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Agricultural Research Division News

The Institute of Agriculture and Natural Resources

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University of Nebraska-Lincoln

May 1990

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Colleagues:

This is a unique issue of the Agricultural Research Division News because it features a significant amount of my "philosophy". Included are articles dealing with the need for research projects, the evaluation of faculty with research appointments, and my views on the status of the ARD research program. I hope that you will carefully read these articles. Please feel free to send me any comments that you may have about the issues that are addressed.

This is a critical time for the agricultural research establishment throughout the United States. Funding levels have stagnated during the last ten years and many agricultural experiment stations have markedly reduced faculty FTE. People are questioning the value of agricultural research to society during periods of food surplus, attempting to direct the research agenda, and suggesting that there is insufficient accountability for the public funds invested in agricultural research. We will all need to work together to address these issues and to reestablish the fact that high payoffs result from investments in agricultural research.

Darrell W. Nelson

GRANTSMANSHIP WORKSHOP

The Agricultural Research Division and Office of Sponsored Programs are co-sponsoring a grantsmanship workshop led by David Bauer. Mr. Bauer is a nationally recognized expert in grantsmanship who presents workshops/seminars at universities throughout the United States. The UNL workshop will be held on **September 26th** at the **East Campus Union** and **September 27th** at the **City Campus Union**. IANR faculty will be able to attend either session.

Attendance will be on a first come, first served basis. A formal announcement of the workshop and an enrollment form will sent to you in the near future. I encourage you to enroll shortly after receiving the materials if you wish to attend the workshop. We have received excellent reports on the workshop from agriculture and home economics faculty members at the University of Minnesota.

RESEARCH NEBRASKA

The Department of Agricultural Communications will shortly distribute the first issue of Research Nebraska. This magazine is designed to communicate the results of agriculture, natural resources, and home economics research to clientele and decision makers. We have targeted decision makers within the University of Nebraska, the congressional delegation, and the State of Nebraska as the prime audience, but agricultural organizations, IANR support groups, and others will also receive a copy of each issue.

Stories in Research Nebraska are designed to have impact by being concise, crisply written, and well illustrated. The magazine will attempt to feature stories having appeal to a wide range of readers. A variety of stories will be featured in each issue to show the breadth and excellence of our research efforts. Vicki Miller writes all of the stories based on interviews with the project leaders. Judy Nelson is the editor of Research Nebraska. If you have ideas for stories to be featured in Research Nebraska, please contact your unit administrator or Vicki Miller.

Development of a popularized research publication was a goal in the IANR Action Plan. I believe that you will be pleased with outcome of this effort. Hopefully, this publication will be an effective means to tell Nebraskans about your research accomplishments.

GOOD NEWS

Dr. Mike Zeece, Department of Food Science and Technology, has received a Fullbright Fellowship to partially support his eight month Faculty Development Leave. Mike will leave in September to begin joint research with Dr. William Reville, Department of Biological Chemistry at the University College in Cork, Ireland.

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Professor Dave Andrews was a member of a joint UNL-KSU team that developed and released two chinchbug-resistant germplasm lines of grain sorghum. These lines were selected from material that Dave developed from African and Indian sources while at ICRISAT. Commercial seed companies have expressed considerable interest in using these new germplasm lines in their hybrid grain sorghum breeding programs.

The Agricultural Research Division provides information and educational programs to all people without regard to race, color, national origin, sex or handicap.

RESEARCH PROJECTS

What is an ARD research project?

Research projects are statements of the objectives, procedures, justification, previous research, and budgetary needs associated with a particular line of investigation to be carried out by the leader and collaborators over the next several years. Research projects are reviewed both within the department and by an ARD peer review committee. All projects are submitted to the Cooperative States Research Service (CSRS-USDA) for approval and entry into the Current Research Information System (CRIS). All ARS, FS, ERS, and state agricultural experiment station (SAES) projects are listed in the CRIS computer data base. There are several types of research projects that may be established: Hatch, state, regional research, animal health, McIntire-Stennis, special grant, or competitive grant.

What are the components of a research project?

Establishment of a research project within the CSRS system requires an approved research project outline (normally 5-8 pages) and completed CRIS Forms AD-416 and AD-417. The forms are used to enter project information into the computer data base. The AD-416 provides data on the project leader, performing organization, type of project, project title, objectives, approach, and keywords. The AD-417 is used to classify the research effort in terms of activity, commodity, science, research problem area, and special categories. ARD uses an AD-416/417 Worksheet in lieu of these forms. Faculty members can obtain information on the procedures used to establish a project and the research project outline format from ARD.

Annual progress reports (Form AD-421), annual reports of research funds and staff support assigned to the project (Form AD-419), and termination reports (Form AD-421) complete the information submitted on each project. A faculty member can obtain up-to-date information on any agricultural research project ongoing in a SAES or the federal agencies from the Current Research Information System.

Who should have a research project?

It is the policy of ARD that every faculty member with a significant research appointment (>15%) should be a leader of a Hatch, state, animal health, or McIntire-Stennis research project. A regional research project may be approved as the only project of a faculty member if all of his/her research effort is covered by the objectives of the regional project. Normally, faculty members will establish additional projects for their regional research, special grant, or competitive grant activities. Research programs carried out by teams are documented by establishment of separate projects that highlight the special and unique activities that are being conducted. ARD currently has more than 330 active research projects including several team projects.

Why should faculty members establish research projects?

The primary purpose of the project system is to provide a structured method for faculty members to periodically assess their research programs, evaluate priority research needs, and establish new directions. The process provides periodic reinforcement from administrators regarding the direction that the research program is proceeding and affords the opportunity for the faculty member to identify resources that are needed for the research effort. The organized review process provides credibility to our claims that the research meets a societal need, represents "good" science, and is deserving of public funds. The review also provides excellent suggestions for improving the research program and identifying potential collaborators.

The research project provides a focus for the research effort during the next several years. ARD expects that grantsmanship efforts will be directed at obtaining funds to accomplish the objectives identified in the project rather than a "shotgun" effort to garner grant funds even through the proposed research is unrelated to the faculty member's project.

The faculty member benefits from becoming a leader of a research project. "Evidence of effective research project leadership" and "demonstrated ability to direct the research efforts of others" are stated ARD criteria for promotion to Associate Professor and Professor, respectively. One of the criteria under "Program Performance" in the Academic Performance Evaluation of Faculty is "provides program leadership . . . effective in directing and utilizing supporting staff and other resources". These criteria can be readily satisfied through effective research project leadership.

Federal funds (Hatch, animal health, regional research, and McIntire-Stennis) can only expended on CSRS-approved projects that have been peer reviewed. About 18% of ARD appropriated funds come from federal sources. We can not receive federal formula funds without having a strong research project system.

The clasification data (Form AD-417) and annual report of resources assigned to the project (Form AD-419) provides essential management information on our investments in various areas. For example, the CRIS data base allows CSRS and ARD to calculate the national and Nebraska investments in beef, corn, soybeans, swine, natural resources, etc. Likewise, investments can be calculated on the basis of type of activity, field of science, and research problem area. This information is invaluable in providing testimony to Congress, developing support from commodity groups, and in making internal resource allocation decisions. Without a project system, we would not have any idea of the level of human and financial resource investments that are being made in a particular commodity or field of science.

STATUS OF THE ARD RESEARCH PROGRAM

Research in Land Grant Universities is primarily undertaken to meet the immediate or longer term needs of producers and other clientele. Our research is problem oriented and we are provided with public funds to serve as the agriculture/natural resources/home economics research organization for producers and other clientele. We identify real problems and then go as deeply into science as necessary to provide a solution.

Historically, research in state agricultural experiment stations has served the dual purpose of solving problems of that state's citizens (clientele-oriented) and expanding the knowledge base in the scientific disciplines of agriculture, natural resources, and home economics (peer-oriented). The Nebraska Agricultural Experiment Station has enjoyed a long tradition of serving clientele needs and our program enjoys broad support from producers and agricultural organizations throughout the state. Our fundamental research programs have not been as strong as our applied research efforts although efforts have been underway during the past ten years to add more fundamental research capability to IANR units.

One of the primary objectives of the IANR Strategic Plan is "to be ranked by peers and clientele as one of the top five agricultural and natural resources institutions in the United States by the year 2000". To accomplish this objective, we will need to seek an appropriate balance between applied and fundamental research. I am convinced that we are currently among the top five Land-Grant Universities in terms of our applied research and cooperative extension programs. Any weaknesses that we have in research are related to the conduct of fundamental research, training graduate students and post-doctoral research associates, competing for federal grants, publishing in refereed journals and writing books and book chapters. These activities are largely "peer-oriented" rather that clientele driven, but are the keys to building a strong national reputation in agricultural, natural resources, and home economics research.

Our challenge is to maintain our strong clientele-oriented research programs while enhancing our fundamental research programs. Although some faculty will argue with me, I believe that it is possible to have both strong applied research and fundamental research programs. Several actions will assist IANR scientists in accomplishing this delicate balance. First, the Nebraska Research Initiative is providing new funding for research in biotechnology and water science - two priority areas for ARD. Second, commodity organizations, producers, and legislators are becoming more aware of the long term value of fundamental research and the need for more investment in agricultural research. Third, the proposed National Initiative on Food, Agriculture, and Environment will provide needed resources for fundamental, applied, and multi-disciplinary research as well as strengthening grants.

IANR scientists can play a major role in improving the national image of agriculture, natural resources, and home economics research at the University of Nebraska by: (i) Carrying out high quality research programs, (ii) Presenting the results of their studies at national and international meetings, (iii) Training high quality graduate students and post-doctoral research associates, (iv) Submitting excellent proposals to national competitive grant programs, and (v) Publishing the results of their studies in peer-reviewed journals, books, or proceedings. There are appropriate publication outlets for any high quality research information whether it is fundamental or applied in nature. Every scientist with a research appointment is important in our efforts to improve our research programs and attain recognition for excellence from both clientele and peers.

Darrell W. Nelson

REMINDER

RESEARCH COUNCIL AWARDS FOR FUND SEEKING

This is reminder that the Research Council set aside $5,000 during the current year for the purpose of funding travel requests from faculty members seeking support from granting agencies. This program was announced in October, 1989 in the Graduate Studies and Research Review publication. If ARD faculty are negotiating for major grants which require travel in advance, this is a possible source to consider. There are certain limitations and guidelines which were outlined in the original announcement. Further information can be obtained at the office of the Grants Assistant to the Research Council, phone 2-2851.

EVALUATING FACULTY WITH RESEARCH APPOINTMENTS

Almost every faculty member in IANR has a unique assignment and, thus, evaluations are done in relation to the position description of each individual. All administrators attempt to take a holistic view of the contributions that each faculty member is making to their unit. In evaluating the research component of a faculty member's appointment, the following are considered:

•**Research project management:** Organization, management, and leadership provided to a research project are important criteria. Attempts are made to evaluate the creativity and innovation present in the project.

• **Transfer of information to clientele:** Any "practical" information resulting from research projects should be disseminated through the project leader's extension program or provided to appropriate extension specialists for use in educational programs. We need to get the latest technology out to users as soon possible.

•**Scientific publications:** Research data stored in file cabinets or used only in extension programs has limited long term value. ARD expects that research data will be published in a form that is in the permanent collection of libraries and, thus, available for future reference. Publications can take the form of research bulletins, journal articles, books, book chapters, or proceedings of symposia or workshops. Publishing data in peer reviewed outlets adds a "quality" factor to the publication. Authorship "credit" is given for any significant contribution to a publication. There is no special "credit" for first author or sole author publications.

•**Participation in professional society meetings & activities:** Presentation of scientific information at regional or national meetings of professional societies is encouraged. Invitations to present plenary or similar addresses are evidence of professional growth and developing stature. Service as an officer of a professional society and editing journals, books, or proceedings are significant contributions.

•**Grantsmanship:** Faculty members are not evaluated on their ability of obtain grant support. ARD expects that faculty members will be proactive in attempting to find grants to support their research project but a lack of success will not be a negative factor during evaluation. In some disciplines, success in grantsmanship translates directly into research activity and output whereas other disciplines require limited resources to have significant output and accomplishment.

•**Human resource development:** Providing guidance to graduate students, post-doctoral research associates, or visiting scientists is a plus for a faculty member. We realize that not every faculty member has the opportunity to work with graduate students or post-doctoral fellows and, thus, involvement with human resource development is not an evaluation criteria.

•**Team effort:** Participation in team activities is not a requirement for faculty members, however, effective leadership or contributions to teams is a plus. Specific notice is made in the "Academic Performance Evaluation of Faculty" of involvement in team activities.

•**Other accomplishments:** ARD scientists are engaged in a variety of activities. There is a wide range of outputs from our research projects i.e. cultivars and germplasm, inventions, computer programs, diagnostic techniques. Administrators recognize these contributions in the evaluation process.

IANR EXPO

TUESDAY, AUGUST 14, 1990

ARDC - AGRONOMY SECTION

WILL FOCUS ON

SOYBEAN PRODUCTION

UTILIZATION & MARKETING

DISPLAY BOOTHS - DEMONSTRATIONS

WALKING & RIDING TOURS

PLEASE MARK YOUR CALENDARS & PLAN TO ATTEND

USDA WATER QUALITY MANAGEMENT SYSTEM EVALUATION AREA GRANT

One of the largest grants ever received by the Institute of Agriculture and Natural Resources has just been announced by the US Department of Agriculture. University of Nebraska has been selected to receive funding for a 5-year water quality research study in the Central Platte Valley. The USDA funding, which will be provided through the Agricultural Research Service and the Cooperative State Research Service, is anticipated to be approximately $800,000 per year over the 5-year period of the project. This project is one of five selected nationwide as the first testing areas to study field scale trials of agricultural management systems to protect groundwater from fertilizer and pesticide contamination. It is hoped that this will help to develop practical technologies to allow crop producers to continue to operate at a profit while reducing groundwater contamination.

This project is coordinated through the Nebraska Water Center and the project leaders are Dr. Jim Schepers, Dr. Roy Spalding, and Dr. Darrell Watts. Kansas State University is also a cooperator with UNL and some of the field research will probably be conducted in Kansas. In total, over 20 researchers will be involved representing ARD faculty, ARS scientists and water related faculty from other units at UNL. An integrated project has been designed to evaluate the impact on groundwater quality of present and approved systems for managing irrigation, nitrogen and pesticides in corn and soybean production areas.

The major research location will be in the Central Platte Valley near Shelton. There will also be satellite field locations at South Central Research and Extension Center, West Central Research and Extension Center, and near Manhattan, Kansas. The newly renovated Water Sciences Laboratory will provide enhanced analytical capabilities to handle some of the analytical load associated with this major new research effort.

In order to help insure timely transfer of the technology associated with these five sites in the midwest, each site will also be receiving especially earmarked funds from Extension Service-USDA to develop educational and demonstration programs which are highly coordinated with the research activities.

The research will also include cooperators from a number of other federal and state agencies, including the US Geological Survey, the US Soil Conservation Service, Central Platte Natural Resources District and various other public and private organizations. The Nebraska research will also be heavily coordinated with research being conducted at the other four major locations selected in the midwest as part of this Midwest Water Quality Initiative. It is an excellent example of very high level of cooperation between several federal and state agencies and the universities in order to conduct effective and productive groundwater research.

CAPITAL CONSTRUCTION PROJECT PROCEDURES

Periodically, questions are raised with respect to the process by which projects end up on the University Capital Construction budget request or the process for internal approval for those projects which are internally funded without special funds being requested. An abbreviated outline of how a project can be initiated and part of the process it goes through for approval is as follows:

1. Original idea or concept - can result from individual, unit, division, planning group, etc.

2. Informal review of concept - Unit Administrator, IANR Facilities Director (IFD), Members of IANR Administrative Council (somewhat dependent on nature and magnitude of project).

3. Originating unit - prepares need statement, forwards to IFD.

4. IANR Facilities Committee reviews Need Statement - recommends approval, modification, disapproval - recommendation goes to Vice Chancellor.

5. For internally funded projects under $100,000 - IANR can approve to proceed with design development phase.

6. Designs for approved projects under $100,000; Internally funded, with exterior impact - must be approved by Aesthetic Review Committee (ARC) before constructed. After approval, requisition to build may be initiated.

7. Projects over $100,000, even if internally funded - must go also to Central Planning Committee (CPC) and Board of Regents (BOR) for approval in program statement phase.

8. Projects for which funding is to be requested from state in Capital Construction Budget Request (CCBR) - are reviewed in need statement phase by IANR Administrative Council, prioritized, deleted or modified if necessary. Prioritized need statements forwarded to UNL campus level to begin CCBR standard process.

Planning has been underway for the 1991-93 Capital Construction Budget Request for approximately six months. It will be finalized through the entire approval process and be submitted for consideration by the legislature at its session beginning in January 1991.

CONFERENCE - NATIONAL SUSTAINABLE AGRICULTURE

A National Sustainable Agriculture and Natural Resources Conference will be held at the Hilton Hotel, Lincoln, Nebraska, on August 15-18, 1990. The IANR is the on-site host for this national event, co-sponsored with SCS, State Departments of Agriculture, local non-profit organizations, farming groups, and agri-business representatives. State, regional, and national representatives will also be in attendance.

The main objective is to provide a national forum for the exchange of information on current sustainable agriculture programs in universities, state governments, federal agencies, and non-profit and agri-business communities.

On the last day, Saturday, August 18th participants will have a choice of three bus tours to the ARDC, and farm stops in eastern Nebraska, the Aurora area, and the Clay Center area.

MPBC BIOTECHNOLOGY SYMPOSIUM SLATED FOR NOVEMBER MPBC 1991 COMPETITION ANNOUNCED

The annual Symposium of the Midwest Plant Biotechnology Consortium (MPBC) will be held November 7-8, 1990, at the University Palace Hotel in Indianapolis. This year's Symposium will feature: (1) the preproposal competition for Consortium 1991 funds, (2) scientific reports on current MPBC research topics, and (3) a series of speakers discussing the state-of-the-art topics in plant biotechnology and university-industry-federal laboratory collaborative research.

The focus of this year's meeting will be the presentation of preproposals for the 1991 MPBC competition. Principal investigators will present their preproposals during poster sessions attended by corporate members of the Consortium. This forum allows company representatives and principal investigators to meet in person to discuss the 1991 preproposals prior to the corporate evaluation. *Only preproposals presented at the Symposium will be considered for 1991 MPBC funds.*

Corporate representatives who attend typically are people who can commit corporate funding for university research projects. These are potentially very useful contacts for academic investigators to make.

Specific registration information for the Symposium will be sent to members in the August newsletter, **MPBC Communique.** Technical inquiries can be directed to Dr. Dennis Busholtz, MPBC Grants Coordinator, at (317) 494-2426. Questions about meeting arrangements can be answered by Ms. Susan Faust, MPBC Communications Coordinator, at (317) 494-2427.

(For more information, please call Susan Faust, MPBC Communications Coordinator, at (2=317) 494-2427 or write Midwest Plant Biotechnology Consortium, 324 Hovde, Purdue University, West Lafayette, IN 47907.)

RESEARCH GRANTS AND CONTRACTS RECEIVED MARCH & APRIL, 1990

Agronomy	
Miscellaneous grants under $5,000 each	19,740
Animal Science	
Miscellaneous grants under $5,000 each	10,175
Biological Systems Engineering	
Miscellaneous grants under $5,000 each	710
Agricultural Meteorology	
Miscellaneous grants under $5,000 each	9,500
Entomology	
Miscellaneous grants under $5,000 each	4,025
Food Processing Center	
Neumeister, D. - UN Foundation	10,000
Taylor, S. - Food Processing Machinery & Supplies Ass'n	50,000
Miscellaneous grants under $5,000 each	41,430
Food Science & Technology	
Miscellaneous grants under $5,000 each	10,465
Forestry, Fisheries & Wildlife	
Brandle, J. - North Dakota State University	12,000
Horticulture	
Riordan, T. - U.S. Golf Association	25,000
Miscellaneous grants under $5,000 each	22,724
Northeast Research & Extension Center	
Miscellaneous grants under $5,000 each	6,657
Panhandle Research & Extension Center	
Margheim, J. & Lyon, D. - SCS-RCA	90,000
Miscellaneous grants under $5,000 each	3,055
Plant Pathology	
Miscellaneous grants under $5,000 each	21,300
South Central Research & Extension Center	
Miscellaneous grants under $5,000 each	3,400
Veterinary Science	
Miscellaneous grants under $5,000 each	17,283
West Central Research & Extension Center	
Miscellaneous grants under $5,000 each	2,650
Total	360,114

NEW OR REVISED PROJECTS

The following station projects were approved recently by the USDA Cooperative State Research Service:

12-002 (Agronomy) Improvement and Evaluation of Oats and Barley
Investigator: P. S. Baenziger
Status: Revised Hatch project effective October 10, 1989

13-097 (Animal Science) The Genetics of Body Composition in Beef Cattle
Investigator(s): M. K. Nielsen & R. J. Rasby
Status: New Hatch project contributing to NC-196 effective October 1, 1989

13-098 (Animal Science) Role of Gonadotropin Heterogeneity in Reproductive Function
Investigator(s): H. E. Grotjan, J. E. Kinder and R. A. Britton
Status: New Hatch project effective April 1, 1990

15-054 (Biochemistry) Isotope Fractionation in Biological Systems
Investigator: M. H. O'Leary
Status: New Hatch project effective November 1, 1989

16-051 (Food Science & Technology) Starch Technology: Production, Characterization, and Utilization
Investigator: D. S. Jackson
Status: New Hatch project effective November 1, 1989

17-049 (Entomology) Molecular Taxonomy of Black Flies
Investigator: K. P. Pruess and T. O. Powers
Status: New Hatch project effective February 12, 1990

26-012 (Forestry, Fisheries & Wildlife) Biology, Ecology, and Control of Dioryctria Borers of Pines
Investigator: M. O. Harrell
Status: New McIntire Stennis project effective October 1, 1989

46-012 (Roman L. Hruska U.S. Meat Animal Research Center) The Genetics of Body Composition in Beef Cattle
Investigator(s): R. M. Koch & L. V. Cundiff
Status: New Hatch project contributing to NC-196 effective October 1, 1989

92-016 (Consumer Science and Education) Rural Households at Risk of Serious Housing Problems in the North Central Region
Investigator: E. R. Combs
Status: New Hatch project contributing to NC-199 effective October 1, 1989

FY 1988 EXPENDITURE INFORMATION
NORTH CENTRAL STATE AGRICULTURAL EXPERIMENT STATIONS*

	STATE CASH RECEIPTS**		STATE APPROPR		HATCH RRF		OTHER FEDERAL		INDUSTRY OTHER GRANTS		STATION TOTAL		$ APPROP PER/CAPITA		$APPROP/$1000 CASH RECEIPTS	
	$	RANK	$	RANK	$	RANK	$	RANK	$	RANK	$	RANK	$	RANK	$	RANK
ILLINOIS	6,461	4	12,952	8	4,584	3	2,086	5	2,494	5	29,673	10	1.1	12	2.00	9
INDIANA	4,117	7	17,225	5	4,122	7	5,928	2	3,266	4	39,068	4	3.1	8	4.18	6
IOWA	9,074	1	13,984	7	4,851	2	1,431	9	6,396	2	33,024	8	4.9	6	1.54	11
KANSAS	6,594	3	16,367	6	2,842	9	3,637	4	1,861	7	33,079	7	6.7	4	2.48	8
MICHIGAN	2,670	11	18,620	4	4,193	6	4,905	3	4,434	3	42,584	3	2.0	11	6.97	1
MINNESOTA	6,107	5	31,516	1	4,215	5	1,515	7	1,537	10	44,243	2	7.5	3	5.16	3
MISSOURI	3,826	8	12,457	10	3,910	8	1,947	6	1,610	9	33,646	6	2.5	9	3.26	7
N. DAKOTA	2,423	12	11,636	11	2,007	12	561	11	637	11	19,714	11	17.1	1	4.80	4
NEBRASKA	7,979	2	12,530	9	2,763	10	1,442	8	1,702	8	31,478	9	7.8	2	1.57	10
OHIO	3,629	9	22,742	2	4,887	1	778	10	1,936	6	35,809	5	2.1	10	6.27	2
S. DAKOTA	2,911	10	4,023	12	2,051	11	36	12	403	12	8,192	12	5.7	5	1.38	5
WISCONSIN	5,048	6	21,329	3	4,210	4	13,384	1	6,919	1	50,226	1	4.5	7	4.23	5

* Cash Receipts in millions of dollars, other expenditures in thousands of dollars

** Cash Receipts 1986 data.