between Indigenous individuals

and Extension personnel. The In-Reach project team is composed of one representative from Extension and one from the Indigenous culture in Alaska, Guam, Hawaii, and Montana. A pilot "Training in Cross-Cultural Partnership Development" workshop was held in Hawaii in 1988, and in 1989 a training manual was drafted. In 1990 the team completed the series of pilot trainings with workshops in Guam and Alaska. The training manual is currently being revised based on input from these workshops and is scheduled for publication in early 1991. National 4-H leaders have expressed an interest in incorporating the In-Reach process in their efforts to reach greater numbers of Native American youth throughout the western region. Possibilities for funding to expand this project are being explored.

Variation of Consumer Prices Among Small Towns in Selected Parts of the Western Region. Principal investigators: Paul Barkley, Washington State University; Will Rochin, University of California; and Ed Bradley, University of Wyoming. This study, which began in September 1986, is to determine the relationship between town population and local consumer prices, and how those retail prices are set. New inhabitants of rural towns often travel to distant cities to make even simple purchases, laboring under the impression that local prices are much too steep. Local leaders in these small communities need information about comparative prices so they can effectively advertise. Comparative prices were gathered on 500 items in 22 Washington towns, 23 Wyoming communities, and 18 towns in California. The Wyoming data and description of the study has been published in a Wyoming Extension flyer. California has also put out a document using their state data and explaining some of the differences that occur between pairs of California towns. Washington is in the process of publishing an Extension pamphlet similar to Wyoming's. Inconsistencies in the data for the participating states necessitated reworking all of the statistical analysis before a final document on all three states could be compiled. That analysis is now complete and a final document is in process.

Exploring the Feasibility and Utility of Geographic Information System Technology for Rural Development Applications. Project Leader: Joan Wright, University of California at Davis. This project focused on the feasibility of using geographic information system technology as a general support tool for Extension education and research related to rural development. Major areas of investigation were current uses, users, and vendors of GIS technology; possible applications for Extension education and research; costs of hardware and software purchase, database acquisition,

training and system maintenance. In their final report of October 1989, the investigators conclude with recommendations for rural development researchers and Extension specialists interested in GIS, and for the WRDC. The Center is urged to establish a GIS rural development network of GIS users and to gather and disseminate information on GIS developments from federal agencies.

The Role of Water in Creating Income and Employment on Selected Southwestern Indian Reservations. Principal Investigator: Robert Young, Colorado State University. In a final report published in the Spring 1990 edition of the Western Wire, this research challenges the conventional wisdom that irrigating arid lands in Indian country is an assured path to rural development. Through an examination of contemporary agricultural practices and analyses of Indian farming methods on land irrigated by both traditional and modern systems, the researchers conclude that "The capital costs of job creation via irrigation are shown to be several times higher than investments in the manufacturing or service industries. . . For the capital expended, relatively little employment and local-area development can be observed in the old or the new ways."

Getting Down to Business. Project leaders: Marion Bentley and Barbara Rowe, Utah State University. This very successful "train the trainers" workshop held in September 1988 continues to generate benefits for Extension faculty and others who work with rural communities and small business owners/operators. Due to continued demand "Getting Down to Business" workshop notebooks have been reprinted this year. The notebooks contain information on techniques for improving business management decisions and practices and facilitating the community economic development process, and are designed to facilitate follow-up trainings.

Spinoff trainings conducted so far include a series of home based business workshops entitled "Minding Your Business at Home" conducted in eight different locations in rural Idaho. These workshops (sponsored by The University of Idaho College of Agriculture and Eastern Idaho Vocational-Technical School) were focussed on home based businesses as a means to supplement family income and overcome the problem of limited job opportunities, particularly for women in rural areas. More than 122 rural community members had benefitted from these trainings by the end of May 1989 and three additional trainings were scheduled.

National Rural Studies Committee. Project leader: Emery Castle, Oregon State University. The Western Rural Development Center serves as administrative headquarters for the committee, which was established by a five-year, \$836,000 grant from the W. K. Kellogg Foundation. This multi-disciplinary group is investigating ways rural communities have been affected by social, economic, political and environmental events in the past decade, and will identify research and educational opportunities in rural studies. Committee members are Julian Wolpert, Woodrow Wilson School of Public and International Affairs; Edwin Mills, Northwestern University; Edward Bergman, University of North Carolina; Gene Summers, University of Wisconsin; Bonnie Dill, Memphis State University; Bruce Weber, Oregon State University; David Brown, Cornell University; Pierre Crosson, Resources for the Future; Ronald Oakerson, Indiana University; Sonya Salamon, University of Illinois; and Carol Stack, University of California, Berkeley. The NRSC committee has had three annual meetings thus far. Proceedings from the first two meetings (held in Hood River, OR and Greenville, MS) are currently available. The 1990 meeting was held in Cedar Falls, Iowa. Proceedings will be published by WRDC in August.

Community Economic Development Evaluation. This is a multi-phase WRDC project to help evaluate economic development efforts. The first phase involved creating and publishing an annotated bibliography outlining factors that impact community job growth. John Pankratz, Oregon State University, drafted the bibliography, which the Center published in the Fall of 1988. He and Doug Bradley, University of Wisconsin, are writing a 3-4 page article summarizing the findings for the general public. The article, currently in second draft, will be published by WRDC. The second phase involved designing three economic development workshop evaluation instruments: two designed for use for use immediately after a workshop; and the third designed as a mail survey of participants one year after a workshop. Ann Meadowbrook, WRDC, drafted the instruments. One draft was successfully pretested immediately after a workshop in Gold Beach, OR. The mail survey was pretested in Monmouth-Independence, OR. The instruments were distributed nationally and became available to workshop leaders in 1989. A third phase of this project will examine the effectiveness of various intervention processes.

Community Venture Capital. Project Leader: Dave Sharpe, Montana State University. In June of 1989 WRDC published Community-based Small Business Start-Up Funds. Designed for local community use, this publication asks a series of questions to guide critical decision-making for communities on the path to establishing, operating and maintaining a successful local start-

up fund. This do-it-yourself guide, written by Lloyd Bender, is the outcome of a multi-state WRDC workshop entitled "A Small Venture Capital Fund for Our Community?" which attracted 70 persons from Montana, Idaho and Washington in May of 1988. Information on the WREP 111 publication, entitled, "Community-based Small Business Start-up Funds was disseminated nationally and a record number of copies (4,012) of the publication have been sold. Other spinoffs from the workshop include a venture capital fund established in Southwestern Montana in 1989 and a television program. During 1990 tapes of the Small Venture Capital workshop were edited at Ohio State University to produce a one-hour public television program. Copies of the edited tape may be borrowed from Dave Sharpe at Montana State University.

Local Government Education. Project leader: Dave Sharpe, Montana State University. A WRDC-sponsored local government education workshop held in Montana in 1986 continues to generate spinoff activities. The workshop, now an annual event in Montana, is designed to familiarize newly-elected county commissioners, and other local officials, with issues facing them as they take office, and to provide them with the skills to meet these challenges. The workshop has been adapted and held in New Mexico, Alaska, Guam, Micronesia and now American Samoa. In 1988 the program led to Montana Extension sponsoring a training in "cut-back management" for county agents, and to the formation of a Montana Government Education Council. In 1990 the success of local government education programs led to support of a .25 FTE Extension Government Education Specialist by the Montana Extension Service. The position is jointly funded by the MSU Local Government Center.

The Local Government Education project also involves strategic management workshops. Strategic management trainings were held for Extension staff, a development corporation and tribal council in Montana. In 1989 a series of four strategic management workshops were held at Montana State University. In 1990 Randy Workman from Guam and Dave Sharpe conducted a two week workshop with the American Samoa Land Grant staff to help them initiate Community Development programming.

Another spin-off of the series of local government workshops, is a strategic planning guide which has been drafted and is presently being considered by WRDC for adaptation and publication for the region. Extension professionals

from throughout the western region have identified a growing interest in increasing Extension's capability in strategic planning. As a result a committee, endorsed by the Western Extension Community Development Committee, will meet in July of 1990 to plan a regional strategic planning materials and programs.

Trade-Area Analysis. Principal Investigator: Tom Harris, University of Nevada, Reno. Rural counties have historically lost retail and service sales to large, metropolitan counties. These leakages reduce the size of a county's export-base multiplier because the spending those sales generate occurs outside the county. The Bureau of Labor Statistics projects that almost 75 percent of all jobs created between 1982 and 1995 will be in the commercial sector; therefore, economic development must not only encourage new industry, but also emphasize development of commercial enterprise. Trade-area analysis is one method for understanding the activity in a community's commercial sector. Beginning in January 1986, with financial assistance from WRDC, Tom Harris developed data on trade-area capture and pull factor for each county in the Western region. WRDC has available a complete set of data for 1974-1981 in all western counties. The information has been updated for 1981-1986; data is available from the Center office. To receive a copy of the analyses for the counties in any of the western states, contact the state's CD leader or the Center. The WRDC continues to receive requests for the information.

Building the Economic Viability of Small Cities. Project Leader: Clark Goecker, League of California Cities. This project is designed to help cities of less than 15,000 enhance their economic viability through work with three clusters of cities. Each cluster will consist of 3-5 small cities with similar economic problems. Clusters will form in 1) Northern California/Southern Oregon, and 2) the Imperial Valley (CA)/Arizona. There were two phases to this project: initially it involved a needs assessment in each cluster area, and identification of resources available to help enhance economic viability. The second phase included workshops for local officials, community/business leaders and resource persons. Workshops took place in Yreka, Trinidad and Holtville, CA in June of 1989. The series of workshops took a problem-solving approach, and supplemented the knowledge already available to each community. Major emphasis for the project was on phase two and anticipated spinoff activities in neighboring communities. The clusters were designed to serve as models for other cities; officials from nearby communities were invited to observe the process and participate in discussions. Hopefully,

this project will prompt officials in small cities to assume a more active leadership role in economic development efforts. Follow-up workshops on strategic planning were held in the winter of 1990.

Decision-making and Small Business Support in ICLIS Communities.

Project Leader: Dave Rogers, Utah State University. The goal of ICLIS is improving and enhancing the education and information resources available to rural residents through their local libraries. ICLIS work is a partnership between private and public enterprises funded by the W.K. Kellogg Foundation. This pilot project is based at Utah State University. The ICLIS project will help rural government officials, community leaders and small business operators improve decision-making through use of information stored on a variety of databases. Participants will be from selected ICLIS (Intermountain Community Learning and Information Services) communities. Participants will learn to access and interpret information on databases like LOGIN, SOURCE, DIALOG and the Rural Information Center. Currently, few rural residents access available databases. State Extension CRD specialists and ICLIS community specialists from Utah, Colorado, Montana and Wyoming have identified training needs, and are in the process of developing a training program introducing computer-assisted information services. A training manual is currently being developed to take participants through the steps of problem identification, information retrieval and interpretation, and the creation of economic development plans. County Extension agents and ICLIS specialists will be trained in these processes and will in turn train local business and community leaders.

IMPLAN. This WRDC project is part of a national effort to explore potentials for IMPLAN to meet Extension Service needs. IMPLAN (Impact Planning) is a U.S. Forest Service input-output model used to evaluate the impacts of Forest Service plans on communities and regions. In August, 1988, Forest Service personnel trained five Extension faculty from across the nation in IMPLAN use at Fort Collins, CO. In October, 1988, a different group -- Extension and research faculty from Idaho, Washington and Oregon -- met at Oregon State University to explore IMPLAN. A three-day conference on IMPLAN and other micro computer I/O models was held in Kansas City, KS in March, 1989. A fourth conference was held in Minneapolis, Minnesota in July of 1989 and a fifth training took place in Fort Collins, CO in October of that year. As a spinoff of the regional IMPLAN trainings, in May of 1990 Oregon State University sponsored an introductory workshop for Oregon economists and planners on IMPLAN and its applications for analysis of local economies.

WRDC Publications. Total number of WRDC publications distributed nationwide increased dramatically in 1989-90. 11,373 publications were, up from 7,186 units sold in 1988-89. The newsletter "Western Wire" is mailed three times each year to more than 2,000 individuals in the western region, the nation, and Canada. New publications completed in 1989-90 included: WREP 111 Community-based Small Business Start-up Funds (4,012 copies of this publication were ordered in 1989-90), WRDC 37 Job Creation in Rural Areas: An Annotated Bibliography, and WREP 116 High Tech Entrepreneurs in the Non-metro West. The Getting Down to Business training manuals were also reprinted due to popular demand.

IR-1 Report to Western Agricultural Experiment Station Directors

June 26-29, 1990

OBJECTIVES:

1. To introduce, preserve, classify, and preliminarily evaluate the wild and cultivated tuber-bearing Solanum species.
2. To distribute these introductions to potato breeders and to other scientists conducting research with the potato.

DURATION: Extended to September 31, 1990, by Committee of Nine.

PERSONNEL:

Project Leader - John Bamberg
 Project Assistant - Max Martin
 Taxonomist - David Spooner
 Laboratory Technicians - Jean Smejkal, Clarence Eason
 Gardener - Charles Fernandez

| <u>BUDGET:</u> | Recomm. | Approved |
|---------------------|-----------|-----------|
| Recommended 1990-91 | \$161,515 | \$139,288 |
| 1991-92 | \$152,355 | |

SELECTED ACTIVITIES:

- * Two screen houses have been replaced
- * New collection additions:
 - 96 accessions from 1988 expedition to Mexico
 - 78 non-tuber bearing species from 1989 Chile expedition
 - 19 seedlots from 1990 expedition to Chile/Argentina
- * Completed tuber increases for 1450 clonal stocks
- * Investigating alternatives in vivo preservation techniques
- * 1200 plots planted for taxonomic assessment and use as herbarium specimens
- * Discarded virus infected cultures after establishing that clean up methods did not alter clone appearance
- * Continuing efforts to promote free exchange of materials in collections in Peru and Germany
- * APHIS representative participated in IR-1 meeting and cooperative efforts to improve system for introduction of stocks into USA should evolve.
- * Will revise project when guidelines established
- * 136 publications cited Solanum introductions through IR-1
- * Accelerating efforts to computerize inventory information

MEETING 1991: Sturgeon Bay, WI

OFFICERS: Chairman - Creighton Miller, Texas
 Vice Chairman - Bob Plaisted, New York
 Secretary - Al Mosley, Oregon

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IR-4 REPORT
TO THE
WESTERN ASSOCIATION OF EXPERIMENT STATION DIRECTORS
NEWPORT, OREGON
JUNE 26, 1990

A White House Conference was held on April 18 to address the "Minor Use Pesticide Issue". Attending were representatives from producer and chemical groups, congressional staff, EPA, USDA, OMB and IR-4. Considerable concern was expressed over the inadequacy of pest control measures, present and future, and the implications for the economy, the American farmer and nurseryman and the consumer. While there was broad support for IR-4 and its mission, there was also concern over the capabilities of the program to handle the task without a major increase in support.

The AAs and Technical Committee earlier this year determined that in order to gear up to meet the FIFRA 88 pesticide re-registration impact, IR-4 would require an increase in FY 90 of \$3 million, and \$12 million annually for FY 91-97, the figures used at the White House Conference.

As a consequence of that conference, Senators Bob Graham (D-FL), Brock Adams (D-WA), and Dan Inouye (D-HI) introduced the Minor Use Pesticides Act of 1990 (S-2604) on May 10, which included \$25 million for FY 91, and repeated funding as needed.

We are optimistic, but realistically, this is an election year and the word "pesticides" doesn't enhance the image of anyone carrying that torch.

Tough times are ahead for growers and IR-4. The numbers of compounds registered for most minor crops were inadequate before the re-registration edict. Because of insufficient funding over the years, IR-4 now has a backlog of 1200 requests for new uses, and FIFRA 88 requires re-registration of over 4,000 currently labeled uses. About 1,000 priority minor use needs will not be supported for re-registration by industry, and will be lost to growers and nurserymen without help from IR-4.

What's the answer? IR-4's strategy for the next decade, with additional funding, is to register 2,600 new minor uses and re-register 1,000 minor uses. Following the EPA's re-registration process through 1997, the workload would revert to 200-300 new uses a year. Thus, 600 to 850 re-registrations will be required each year for the next 7 years just to catch up and keep up. The 4 regional labs can handle this with satellite labs and additional funding. Minor crops represent a major component of agricultural production (33%) in the U.S., amounting to \$19.3 billion in 1987. States with the highest percentage of minor crop value, and thus most dependent on IR-4, are California, Florida, Michigan, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Texas, and Washington.

George Ware

APPENDIX X

IR-5 Report
to
Western Association of
Agricultural Experiment Station Directors
June 29, 1990
Dinus M. Briggs

To better meet the needs of scientists for classification, IR-5 considered a request to reclassify "domesticated animals" currently classified as Fish and Wildlife. Thus the commodity 800 (Fish, Shellfish, etc.) will now be acceptable for use with the animal related RPA codes 310, 311, 312, 313, and 317. The RPA 904 description will be modified to not include "domesticated animals" such as catfish. When there are deficiencies in the classification system, CRIS and IR-5 will consider necessary changes to accommodate the needs without destroying the integrity of the CRIS data.

A new manual for preparing the Funds and Manpower report (AD-419) was prepared. All states should have their copies, if not, let me, the DAL or CRIS know of your needs. A new CRIS Users Manual is anticipated to be distributed in 1990.

Currently Pat Downes (VT) is designing and developing an integrated program for preparing the Project Description (AD-416), Project Classification (AD-417), Funds and Manpower Report (AD-419), and Progress Report (AD-421). Currently software being distributed consists of Lotus shell for AD-419, a Basic program for the AD-416/417, and a dBase program for preparing AD-421.

The Technical representatives, Sanders (TN) and Harrington (IN), want to start a newsletter using BITNET or other national network. Such use may lead to a gateway for the retrieval of information from CRIS.

The Prime 9750 (1.8 MIPS) purchased five years ago to permit interactive retrieval of CRIS information directly from CRIS, has been upgraded to a Prime 9955-Mod II (5.0 MIPS). System design has been completed by the contractor, Ernst and Young. Database has been validated. With completion of on-line database application programs, and development of "user-friendly" access programs, we hope for access to the Prime in FY91.

One continual problem has been the government computer services. That of course was the original reason for the purchase of the Prime. Well, the main computer was moved from Washington DC to Kansas City (NCC_KC). The conversion took two years but is now complete.

Since IR-5 is scheduled to terminate Sept. 30, 1991, the committee will prepare the necessary proposal for funding. I would expect that a National Research Support Project will be developed. Also, I will convey to IR-5 the recommendations of RIC and the importance of keeping the project.