Critical Challenges Facing Agricultural Research and Education

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In September, we all thrilled to direct broadcasts of photos from Voyager 2 in its close encounter with Neptune and Triton, the coldest spot in the solar system. At practically the same time, ARS scientists were at a conference in Beltsville talking about another new frontier—one that is every bit as mysterious and exciting as outer space—our soil. We are looking at it not simply as a dark, inert medium where we stick seeds and hope for the best, but as a living microcosm, a veritable universe under our feet with its own particular forces.

Soil is the universe which generates the crops which are the basis for agriculture. Agronomy is the study of how we, through science and management, can work with that universe in harmony with environmental and human values and needs. In this day and age, that study is an increasingly complicated one. In fact, we have just launched our own probe into inner space—the plant genome project.

Your theme for this 81st annual meeting is “Charting the Future.” That is no easy task. As the late, great philosopher Pogo once said, “The future just isn’t what it used to be.” It may not be, but it is fast upon us. Like the wording on your car’s rear view mirror, “Objects in mirror are closer than they appear.” I want to spend my time with you today talking about some of the critical challenges I see facing agricultural research and education in that fast-approaching future. I will discuss externalities, competitiveness, demand enhancement, regulation, food safety and nutrition, human capital, industry and university policies, funding, and the National Initiative for Research on Agriculture, Food and Environment.

EXTERNALITIES

Over the years, I have concluded that if we truly want to understand the motivating forces at work in the research to improve agriculture and its products, we need to go beyond a simple preoccupation with science. There are powerful externalities which create policy and which often have both positive and negative effects upon agricultural research and education.

These externalities affect not only the way in which we look at our research and education but also the direction of our research. Do we work and the direction of our research.

COMPETITIVENESS

Looking at the current national focus on agricultural competitiveness and our trade deficit, these concerns are pushing research to play a vital role in such areas as diversity, alternative crops, reduced production costs, and enhanced product quality. For example, through research, we can develop products which are more appealing to consumers and more nutritious. To respond to consumer demand, animal meats will be genetically engineered to contain less fat, more nutritious. To respond to consumer demand, animal meats will be genetically engineered to contain less fat, meats will be genetically engineered to contain less fat, and plants to contain more essential nutrients. We need to increase the protein content of soybeans, and the protein content of soybeans, and plants to contain more essential nutrients. We need to increase the protein content of soybeans, and enhanced product quality. For example, through research, we can develop products which are more appealing to consumers and more nutritious.

Not only are we trying to improve our products as they reach the overseas consumer, but we are concerned about main-