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Remarks delivered by
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Good morning. Thank you for asking me to be here today. You've asked me to talk about the Federal role in food and agricultural research and, I imagine, considering the forum, specifically the role of Federal research for sugar beets.

I'm sure that all of you realize that USDA is in a state of transition right now. The President has nominated Dan Glickman from Kansas to be the new Secretary of Agriculture, although the confirmation hearing has not yet been scheduled. The new leadership in the Congress is reviewing the FY96 budget, and the Administration has begun shaping the 1995 Farm Bill.

We are also about 90 days into the largest reorganization that the U.S. Department of Agriculture (USDA) has undergone in 50 years. The number of agencies has been reduced from 43 to 30 at Headquarters and USDA field offices will be consolidated and reduced from 3700 to 2485. There will be a reduction of over 7500 USDA employees over the next 5 years.

I am pleased to note that USDA has had a long-term commitment to research on sugar beets. This year, the Agricultural Research

Service (ARS) has over \$4 million in support of sugar beet research at 10 locations across the country (Table 1). Our major efforts are at Salinas, California; Fargo, North Dakota; East Lansing, Michigan; Beltsville, Maryland; and Fort Collins, Colorado. Our FY96 budget proposes to continue our commitment to sugar beet research, but at a reduced funding level due to budgetary constraints. The reduction is associated with the proposed close-out of our sugar beet work at Fort Collins, Colorado, which deals with production diseases and postharvest quality, and the proposed closing of our laboratory at Sidney, Montana.

These proposed program reductions and laboratory closings at 12 locations will generate \$45 million to redirect to higher priority research; such as food safety, human nutrition, genetic resources, areawide integrated pest management, and issues related to environmental quality. At this point the FY 1996 budget is a proposal. It is the Administration's plan for the next fiscal year, beginning October 1, 1995. Every item in the proposed budget is subject to Congressional review.

Like all of the Federal Government, USDA is coming under tremendous budget constraints. The research agencies, like the rest of USDA, are facing increasingly detailed scrutiny about what we spend. As a research agency within USDA, the Agricultural Research Service has a budget of \$710 million. This

is about one percent of the total Federal Government's investment in research and development (Figure 1). Agricultural research, including funding which goes to the Land Grant universities, is only about 0.1 percent of the Federal budget--that's minuscule in comparison to the total budget. Yet the total Federal contribution represents about 30 percent of the funds spent for research and development in the food and agricultural sciences in the U.S.

But research money is discretionary spending, and agricultural research is not seen as having a very big constituency. Part of the problem today is that farmers only make up 2 percent of our population, and many people do not understand how food is produced, processed, and marketed. Less than 35 members of the new Congress are from districts with farm populations greater than 5 percent. This lack of familiarity with agriculture means that when we submit budget requests for research, we are doing so in an environment where the public does not understand the risks and the costs of raising and producing food. This audience often does not make an immediate connection between what it costs farmers to produce crops and what they pay in the supermarket for food. There is sometimes little recognition that a disease outbreak or a decrease in yield ends up directly costing the consumer.

This audience also thinks of agricultural research as only benefitting the grower or producer. Although the sugar beet industry can directly claim only about 35,000 jobs, indirect employment totals almost 89,000 jobs. And the direct and indirect economic value of the sugar beet industry comes to more than \$6 billion. Numbers like these are important when it comes to decisions about how much the Federal Government--USDA--will spend on research.

Today, Federal research dollars are no longer being seen as money spent in the pursuit of knowledge. Instead, research money is being viewed as an investment. Like never before, research is expected to pay off--in the short-term...and the sooner the better. Last June, at a Leadership Training Conference, the Chief of the Office of Management and Budget's Agriculture Branch said that OMB is most easily convinced by budget requests accompanied by strong evidence that the money represents an investment.

Today, people want to know that they are getting something concrete and specific back for the tax money spent on agricultural research. This trend is only going to get stronger.

Magnifying this trend is Phase II of Vice President Gore's National Performance Review. It requires that we question the worth of everything that the Federal Government does. The

question we used to ask was, "Can we do something?". Now a series of more probing questions is being asked: Is this work in the National interest? Does it serve a public good? Can it be done better at the State or local level? Would this program be undertaken by the private sector? Or should this be done at all? If we expect to continue Federal agricultural research at its present levels, we must be able to show what taxpayers are getting for their tax dollars, and that they serve an essential public purpose.

In general, economic studies have documented that public investments in agricultural research show good returns. Returns of the magnitude of 30 to 40 percent have been reported. Often, however, return on investment for Federal agricultural research are not visible or readily apparent. One of USDA's primary contributions to the sugar beet industry, as an example, is the collection, evaluation, and release of new germplasm.

In the past, ARS developed new varieties and released finished ones to the public. It was easy to point to a variety being grown and say, "This was a USDA-ARS variety or release."

But the Federal role has evolved. For the past decade, our emphasis has been on finding germplasm around the world, especially where habitats are disappearing, and preserving it. Then we make this germplasm widely available; industry takes the

germplasm, incorporates desirable traits, and introduces it into commercial varieties. By the time a variety reaches the market, it may only be identified with a commercial company that is making a profit. USDA's germplasm collection and evaluation efforts may not show up as having made a direct contribution. But maintaining germplasm collections and evaluating germplasm is expensive work.

Also, when people DO realize that a specimen from our collection has contributed important genes, taxpayers want to know why they should put money toward an activity that went to improve a private company's bottom line.

But international collection and preservation of germplasm is essential to the long-term economic viability of U.S. agriculture and is an appropriate role for the Federal Government--we are creating and conserving a national resource. We collect, preserve, and evaluate germplasm to ensure that genes for disease and pest resistance are available when we need them--genes that will allow us to solve problems that we can't even anticipate today.

For example, when the sugar beet industry was threatened by Curly Top Virus in the 1960s, USDA was able to help solve the problem by developing tolerant varieties. Thus, the Federal role in sugar beet research centers around two general areas: the

germplasm work I just mentioned and our work conducting basic research on diseases. These are concerns that affect more than one state. In times of tight resources, it would not be an efficient use of resources for each state in a region to have an expert working on the same sugar beet diseases.

By putting work on diseases on a regional and national level, we can get a bigger bang for our research dollar. Research on diseases and in gathering germplasm is also high-risk, long-term work--none of it can ever be guaranteed to have a short-term, direct payoff...which makes it difficult for industry to undertake such work.

Take, for example, USDA work on Rhizomania. It may have been found in just one or two states at first, but now it has been identified in additional areas. We are working on an assay that can identify this disease quickly to take the place of the current method, which takes 6-8 weeks. But we can't guarantee that such a test will be a commercially profitable product. But we certainly need a better tool with which to monitor this disease.

Similarly, virus yellows is a continuing and serious problem throughout the sugar beet industry, including internationally. The ARS Sugar Beet Production Laboratory in Salinas, California, has the only continuous breeding program in the U.S.

significantly devoted to developing yellows resistance. But such research requires the rearing of large populations of aphids and large-scale field inoculations. It's a large investment in research where success comes in small increments.

But because we've been able to take a long-term approach, we ARE having some success. This kind of approach--attacking widespread basic problems--is an appropriate role for the Federal Government.

INTEGRATED PEST MANAGEMENT

In another role, USDA's research is also aimed at helping to support a national policy toward more use of Integrated Pest Management and reduced use of chemical pesticides. The Administration has set an objective of having IPM programs used on 75 percent of the country's acreage by the end of the century--just 5 short years from now.

But if the Federal Government wants IPM used, we also have a responsibility to carry out the research that will make it possible for growers to do so. We must develop and we are developing biocontrol and other techniques that will help make IPM not only scientifically feasible but also economically sensible.

An example of this is our program at the Northern Crop Science Laboratory where ARS scientists are studying naturally occurring biological agents that could combat the sugar beet root maggot. The root maggot damages the sugar beet crop throughout two-thirds of the growing area in the U.S. But developing biological controls is a chancy thing. Again, it is long-term, high-risk research that benefits from the stability that Federal research locations have been able to undertake over the years. Without attendant responsibilities for teaching, consulting, growing a crop, or making a profit, Federal scientists can focus on research that may not fit in where the goals must be more short-term.

TECHNOLOGY TRANSFER

When we carry out research as part of the Federal Government, we are responsible for seeing that the information and technology we develop reaches the grower and producer...but not by creating the product ourselves. This is where the private sector plays a critical role.

Under the Technology Transfer Act of 1986, it is part of our role to make our work available--to complete the research by bringing it to market. To encourage companies to develop something for market, we must be able to license it. Businesses will not

invest in something they cannot protect, or have a proprietary interest in marketing.

The Agricultural Research Service has been a leader among government departments and agencies when it comes to technology transfer. Since the Act was passed almost 10 years ago, ARS has signed more than 450 Cooperative Research and Development Agreements and more than 260 licenses with companies--more than almost any other federal agency.

The products, the jobs, the revenue generated by the products that technology transfer has developed are ways in which we can meet the need to show our return on investment.

INPUT

Choices about what research will be Federally supported are not just made by the Administration or on Capitol Hill. Priorities are set based on the public interest. Just what the public interest is, is decided collectively after input is taken from many different groups.

Scientific groups, growers and users, industry and trade associations, Congressional representatives, policymakers from various levels of the Executive Branch, state and local groups, public interest groups, almost anyone who wants to lay out their version of a priority list are heard.

All of that information is put together and weighed and then we make budget recommendations. Then the Congressional committees continue to receive input until they make a final decision about what research we will do and how much will be spent on it.

You know, I've talked a lot about USDA's involvement in agricultural research, but I don't want to give the impression that only USDA is involved in such work. The Environmental Protection Agency, the Food and Drug Administration, the National Science Foundation, the National Institute of Health, and many other government agencies and departments are also involved in research that relates to agriculture. The Federal contribution to the success of American agriculture, therefore, is substantial.

CONCLUSION

Sugar beet research and breeding in the U.S. has been a model of cooperation between Federal, State, and industry participants. This cooperation exists at many levels. The industry has always provided a high level of support, both financially and through cooperative projects.

When you look at it in terms of the cooperation between Federal, State, and industry, the sugar beet research program IS a good example of how the National Performance Review wants us to view

research programs. The Federal Government ISN'T trying to do it ALL. And we aren't duplicating other group's programs.

It is a synergistic system that has accelerated improved production. The Federal Government is carrying out the long-term, basic research in areas that affect wide regions. And it is supporting the Administration's policy commitments. And private companies are not getting something for free.

The industry is a full partner, investing substantial amounts of their own resources to ensure that this industry remains a viable contributor to the U.S. agricultural enterprise. I can't express my appreciation enough for the kinds of partnerships and support that our programs receive from the sugar beet industry.

And our complementary division is an efficient way for all of us to work together. Thank you.

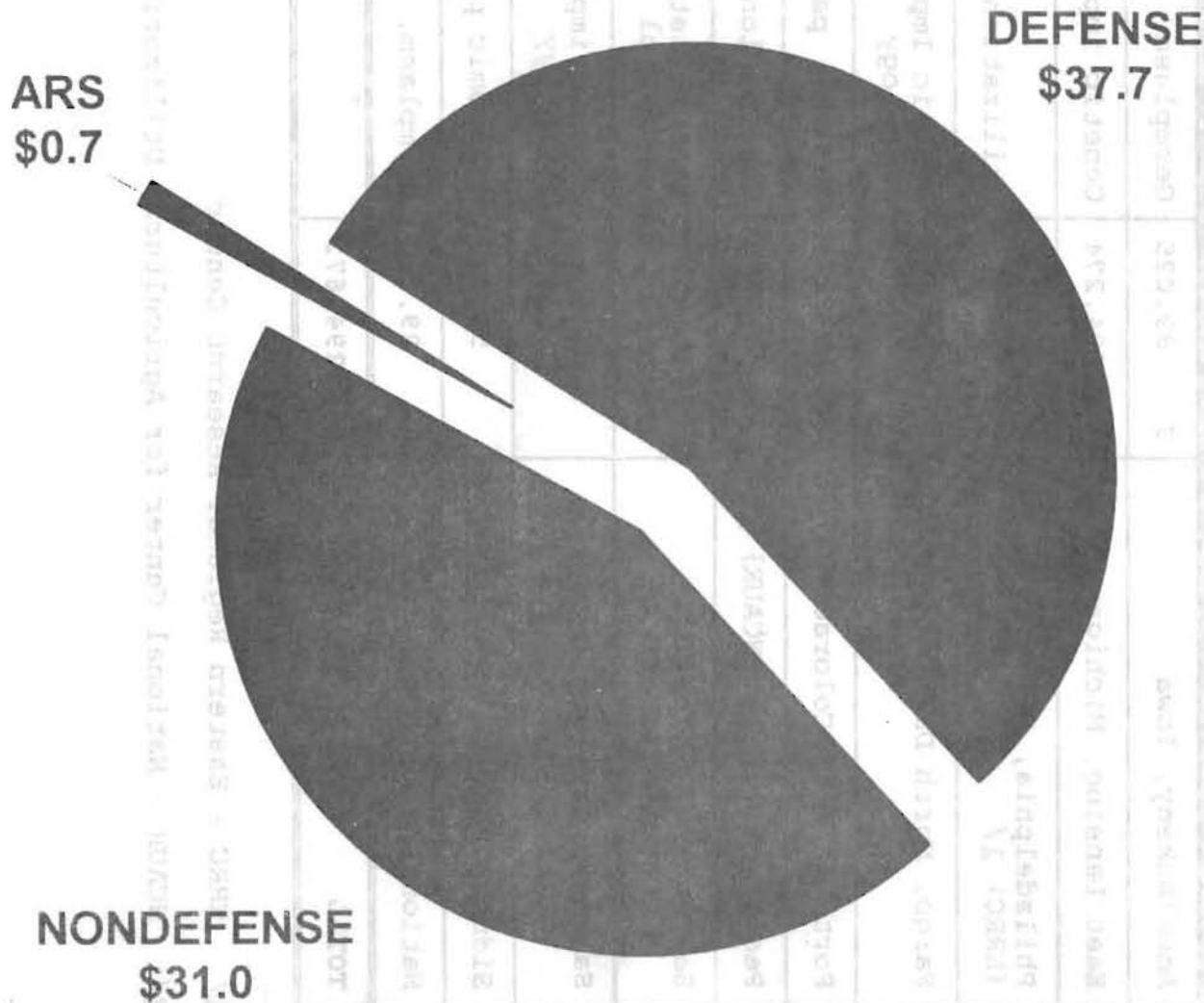
Table 1

LOCATION	FUNDS	PRIMARY RESEARCH AREA
Ames/Ankeny, Iowa	\$ 89,025	Germplasm
East Lansing, Michigan	604,274	Genetic improvement
Philadelphia, Pennsylvania (ERRC) <u>1/</u>	57,420	Utilization
Fargo, North Dakota	989,399	Genetic Improvement, pathology
Fort Collins, Colorado	568,171	Quality, pathology
Peoria, Illinois (NCAUR) <u>2/</u>	100,602	Utilization
Beltsville, Maryland	601,597	Pest resistance, biocontrol
Salinas, California	1,203,848	Genetic improvement, pathology
Sidney, Montana	51,045	Agronomic practices
National Program Staff	29,291	Germplasm, evaluation
TOTAL	\$ 4,294,672	

1/ ERRC - Eastern Regional Research Center

2/ NCAUR - National Center for Agricultural Utilization Research

U.S. GOVERNMENT FY 1996 BUDGET RESEARCH AND DEVELOPMENT (In Billions of Dollars)



TOTAL = \$69.4 BILLION