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AGRICULTURAL RESEARCH

Refocusing Priorities to Meet Current Concerns

Statement of Robert A. Robinson,
Associate Director, Food and Agriculture Issues,
Resources, Community, and Economic Development Division

Mr. Chairman and Members of the Committee:

We are pleased to participate in this hearing today on the U.S. Department of Agriculture's (USDA) implementation of research priorities. We will be using a slide presentation to provide an overview of (1) the current structure and budget for agricultural research, (2) the new agricultural research objectives that have been introduced in recent years, and (3) factors that have inhibited the refocusing of the research agenda on these new objectives.

As you know, the nation's agricultural research system started in 1887 with the establishment of agricultural experiment stations. For almost a full century, the system's sole goal was to increase productivity. The system has done, and continues to do, a remarkable job in addressing that goal. However, in the current U.S. and world climate, more is being asked from our agricultural research system. The system is now being asked to respond to a host of new constituents beyond farmers. For example, new goals--such as finding ways to reduce the agricultural sector's impact on the environment, enhance food safety, improve human nutrition, increase market demand, and develop rural economies--have become critically important.

Although the world has changed and new research requirements have emerged, the federal agricultural research system still is aimed at achieving its traditional goal--namely, increasing agricultural productivity. If the system's priorities are to be significantly refocused to better address the multiple goals that now exist, a number of structural impediments will have to be overcome. I will discuss these later in my presentation.

ORGANIZATION AND FUNDING OF USDA'S RESEARCH AGENCIES

At the outset, it would probably be useful to offer some background information on the structure and funding levels associated with current agricultural research efforts.

Figure 1 shows how research is currently organized within USDA. As you can see, responsibility for agricultural research is spread out over a number of agencies under several assistant secretaries. Under this structure, the Secretary is the only person in a position to coordinate programs and provide oversight.

Figure 1: Organizational Structure of USDA Research

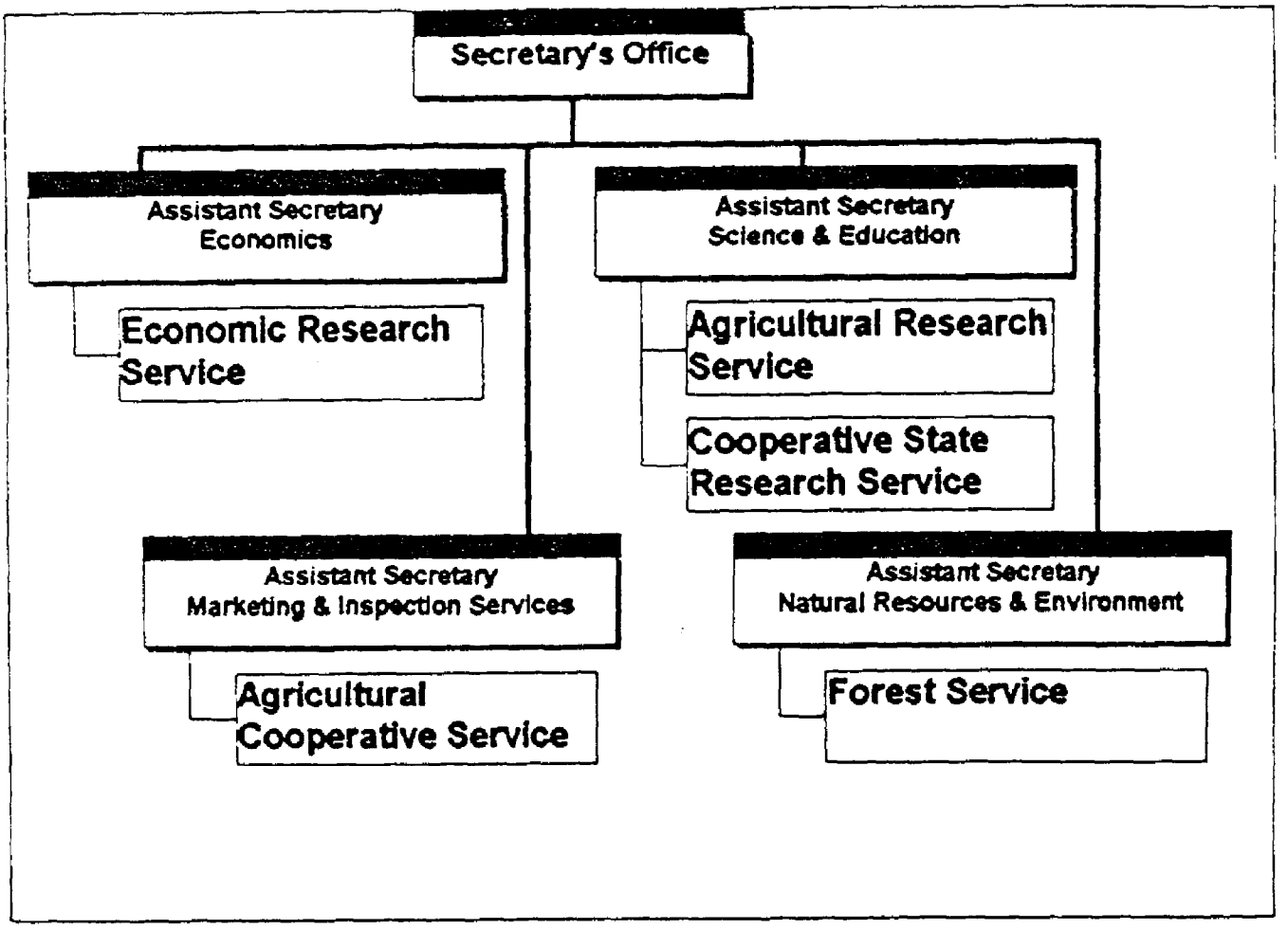
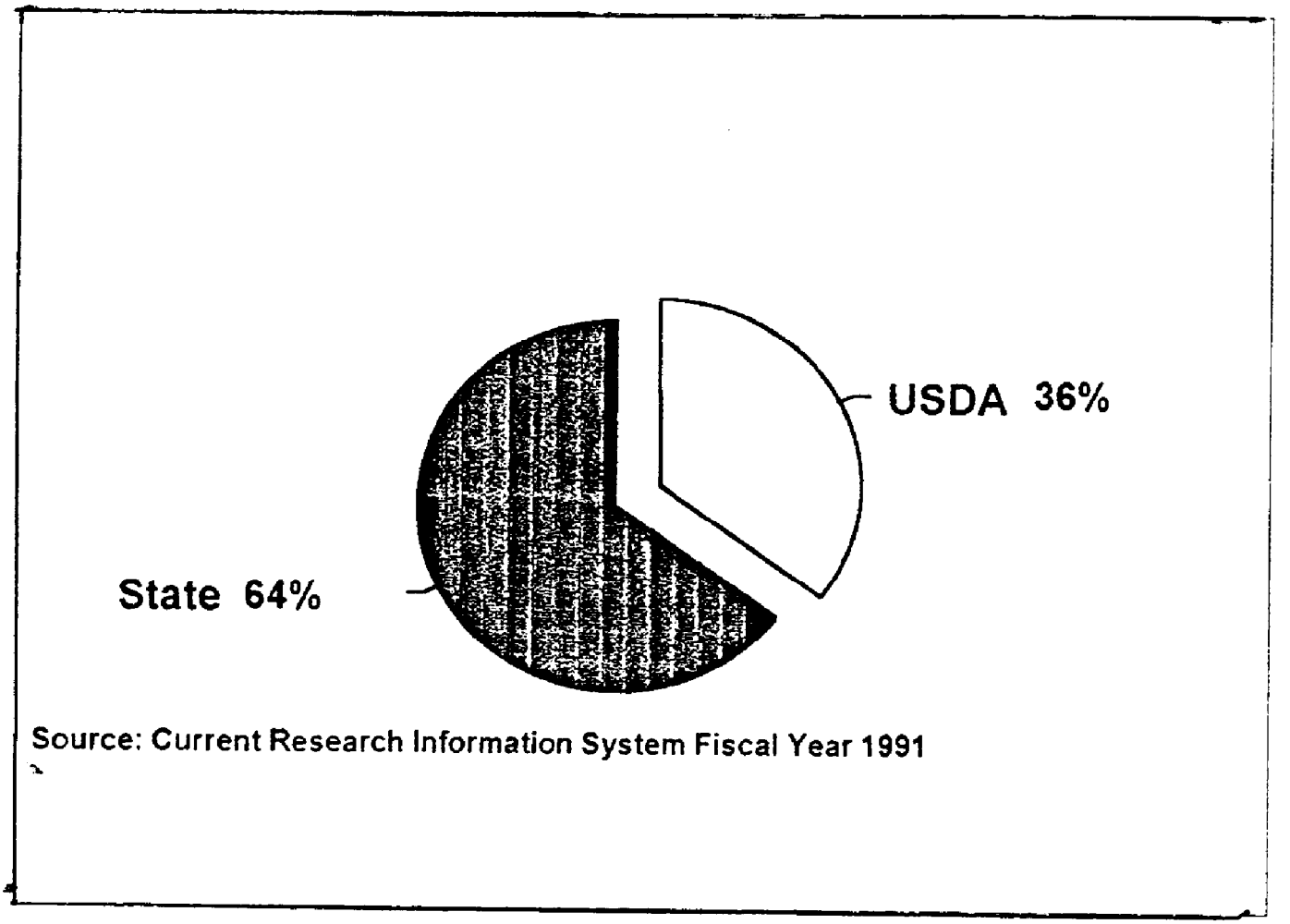


Figure 2 depicts the USDA and state shares of the nearly $3 billion spent on agricultural research.[1] As you can see, research conducted at the state level represents about two-thirds of the funds, while USDA controls the other one-third.

Figure 2: Total Research Funding at USDA and State Institutions, 1991

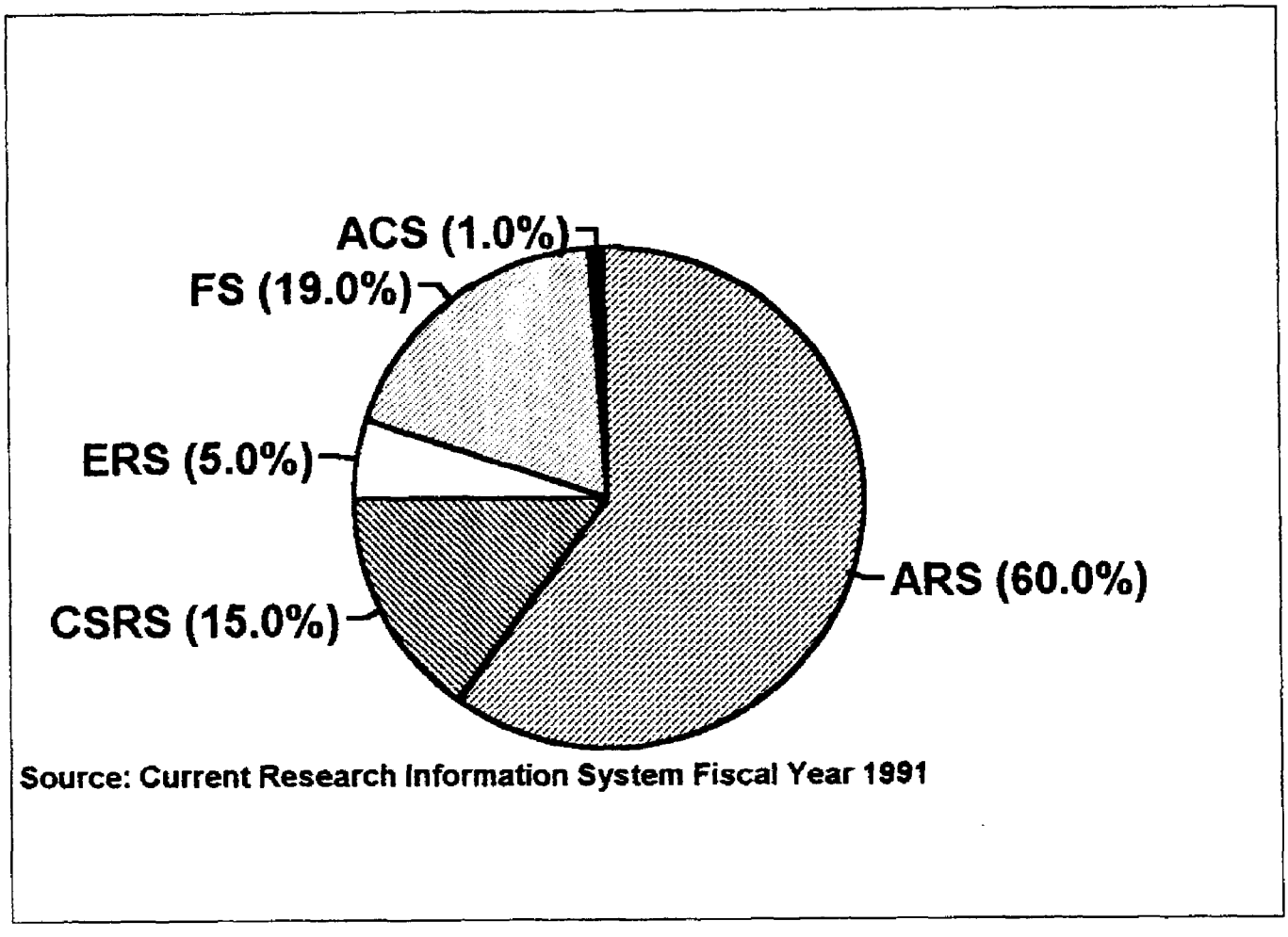


Source: Current Research Information System Fiscal Year 1991

[1]Fiscal year 1991 data are the latest available.

Figure 3 breaks out and provides additional information on USDA's research efforts of approximately $1 billion. As might be expected, the Agricultural Research Service (ARS) manages most (60 percent) of these research funds. The Forest Service is next, at 19 percent. The Cooperative State Research Service (CSRS), including only the special and competitive grants programs, is third, at 15 percent.

Figure 3: USDA Agencies' Funds for Research, Fiscal Year 1991

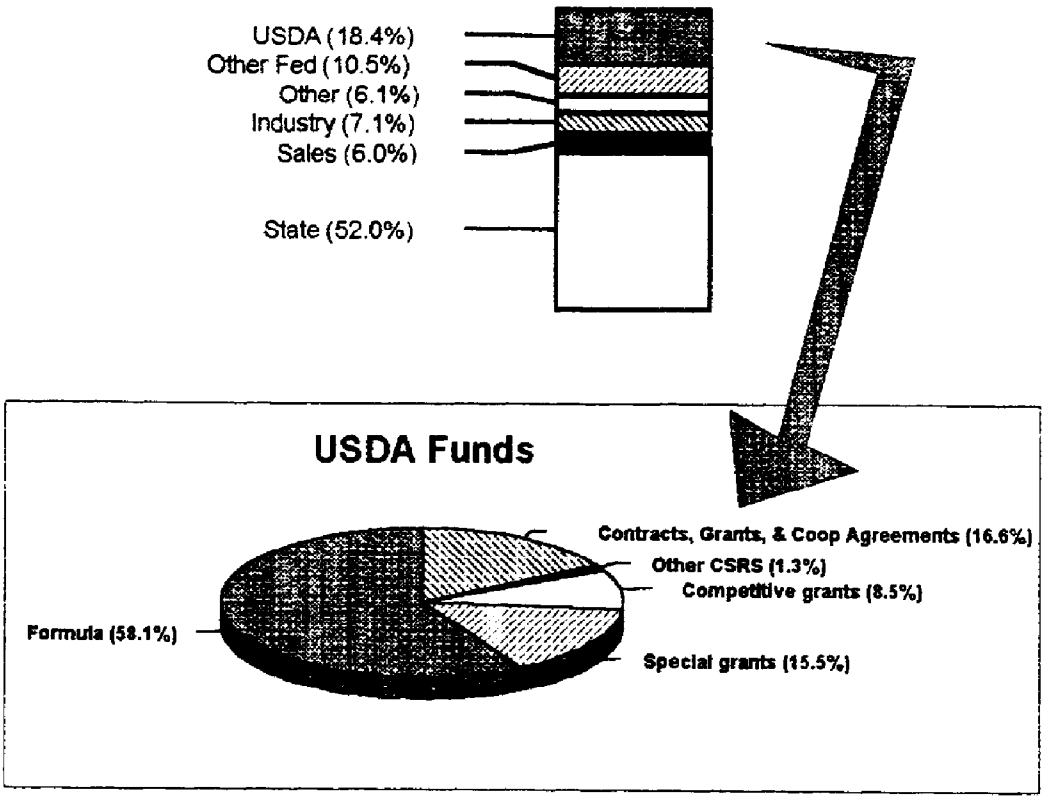


Source: Current Research Information System Fiscal Year 1991

With respect to the state-conducted portion of the research, figure 4 shows the original sources of the approximately $2 billion in research funds ultimately managed by the states. While the states themselves contributed over half of this money, much of this effort was made possible by grants from USDA, other federal agencies, and the private sector.

The bottom half of figure 4 elaborates on the proportion of state funds provided by USDA. Formula funds, which are allocated by law and largely out of USDA's direct control, provide most of the USDA money. USDA's competitive grants--designed to be a source of funds highly responsive to changing needs and subject to more direct control over priorities--account for less than 10 percent of USDA's funding to states. USDA stated that within the special grants funding, more than one-half of these funds are earmarked by the Congress.

Figure 4: Funding Sources for State Agricultural Experiment Stations and Other State Institutions, Fiscal Year 1991



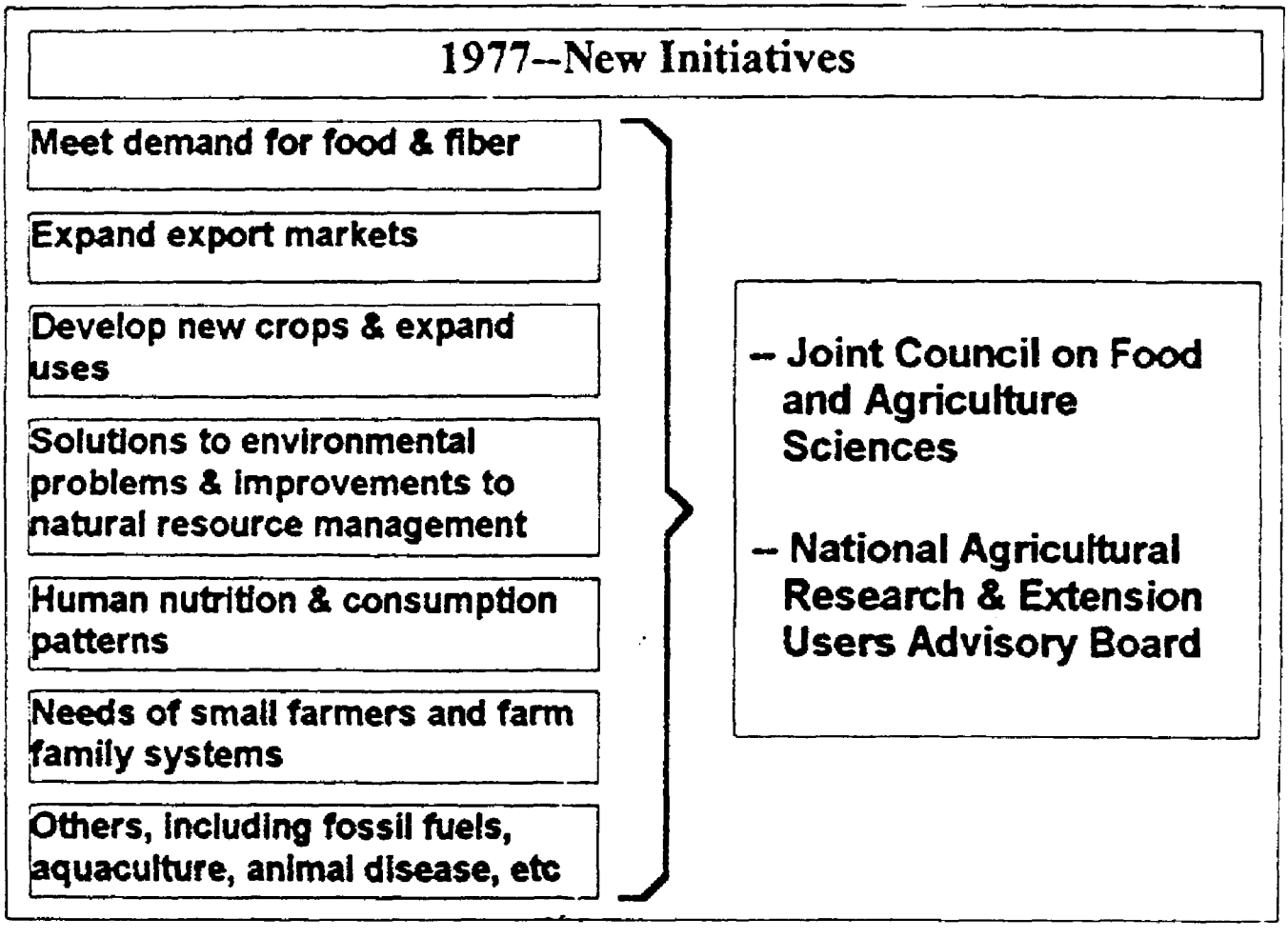
Source: Current Research Information System Fiscal Year 1991

Note: Includes Hatch Act, McIntire-Stennis Act, Evans Allen, and Animal Health and Disease Research funds.

NEW RESEARCH OBJECTIVES HAVE BEEN INTRODUCED

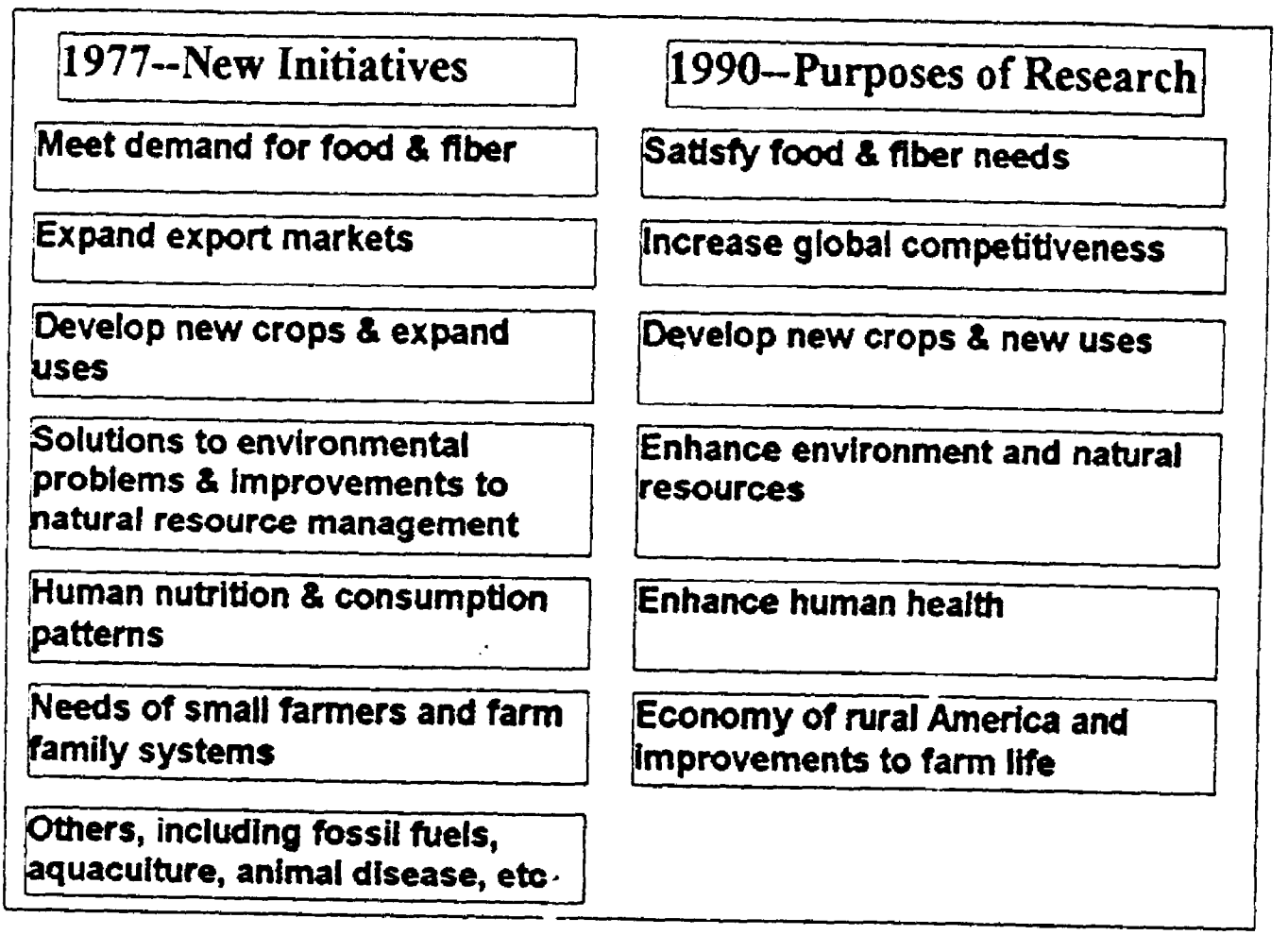
With this sketch of the organization of and funding for agricultural research in place, we now turn to the research priorities guiding the system. While agricultural research was historically aimed primarily at increasing production, a broader focus was brought to agricultural research in the 1970s with new environmental and societal concerns. With the 1977 farm bill, the Congress took steps to address this broadened focus. The farm bill identified new objectives for agricultural research. It also established two bodies to advise USDA on research priorities and assist in coordinating research--the Joint Council on Food and Agriculture Sciences and the National Agricultural Research and Extension Users Advisory Board. Figure 5 shows the research priorities set forth in the 1977 farm bill.

Figure 5: Research Priorities, 1977



This interest in a broader agenda for research continued in subsequent farm bills. As figure 6 illustrates, with the most recent 1990 farm bill, the Congress continued to identify essentially the same research priorities as it did in 1977.

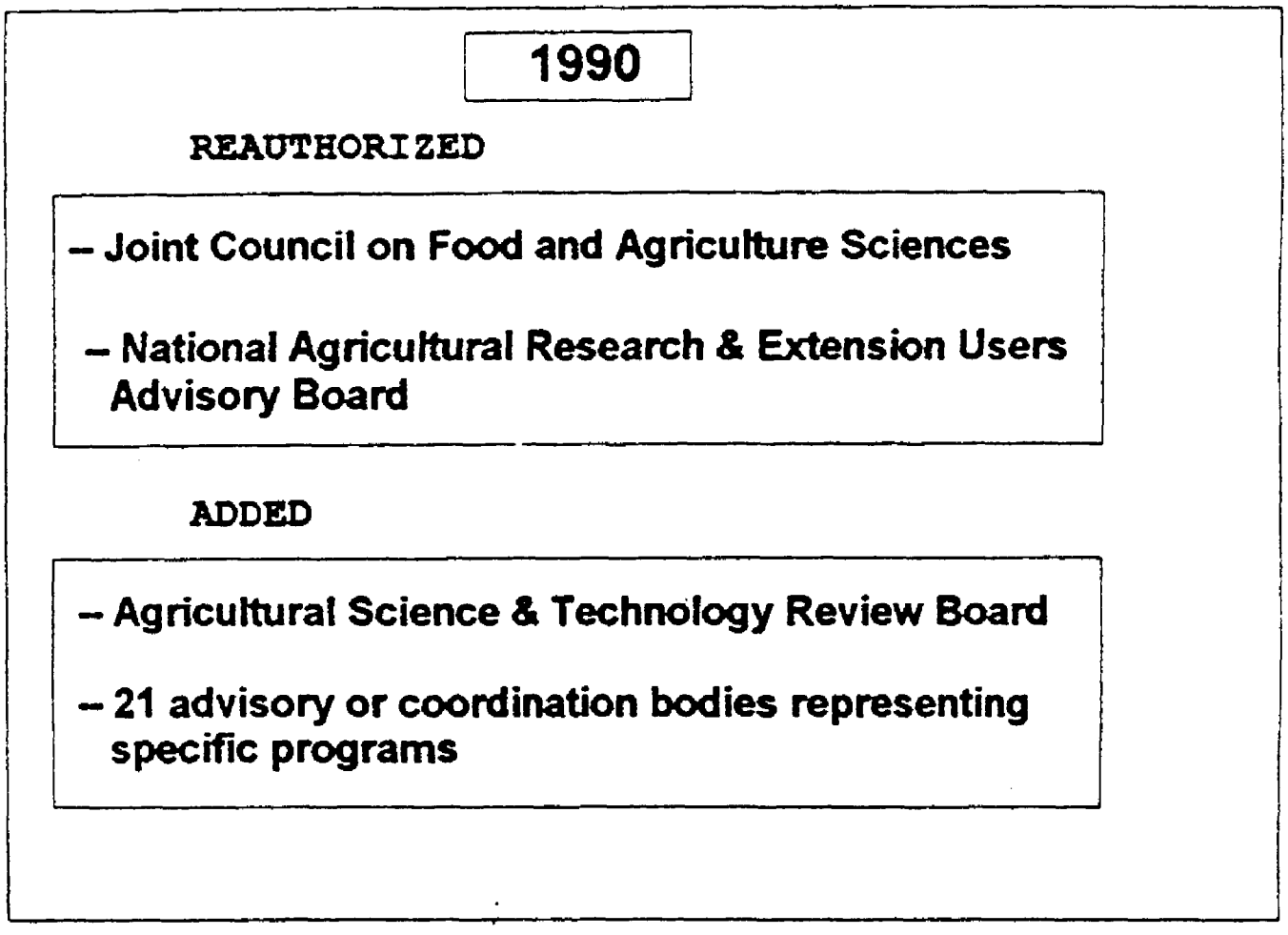
Figure 6: Research Priorities, 1977 and 1990



In addition, the 1990 farm bill reauthorized the boards established in 1977, created another departmental advisory board, and added 21 departmental advisory or coordinating boards addressing specific programs.

With so many advisory groups in place, USDA is hard-pressed to sort out these many voices as it attempts to devise a coherent priority strategy.

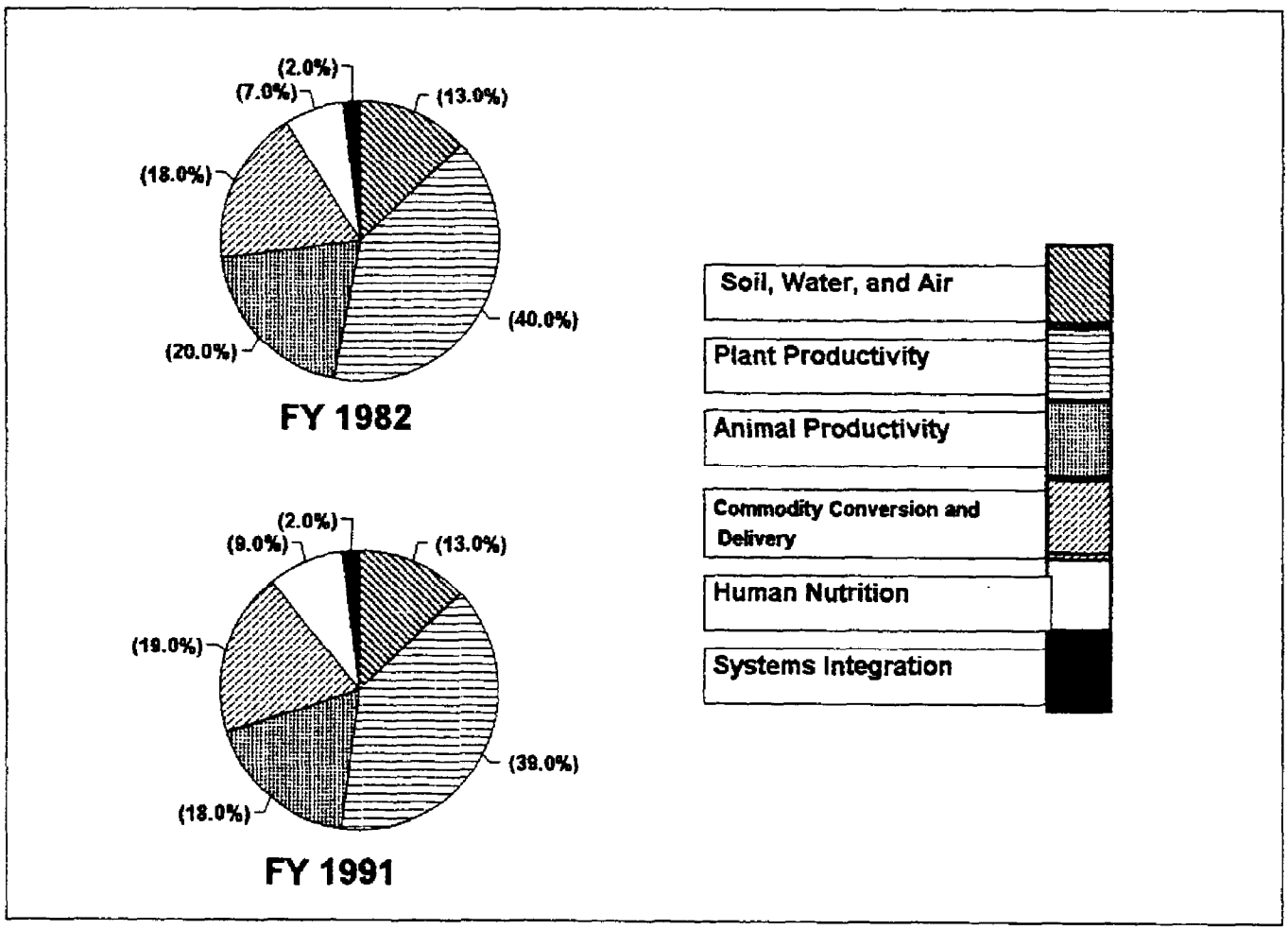
Figure 7: Research Advisory Bodies Established by the 1990 Farm Bill



Despite congressional efforts since 1977, existing USDA information suggests that most funds are still devoted to increasing agricultural productivity. The following figures provide information showing that funding by research categories has not significantly shifted to new research priorities over the past decade. However, USDA says that, within these categories of research for both ARS and the competitive grants program, changes have occurred in the types of research being done.

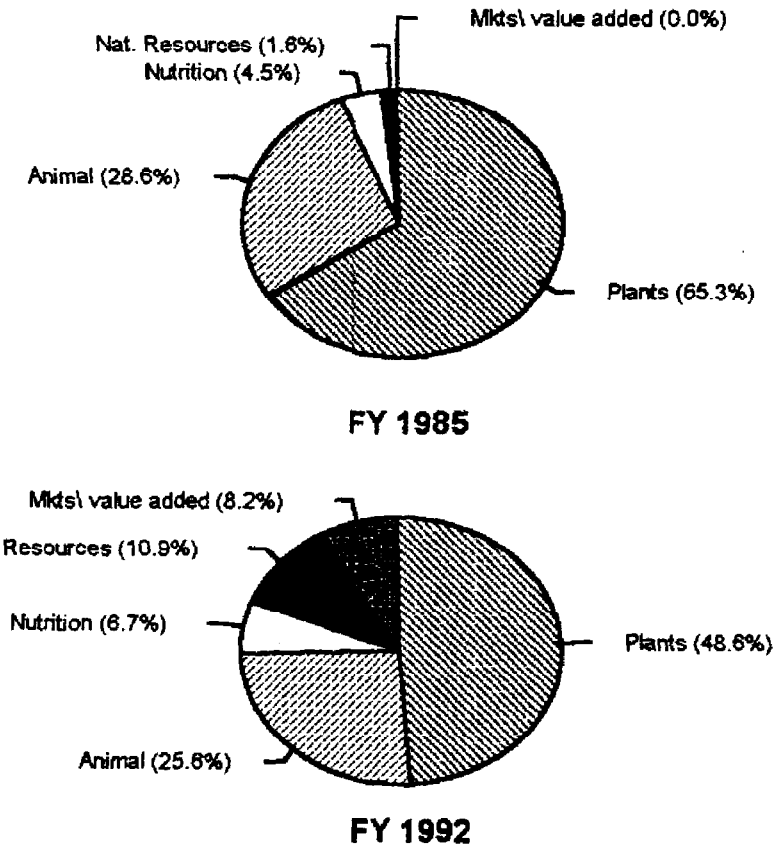
As shown in figure 8, ARS, the agency with the largest share of federal research dollars, has minimally adjusted its overall priorities over the last 10 years. For example, plant productivity--a traditional research area--is consuming 39 percent of total funds, down only 1 percent from 1982 levels. Furthermore, nutrition research--an area of increasing public concern--remains at less than 10 percent of total funding.

Figure 8: Percentage of Funding by ARS' Objectives



Finally, figure 9 shows how CSRS' Competitive Grants Program funds have been allocated since 1985, the year when CSRS began keeping project information by category of research.[2] The Congress designed this program to be more flexible in responding to new priorities. While some shift in priorities has occurred, the bulk of the funding still goes to traditional research areas--plant and animal research.

Figure 9: Competitive Grant Funds by Category



Note: Nat.=Natural. Mkts=Markets.

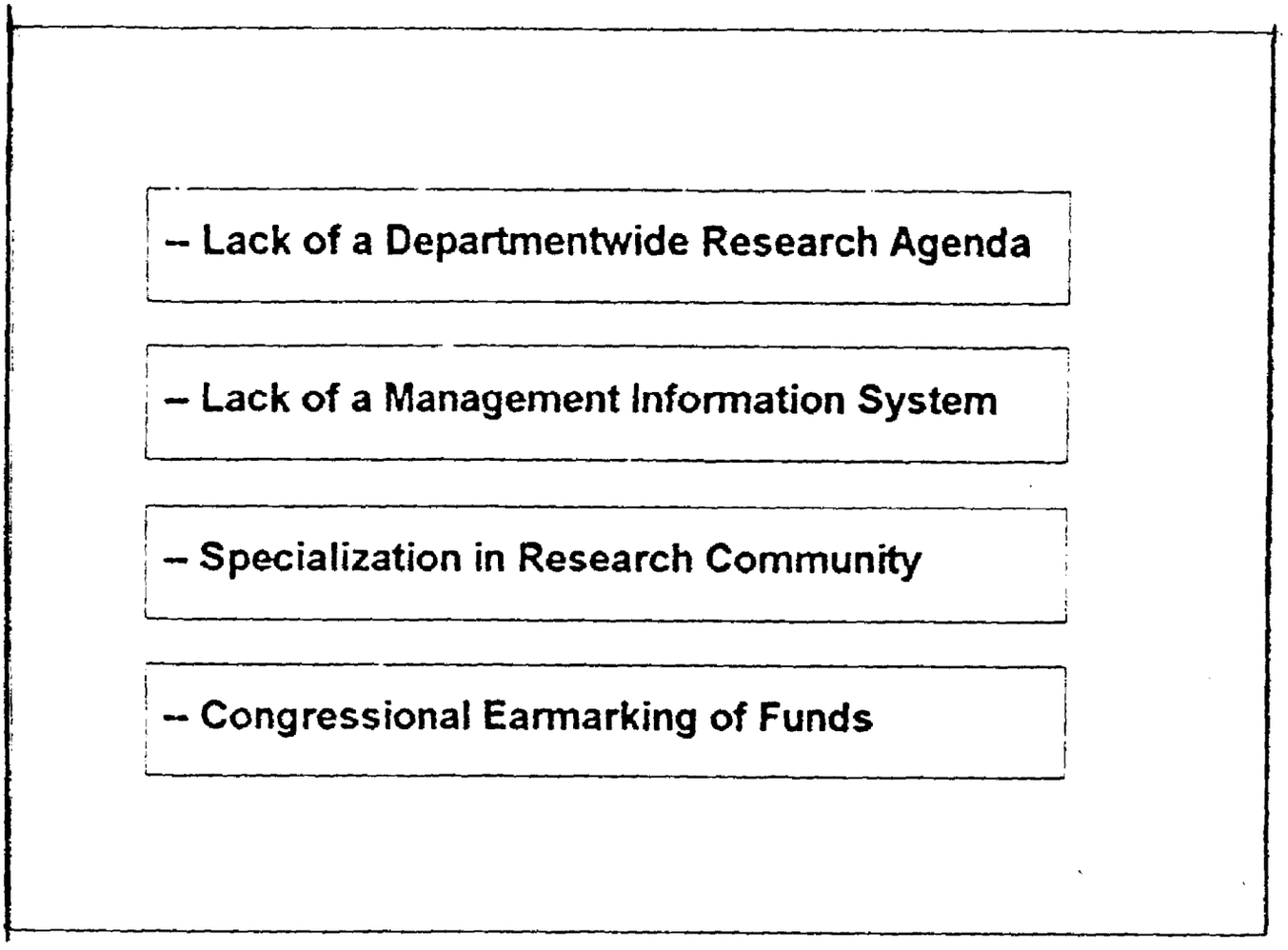
[2]Before 1985, the Competitive Grants Program primarily sponsored plant science research.

FACTORS THAT INHIBIT THE REFOCUSING OF RESEARCH PRIORITIES

Given the steps taken in previous farm bills, why haven't research priorities shifted more significantly to reflect current concerns with the impact of agriculture on the environment, nutrition, food safety, and rural development?

Figure 10 lists several factors, suggested by work that we have done or issues identified by USDA, that have slowed progress in refocusing research priorities.

Figure 10: Four Factors Inhibiting a Shift in Research Priorities



First, while some component agencies have their own separate plans, USDA has no department wide research agenda--no vision of where agriculture should be in 10 or 20 years. Developing a national research agenda for agriculture will be a difficult task because (1) USDA is in transition, moving from a single focus to multiple priorities, and (2) consensus will be needed from many constituencies. Compounding this problem, as we discussed earlier, is USDA's lack of an organizational structure to facilitate the development of such consensus.

Second, the only national system with information on agricultural research is the Current Research Information System, commonly known as CRIS. CRIS was designed to compile descriptive information on current projects from researchers at all types of institutions and make this information accessible to the research community. It was not designed to be a management information system that would give managers the information they need to measure outcomes and analyze progress toward reaching goals or assess costs and benefits. Moreover, despite its name, CRIS is not current: Its reporting system is 2 years behind the fiscal year. Stated simply, CRIS is not, nor was it intended to be, a national system that allows agencies to identify successes and deficiencies and make needed adjustments.

Third, because specialization is inherent in scientific research, changes in the system occur slowly. Scientists who have spent years developing specialized expertise in traditional fields find it difficult to shift to emerging fields. Consequently, USDA's research agencies, which are dependent on these individuals, cannot redirect their priorities quickly.

Fourth, USDA has stated that congressionally earmarked funds hamper its ability to establish and shift research priorities. It has identified 107 projects in traditional research areas that were specifically mandated by the Congress.

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In conclusion, a number of factors inherent in the research system that has evolved over the past century make shifting priorities a difficult and prolonged process. We believe these fundamental constraints will need to be confronted if the nation's agricultural research system is to address current needs with the same success that it has addressed historic ones.

We hope that our slide presentation has provided an informational framework that will facilitate your deliberations on this issue. We would be pleased to answer any questions that you may have.

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