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ARD News June 1992

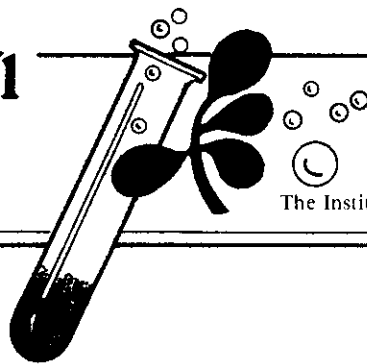
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June 1992

Volume 26, Number 6

OUR HERITAGE

Dear Colleagues:

During the past year, questions have arisen regarding the funds administered by the Agricultural Research Division. Some people have wondered why only faculty members with ARD appointments receive federal formula Hatch funds and ARD-administered state appropriations. Others question the rationale that places most ARD-affiliated faculty members on twelve-month appointments. Some wonder why ARD-budgeted units are "rich" when their units have difficulty funding minimal infrastructure such as telephones and photocopying. These are significant questions that deserve an answer.

State Agricultural Experiment Stations (SAESs) have a unique heritage and mission as compared to other parts of Land Grant Universities. Congress recognized that science could and must be applied to agricultural production if the United States was to advance as a nation. Congress also realized that agricultural research would only progress with public funding and that the Land Grant Universities were the appropriate entities to conduct publically-supported agricultural research. As a result, the Hatch Act was passed by Congress in 1887. This legislation established the SAESs and provided federal funds (to be matched by state funds) for support of agricultural research. The Hatch Act was designed to benefit agriculture through the application of scientific investigations to practical problems of farmers. The Act specified that because of the site-specific nature of production agriculture the Stations would determine the programs of investigation "having due regard to the varying conditions and needs of the respective states and territories". The basic mission, organization and funding partnership laid out in the original Hatch Act remain in effect today.

During the past 105 years, the SAESs have been tremendously successful in carrying out the mandates of the Hatch Act. Much of the enormous productivity increase in American agriculture can be attributed to SAES scientists. The SAES scientists can also be justly proud of the research that has contributed to better management of our natural resources and enhancement of our quality of life. These advances have occurred because our research programs have been focused on solving real problems of people and, as a

result of addressing people's needs, our research programs have received strong support from federal and state officials as well as clientele.

As compared to a faculty members in the College of Arts and Science, ARD scientists have access to "special" sources of research support and most have twelve month appointments. In exchange, ARD scientists accept several commitments: (i) their research must be directed at real problems - solving today's practical problems or providing information that help solve tomorrow's problems, (ii) they must develop a written research project that is peer reviewed for relevancy, scientific quality, and feasibility, (iii) their projects are subject to review each five years by the Cooperative States Research Service, and (iv) they are expected to obtain grant and contract funds that will contribute to their research project. SAES scientists do not have the luxury of "searching for the truth" unless their project is relevant to a state, regional or national problem.

There are both advantages and disadvantages associated with an ARD appointment. We hope that everyone at UNL will recognize that there are valid reasons why ARD scientists receive "special" research support that is not available to all faculty members.

ARD scientists have a unique role to play in serving Nebraska's agriculture, agribusiness, families and communities and in enhancing our natural resources. We are pleased that members of Congress and the Legislature continue to support our programs because they believe that our research makes a difference for Nebraskans.

Darrell W. Nelson
Dean and Director

REALLOCATION OF BUDGET REDUCTION FUNDS

One year ago, it was decided to reduce the state-funded portion of the IANR budget by 5% as a response to the state mandated 3% budget reduction to provide some funds for reallocation to high priority programs. Units were charged with identifying a differentiated proportion of their budgets for reduction without regard to the amounts of funding provided by CASNR, ARD or CED. As a result, units reduced their research budgets by a greater proportion than their teaching or extension budgets and ARD obtained a signifi-



cant amount of funds for reallocation (see table below).

Discussions with unit administrators and the ARD Advisory Council lead to our decision to invest the reallocation funds as follows: (i) contribution to the IANR faculty salary pool to establish new faculty positions, (ii) reduce the ARD "permanent minus" to 1.5% of salaries and wages, (iii) permanently fund the ARD Interdisciplinary Research Grant program, and (iv) permanently fund a competitive "innovative and high risk" research grant program. The "permanent minus" results from deliberate overbudgeting on salaries and wages to account for expected vacancies during the year from resignations and retirements. The ARD "permanent minus" is currently too high (2.5% of salaries and wages) for expected vacancy rates. Salary savings are accumulated throughout the fiscal year to pay the "permanent minus". All UNL colleges and divisions are attempting to reduce their "permanent minus".

| | |
|---|-------------|
| Total long term budget reductions by units | \$1,092,727 |
| Reduction required by state | \$ 591,188 |
| Available to ARD for reallocation | \$ 501,539 |
| ARD investments: | |
| Faculty salary pool | \$ 133,815 |
| Reduce "permanent minus" | \$ 175,052 |
| Fund Interdisciplinary Grants program | \$ 100,000 |
| Fund Innovation & High Risk Research Grants program | \$ 92,672 |

ARD INTERNAL GRANTS

The Agricultural Research Division administers several grant programs which allocate internal funds provided by ARD as well as funds from University of Nebraska endowments and other sources. Examples of these programs are: ARD Interdisciplinary Grant Program; ARD International Travel Grant Program; Sampson Range and Pasture Grant Program; Anna H. Elliott Fund-Research and Plant Sciences in Western Nebraska. The review and selection of proposals to be funded in these programs is normally carried out by various ARD committees of faculty and unit administrators. For the Interdisciplinary and Travel Grants, and for UN Foundation Grants, this is done by sub-committees of ARD Advisory Council.

Recent experiences with several of these programs have prompted members of the ARD Advisory Council to suggest that there be a general reminder for faculty related to the quality and format of these proposals. Examples and comments included the following:

1. Proposals to be reviewed by Interdisciplinary groups such as ARD Advisory Council should be written so

that a reviewer from another discipline can easily understand the proposal under review.

2. For Interdisciplinary Projects, contributions by each participant should be clearly explained.
3. Potential impact and importance of the proposed research should be clearly defined.
4. Proposals should clearly identify the specific RFP to which they are responding.

While providing review comments is difficult when using this type of committee selection procedure and probably will not be implemented, the ARD Advisory Council is investigating a more generic format for review and feedback for these programs in the future. Quality of proposals submitted to these programs has been very good in the current year, but there is still opportunity for improvement to allow the proposals to be more fairly judged.

PROPOSALS SUBMITTED FOR FEDERAL GRANTS

The following is a listing of proposals that were submitted after April 1, 1992 by faculty for federal grant programs. While not all grants will be funded, we applaud the faculty member's effort in submitting proposals to the various agencies.

Ruma V. Banerjee - National Science Foundation - Reaction Mechanism of Methylmalonyl-CoA Mutase - \$759,102

Jim Brandle & William Easterling - U.S. Forest Service - Roles of Trees in Semiarid Regions Under Climate Change - \$24,565

Kenneth G. Hubbard - U.S. Soil Conservation Service - Using GIS to Generate Digital Climate Maps - \$134,579

Kenneth G. Hubbard - U.S. Soil Conservation Service - Monitoring Weather and Soils in the Great Plains - \$214,478

Donald A. Wilhite - U.N. Environment Program - Drought Management and Training Seminar - \$30,000

Shashi B. Verma, Timothy J. Arkebauer and F. G. Ullman - National Science Foundation & NASA- Field Micrometeorological Measurements, Process-Level Studies and Modeling of Methane and Carbon Dioxide Fluxes in a Boreal Wetland Ecosystem - \$1,205,115

Elizabeth Walter-Shea and Timothy J. Arkebauer - NASA - Radiation and Gas Exchange of Canopy Elements in a Boreal Forest - \$688,330

Amit Mitral and Willem G. Langenberg - National Science Foundation - Fungal Zoospore Mediated Transfer of Foreign DNA in Plants - \$48,977

Anne K. Vidaver - DOE/NSF/USDA - Research Collaboration Group to Address the Impact of Variability in Plant Associated Bacteria - \$492,010

Martin B. Dickman - DOE/NSF/USDA - Multi-Institutional Research Coordination Group Proposal: Molecular and Genetic Basis for Pathogenicity in the Genus *Colletotrichum* - \$742,500

James L. Van Etten - Office of Naval Research - Domesticated a Marine Eukaryotic Algal-Virus System - \$236,781

Wayne E. Woldt and Istvan Bogardi - Environmental Protection Agency - Site Characterization: Integration of Data and Decision Making - \$111,463

Glenn J. Hoffman - National Science Foundation - Graduate Research Traineeships in Engineering Biological Systems Having Spatial and Temporal Variability - \$680,000

Stephen G. Ernst - U.S. Forest Service - Vegetative Propagation of Mature Douglas-Fir - \$75,000

James R. Brandle, Ronald M. Case, Richard S. Holland and Edward J. Peters - U.S. Fish and Wildlife Service - Influences of Riparian Vegetation on Wildlife and Fisheries Populations in the Central Platte River - \$82,500

Julie A. Savidge - U.S. Fish and Wildlife Service - Migratory and Resident Bird Use of the Lower Platte and Missouri Rivers - \$43,230

Julie A. Savidge and Thomas F. Seibert - U.S. Fish and Wildlife Service - Wet Meadows Biodiversity Along the Platte River, Nebraska - \$12,848

Scott E. Hygnstrom - U.S. Fish and Wildlife Service - Historical Review of Wetlands Associated with the Tri-County Irrigation Canal in South Central Nebraska - \$5,422

Kyle D. Hoagland and Edward J. Peters - U.S. Fish and Wildlife Service - Experimental Studies on the Platte River Ecosystem: Development of an Aquatic Microcosm Facility - \$50,000

Glenn Helmers - USDA - Short- and Long-run Economic, Environmental and Sociological Effects Resulting from the Employment of Alternative Production Systems in the Western Corn Belt - \$166,480

Michael S. Turner - USDA - Socioeconomic and Environmental Impacts of Changes in Agricultural Input Supply for Farm Production and Rural Communities - \$125,960

Susan S. Sumner and Susan L. Cuppett - National Competitive Research Initiative Grants Program/USDA - Control of Pathogens in Refrigerated Foods with Antimicrobials in Edible Films - \$118,638

INTERDISCIPLINARY RESEARCH PROPOSALS AWARDED

Thirty new Interdisciplinary Research Proposals were submitted and three proposals were selected to be funded for 1992-1993. Three continuation projects will also be funded, contingent upon satisfactory progress. Interdisciplinary Research Proposals were awarded to the following:

Susan Cuppett, Glenn Froning, Roger Mandigo, Susan Sumner & Curtis Weller - "Utilization of Poultry Skin"

Robert Britton, Rick Stock, Jeff Pedersen, Charles Martin, James Steele, Ken Moore & David Andrews - "Feed Quality Improvement of Sorghum Grain"

Marilyn Schnepf, Fayrene Hamouz, Susan Cuppett & Roger Mandigo - "Antioxidant Incorporation in Edible Films for Maintaining Meat Quality"

The following continuing grants have been evaluated and has been given to continue their grants for fiscal year - 1993:

David A. Mortensen, Kenneth Von Bargaen, George Meyer & Gail Wicks - "Development of an Intermittent Sprayer System for Reducing Chemical Input in Nebraska Cropping Systems"

Blaine Johnson, Don Lee Jerry Maranville, Wallace Wilhelm, James Schepers & Alex Kahler - "Mapping of Loci Affecting the Uptake and Utilization of Nitrogen" NEB-12-189

Ben Doupnik, Jr., Robert Wright & Lance Meinke - "Investigations on the Epidemiology and Control of Maize Chlorotic Mottle Virus"

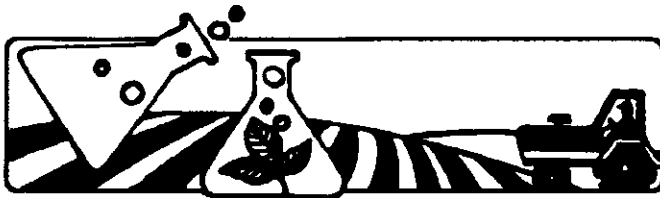
INTERNATIONAL TRAVEL FUNDING

Six proposals were received for the International Travel program and three were selected for funding for June 1, 1992 - January 1, 1993. This program provided by the Agricultural Research Division to ARD faculty and non ARD faculty (with sufficient evidence of ARD-related activities) to pursue professional development opportunities. Participation in workshops, visiting research institutes and colleagues to acquire specific techniques or to develop new concepts or processes are examples of professional development activities that qualify for consideration. The three that were selected are as follows:

Gene H. Duetscher (West Central Research & Extension Center) - study of beef production. (Australia)

Raymond Chollet (Biochemistry) - directed mutagenesis of sorghum leaf phosphoenolpyruvate carboxylase. (Japan)

William A. Gustafson (Horticulture/SEREC) - plant exploration and germ plasm collection of cold hardy woody plants for Nebraska. (China)



**GRANTS AND CONTRACTS
RECEIVED
APRIL & MAY, 1992**

| | |
|--|---------|
| Agricultural Economics | |
| Turner, M. S. - Nebr. Dept. of Agriculture | 40,356 |
| Agronomy | |
| Miscellaneous grants under \$5,000 each | 49,215 |
| Animal Science | |
| Calkins, C. R. - USDA | 20,000 |
| Mandigo, R. W. - National Live Stock & Meat Bd. | 80,825 |
| Miscellaneous grants under \$5,000 each | 55,222 |
| Biochemistry | |
| Chollet, R. - National Science Foundation | 15,050 |
| Ragsdale, S. W. - National Institute Health | 143,560 |
| Biological Systems Engineering | |
| Miscellaneous grants under \$5,000 each | 9,435 |
| Center for Sustainable Ag Systems | |
| Francis, C. A. - USDA | 66,266 |
| Entomology | |
| Higley, L. G. - USDA/NCR/PIAP | 16,000 |
| Stanley-Samuelson, D. W. - National Institute Health | 111,712 |
| Miscellaneous grants under \$5,000 each | 5,000 |
| Environmental Programs | |
| Kamble, S. T. - USDA | 14,787 |
| Food Processing Center | |
| Taylor, S. L. & Neumeister, D. A. - USDA | 47,333 |
| Miscellaneous grants under \$5,000 each | 5,267 |
| Food Science & Technology | |
| Froning, G. W. - Southeastern Poultry & Egg | 35,200 |
| Miscellaneous grants under \$5,000 each | 11,360 |
| Forestry, Fisheries & Wildlife | |
| Brandle, J. & Easterling, W. - U.S. Forest Service | 24,565 |
| Hoagland, K. - Nebr. Dept. of Environmental Control | 25,000 |
| Holland, R. S. & Peters, E. - Lower Platte So. NRD | 10,000 |
| Holland, R. S. & Peters, E. - Papio-Missouri River NRD | 10,000 |
| Holland, R. S. & Peters, E. - Lower Platte No. NRD | 10,000 |
| Holland, R. S. & Peters, E. - Central Platte NRD | 10,000 |
| Miscellaneous grants under \$5,000 each | 3,200 |
| Horticulture | |
| Miscellaneous grants under \$5,000 each | 28,830 |
| Industrial Ag Products Center | |
| Hanna, M. A. - USDA/CSRS | 104,133 |
| Hanna, M. A. - Nebraska Banker's Ass'n | 15,000 |
| Hanna, M. A. & ChinnaSwamy - Nat'l Corn Growers Ass'n | 53,956 |
| Miscellaneous grants under \$5,000 each | 50 |
| Northeast Research & Extension Center | |
| Miscellaneous grants under \$5,000 each | 32,926 |
| Panhandle Research & Extension Center | |
| Miscellaneous grants under \$5,000 each | 50,938 |

| | |
|--|------------------|
| Plant Pathology | |
| Powers, T. O. - National Institute Health | 125,251 |
| Miscellaneous grants under \$5,000 each | 1,200 |
| South Central Research & Extension Center | |
| Miscellaneous grants under \$5,000 each | 26,910 |
| Veterinary Science | |
| Jones, C. & Osorio, F. A. - USDA | 100,000 |
| Miscellaneous grants under \$5,000 each | 19,176 |
| West Central Research & Extension Center | |
| Dearborn, D. - USDA | 93,719 |
| Miscellaneous grants under \$5,000 each | 12,825 |
| GRAND TOTAL | 1,484,267 |

NEW OR REVISED PROJECTS

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

10-120 (Ag Economics) Structure, Efficiency, and Viability of Agribusiness Organizations

Investigator: J. S. Royer

Status: New Hatch project effective March 1, 1992

12-220 (Agronomy) Selecting Wheat and Other Cereal Grains for Enhanced End-Use Performance Characteristics

Investigator(s): D. R. Shelton, P. S. Baenziger, C. J. Peterson and R. A. Graybosch

Status: New Hatch project effective April 1, 1992

13-086 (Animal Science) Sustainable Beef Growing-Finishing Systems

Investigator(s): T. J. Klopfenstein, R. A. Stock and R. A. Britton

Status: Revised Hatch project effective April 1, 1992

13-113 (Animal Science) Regulation of Gonadotropin Synthesis & Secretion & Ovarian Follicle Development Pre-and Postpuberty

Investigator(s): J. E. Kinder and R. J. Kittok

Status: New Hatch project effective March 1, 1992

17-058 (Entomology) Biology, Ecology, and Management of Diabrotica Species

Investigator: L. J. Meinke

Status: New Hatch project effective April 1, 1992

20-052 (Horticulture) Introduce and Develop High Value Crops From Hardy Woody Plant Germplasm for the North Central Region

Investigator: W. A. Gustafson

Status: New Hatch project effective April 1, 1992

21-048 (Plant Pathology) Investigate Mgmt. Strategies for Control of Rusts, Leaf Spots, & Blights of Winter Wheat & Turfgrass

Investigator: J. E. Watkins

Status: New Hatch project effective March 10, 1992

21-049 (Plant Pathology) Epidemiology of Diseases of Dry Edible Beans and Other Vegetables in Nebraska

Investigator: J. R. Steadman

Status: New Hatch project effective March 10, 1992

31-001 (Center for Sustainable Agricultural Systems) Integrated Crop/Livestock Research for Sustainable Systems in Nebraska

Investigator: C. A. Francis

Status: New Special Grant effective April 1, 1992

43-053 (West Central Research & Extension Center) Beef/Range Systems--Integrating Management Practices to Improve Efficiency

Investigator: D. D. Dearborn

Status: New Special Grant effective July 1, 1992

94-019 (Textiles, Clothing & Design) Assessment of the Environmental Compatibility of Textiles and Other Polymeric Materials

Investigator: P. C. Crews

Status: New Hatch project that contributes to regional research project S-250 effective October 1, 1991

INCOME SHARE SPENT FOR FOOD

Food expenditures by families and individuals rose but continued their long-term decline as a share of income.

| Year | Disposable personal income | Expenditures for food | | | Share of income | | |
|------|----------------------------|---------------------------|-----------------------------|--------------------|-------------------|------|-------|
| | | At home ¹ | Away from home ² | Total ³ | At home | home | Total |
| | | -----Billion dollars----- | | | -----Percent----- | | |
| 1960 | 360.5 | 50.6 | 12.6 | 63.1 | 14.0 | 3.5 | 17.5 |
| 1965 | 491.0 | 57.4 | 16.9 | 74.3 | 11.7 | 3.5 | 15.1 |
| 1970 | 722.0 | 74.2 | 26.4 | 100.6 | 10.3 | 3.7 | 13.9 |
| 1975 | 1,150.9 | 115.1 | 45.9 | 161.0 | 10.0 | 4.0 | 14.0 |
| 1980 | 1,952.9 | 178.5 | 85.4 | 263.9 | 9.1 | 4.4 | 13.5 |
| 1985 | 2,943.0 | 228.4 | 129.5 | 357.9 | 7.8 | 4.4 | 12.2 |
| 1988 | 3,548.2 | 256.4 | 158.1 | 414.5 | 7.2 | 4.5 | 11.7 |
| 1989 | 3,788.6 | 274.0 | 165.7 | 439.6 | 7.2 | 4.4 | 11.6 |
| 1990 | 4,058.8 | 296.4 | 177.1 | 473.6 | 7.3 | 4.4 | 11.7 |
| 1991 | 4,211.7 | 302.7 | 183.1 | 485.8 | 7.2 | 4.3 | 11.5 |

¹Food purchases from grocery stores and other retail outlets, including purchase with food stamps and food produced and consumed on farms, because the value of these foods is included in personal income. Excludes Government-donated foods.

²Purchases of meals and snacks by families and individuals, and food furnished to employees because it is included in personal income. Excludes food paid for by Government and business, such as donated foods to schools, meals in prisons and other institutions, and expense-account meals.

³Totals may not add due to rounding.

MARKETING BILL VERSUS FARM VALUE

The 1991 marketing bill is more than triple the farm value of food expenditures.

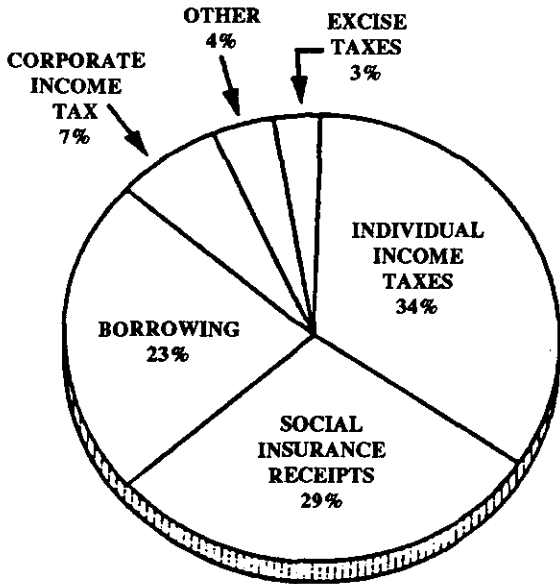
| Year | Food expenditures ¹ | Marketing bill | Farm value | Farm value share |
|------|--------------------------------|----------------|---------------------------|------------------------------|
| | | | | of expenditures ² |
| | | | -----Billion dollars----- | |
| | | | Percent | |
| 1970 | 110.6 | 75.1 | 35.5 | 32 |
| 1975 | 167.0 | 111.4 | 55.6 | 33 |
| 1980 | 264.4 | 182.7 | 81.7 | 31 |
| 1985 | 345.4 | 259.0 | 86.4 | 25 |
| 1987 | 375.5 | 285.1 | 90.4 | 24 |
| 1988 | 398.8 | 301.9 | 96.8 | 24 |
| 1989 | 419.4 | 315.6 | 103.8; | 25 |
| 1990 | 451.3 | 345.1 | 106.2 | 23 |
| 1991 | 461.8 | 360.6 | 101.2 | 22 |

¹Includes foods bought on business expense accounts, Government donations, institutional feeding, and spending by consumers at grocery stores and eating places.

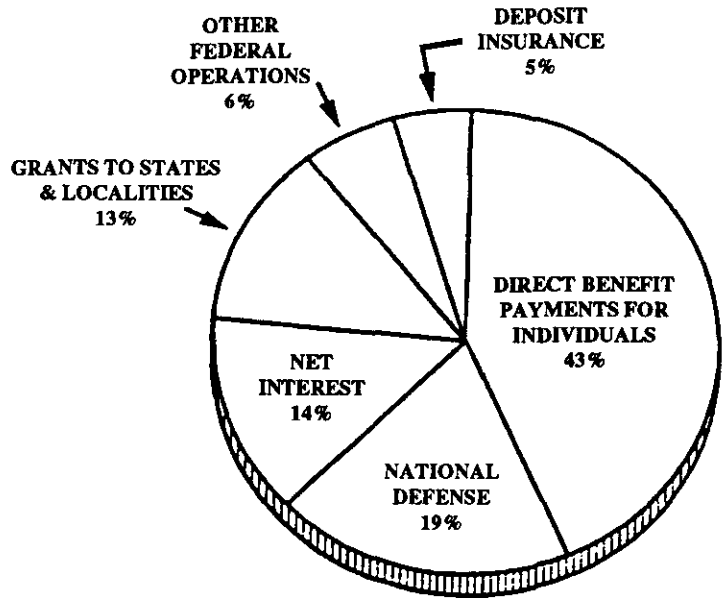
²Includes spending for food away from home and, thus, is lower than the share for the market basket.

THE FEDERAL GOVERNMENT DOLLAR FISCAL YEAR 1993 ESTIMATE

WHERE IT COMES FROM...

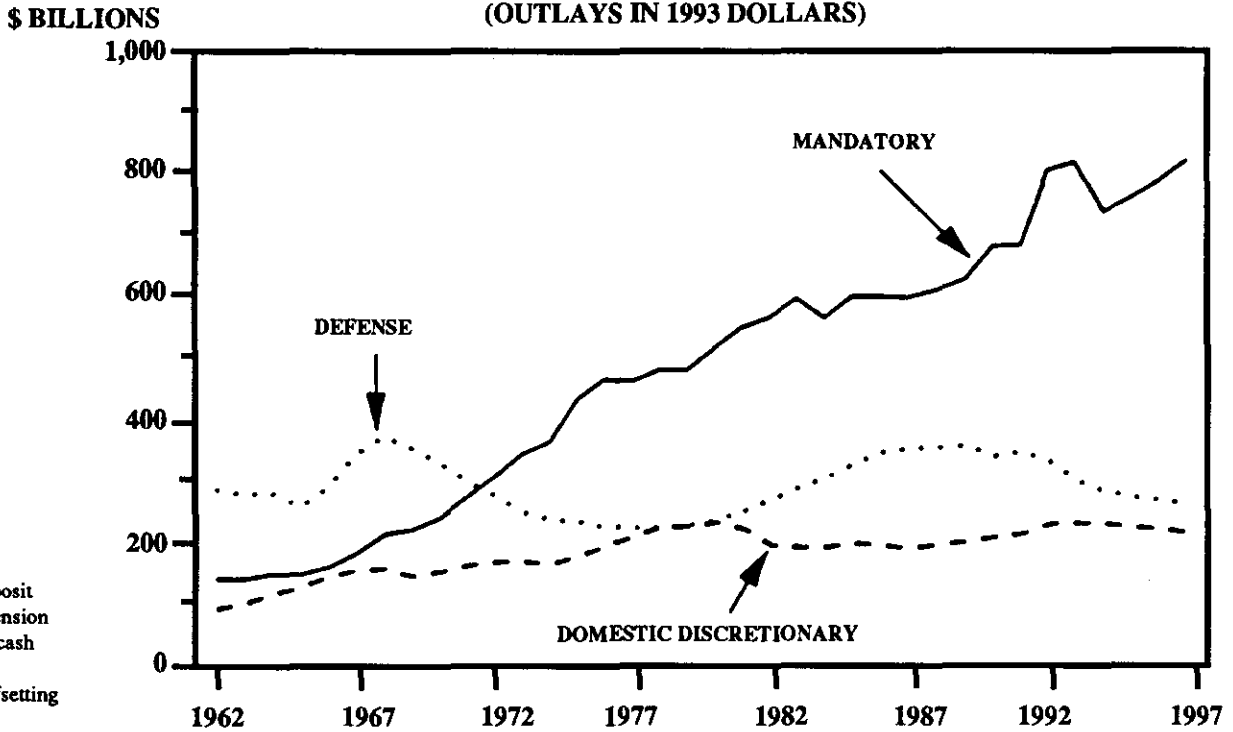


WHERE IT GOES...



| | 1991 | 1992 | 1993 | 1995 | 1995 | 1996 | 1997 |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|
| Receipts | 1,054.3 | 1,075.7 | 1,164.8 | 1,263.4 | 1,343.5 | 1,427.5 | 1,501.8 |
| Outlays | 1,323.0 | 1,475.1 | 1,516.7 | 1,474.8 | 1,535.5 | 1,607.5 | 1,683.6 |
| Surplus or Deficit (+/-) | -268.7 | -399.4 | -351.9 | -211.4 | -192.1 | -180.0 | -181.8 |

**"MANDATORY" PROGRAMS FOR TAKING OVER THE BUDGET
(OUTLAYS IN 1993 DOLLARS)**



NOTE: Includes deposit insurance and pension guarantees on a cash basis; excludes undistributed offsetting receipts.