ADMINISTERING AN EFFECTIVE AGRICULTURAL ENERGY RESEARCH PROGRAM

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Mr. Gavett presented well the differences perceived between ERDA and USDA approaches to energy research. As he indicated, ERDA concentrates on rapid development and early commercial adoption of research-derived technology. USDA and its State agricultural experiment station (SAES) cooperators spend more time researching a topic and solving most technical problems; only then is a project released for information, technology transfer, and commercial adoption.

This difference in approach and the designation of ERDA as the Federal lead agency for energy research has resulted in funding problems for USDA. Specifically, USDA does not receive enough funding from ERDA "pass through" energy research funds to do its traditional thorough kind of research because under the ERDA "rapid development" approach funding is limited, is necessarily short-term, and is without continuity. This implies no criticism of ERDA. At the same time, however, USDA has not been able to fund an energy research project from its own research budget increases because, under the ground rules set by OMB, most funding for energy research must pass through the lead agency. General USDA research funds are heavily committed to other high priority research needs (level funding). In FY 1977, $2.7 million in ERDA energy research funds will pass through ERDA to USDA and cooperative SAES's under the lead agency concept, but these will be the only "new" funds USDA will receive in FY 1977 for energy research projects. We have special difficulty in funding those projects that are partially energy-related. So, we have ended up with a relatively small amount of "continuity" funding for energy-related projects, all acquired by redirection of funds from

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other priority research areas in a period of level research funding--constant dollar basis.

Why do USDA and SAES's specifically need continuing base funding for energy research? The answer is that they must have resources in place to respond to new research needs and to be able to apply incremental funds to their followup; that they must be able to plan and conduct research more effectively; and that they must carry on associated and related research leading to the development of new or modified food production or processing systems that are built around the new energy sources.

But this funding problem is on its way to resolution. I am confident that the ERDA-USDA "Memorandum of Understanding," which Earl Gavett discussed, will do much to solve this. You have noted Secretary Bergland's strong interest in energy research as expressed in his public statements. And we have had recent positive discussions with ERDA officials about the need and responsibility of USDA (and its cooperators) to research the systems adjustments needed to use solar technology in agricultural production and processing.

Meanwhile, there are lessons for us from it. We in the agricultural research community need to seek ways to become more rapidly responsive to high priority national research needs which are partly outside the agricultural sector; especially we must learn how to move new technology, as components of systems, into actual application more rapidly. Becoming more rapidly responsive to priority needs for new technology suggests certain policy changes: applying new techniques in project (matrix) management; improving interagency, Federal-State coordination mechanisms; and finding new and more effective ways of redirecting existing programs and absorbing incremental funding like that received from ERDA. And it

means accepting and working with other agencies and organizations (including working with the lead agency mode); in other words, avoiding a "closed community" attitude in agricultural research.

I agree with Earl Gavett's statements on energy research needs. I would add to those: (a) greater emphasis on irrigation conservation practices, including efficient irrigation scheduling, use of less energy-intensive methods and economic analysis of center pivot versus other systems; (b) greater emphasis on tillage conservation and other energy-conserving crop management practices, especially extension of minimum tillage to the Northern Corn Belt; (c) more efficient use of energy-intensive nitrogen fertilizer, and use of less energy-intensive fertilizer and pest control practices; (d) reexamination of previous work and new research on organic matter and residues; (e) continued work in bioconversion on more precise predictions of role of crop residues in different soil and environmental situations (energy, erosion control, fertilization); (f) development (including economic analysis) and modification of production and processing systems for insertion of new energy sources; (g) analysis of the "biological imperatives" in economic and policy analysis, e.g. the importance of timely planting and harvesting and the associated high demand for and value of energy at these times; (h) more emphasis and research on energy conservation and interfuel substitution on the postharvest side of the food system. USDA-ARS has active research and program responsibilities in all of these areas.

Looking ahead, reclamation research will loom large in our pass-through funding arrangement with EPA and ERDA and in our in-house support with the recent strip mining reclamation legislation.

In closing, I join in Mr. Gavett's challenge to agricultural economists to participate more fully in agricultural energy research. We in the physical and biological science sectors of agricultural research have not solicited your involvement and cooperation as aggressively as we should. There are many interesting research possibilities for you. Your help is badly needed in finding solutions to one of the Nation's highest priority problems.