

# **National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board**

**March 18-20, 2008 - Doubletree Hotel – Washington, DC**

## **Educating the Future Work Force for Agriculture, Natural Resources and Related Areas**

### **BACKGROUND**

The fall, 2002 NAREEE focus session on “Workforce Development for the Food, Agricultural and Natural Resources System” produced an outcome that stated: “The vitality of United States agriculture depends upon a well prepared and available workforce for the wide array of its enterprises.” This urgency for the United States Department of Agriculture (USDA) to examine its responsibility toward assuring a well prepared workforce was communicated to Secretary Veneman in January of 2003. The urgency still remains as Secretary of Agriculture Ed Shafer communicated the seriousness of the existing gap of graduates in agricultural related fields to the availability of jobs during the NAREEE Advisory Board meeting in March, 2008. Currently, there are 49,000 graduates for the 52,000 jobs available in the agriculture related fields and the gap will widen as baby boomers begin to retire. Thomas J. Hoogheem, University Relations, U.S. Branded Business from Monsanto Company communicated that 21% of the company’s current personnel will be eligible for retirement within the next five years, thus confirming the immediate need for creative solutions in attracting more students. The objectives of this session were to identify:

- 1) What the agricultural community can do to attract more students into the agriculture, natural resources and related areas and
- 2) What changes are needed by the universities, USDA, and others to ensure we are training students for industry’s needs now and in the future

Based on the presentations by personnel from the USDA agencies, non profit organizations, higher education, corporations and young professionals, the solution to narrowing the gap extends beyond the realm of classroom education. With the continuing decline of farms in the U.S., the general public does not understand the breadth or depth of agriculture or the potential challenges for our agricultural system in the 21<sup>st</sup> century. The significance of changing this view of agriculture, *whether it is perceptual or realistic*, is critical to understanding the gap that exists between the availability of students for the current job demands. In order to engage students in the field of agriculture, it will be important to understand the underlying image of agriculture by the general public and broaden educational efforts at all levels through a contemporary lens, focusing on the relationship of agriculture and its importance to each individual’s health, environment, and economic sustainability.

## RECOMMENDATIONS

### 1) Create a new brand and image for agriculture.

In 1996, then Secretary of Agriculture Dan Glickman met with the NAREEE Advisory Board Chairman Victor Lechtenberg, charging the Board with the task to recommend a mechanism by which USDA could improve public understanding and appreciation of food and agriculture as well as communicate clear messages to the public about the benefits of agricultural research on their quality of life. Among the NAREEE Advisory Board recommendations were *that the Department of Agriculture focus on achieving defined communication goals that included improving the science literacy in consumers and policy makers and regain/establish public understanding of and commitment for agricultural education and research.* Solutions to addressing these issues included a major public awareness campaign, commitment of Departmental leadership and line employees to quality, effective communication, and utilization of modern information technology. Twelve years later, the need to modernize the image of agriculture remains critical, recognizing the continuing need to educate the public about the depth and breadth of present-day agriculture and its relevance to human existence. Entities within the agricultural field must recognize that the term “agriculture” is too narrow and self-limiting when communicating the message to potential students and their families. Twenty years ago, the Farm Foundation surveyed high school students and their parents about agriculture as a possible college major and the results were significantly negative. To date, the trend, although lessened, has not reversed. The connection of agriculture and its impact on the future of the nation’s trade, economical and health status must be integrated throughout the educational system, from pre-kindergarten through college. Establishing the agricultural connection with the consumer’s desire for sustainability and affordable food and fuel will help elevate the image and connectivity, a connectivity that has been lost with the declining rate of established family farms.

Expanding existing programs such as 4-H and Ag in the Classroom in more diverse settings to increase the pool of potential students for further job opportunities is a distinct possibility. It is important for students to understand the connectivity of what they eat and wear, and the available fuel for their cars to the world of agriculture. The 1940s model of agriculture no longer exists in the real world, but it is important that this message is communicated to the future workforce as they explore career opportunities. Another potential mechanism to attract students is developing additional grant, fellowship, and/or assistantship programs for students majoring in agriculture or closely related fields to gain real world experience while still in school.

### 2) Enhance technical and practical experiences for the future workforce.

The Board commends USDA Cooperative State Research, Education, and Extension Service (CSREES) for the success of the Agriculture in the Classroom (AITC) program and recommends reallocation of funding to increase its distribution and visibility.

Increased funding would allow greater distribution of materials and enhanced classroom teacher awareness –a fundamental step in elevating the image and connectivity of agriculture to today’s society.

*Agriculture in the Classroom (AITC)* is an educational program that promotes agricultural literacy among the nation’s K-12 student populations. AITC programs operate independently throughout the states, using various funding mechanisms including the approximately \$600,000 of federal funding (depends on the federal budget). The AITC website, teacher resource materials and student activities are available to all teachers and students but the financial support can be a barrier. It was emphasized during the focus session that adding career path resource materials to the teacher’s guides in existing programs such as AITC would promote early student recruitment. Using envisioning exercises, exchange of ideas with different industry sectors and cross functionality will enable students to understand and develop skills essential in career paths. The young professionals representing food science, farm credit and agriculture policy expressed their concerns about attracting and educating the future workforce in agriculture. Their observations/ recommendations included:

- The attitude and perception of the agricultural industry by the general public is waning.
- Engage youth in science and math to prepare for agricultural careers, connecting both subject areas to the environment and the food source.
- Infuse the farm-food connection throughout the regular curriculum (farm tours, youth organizations).
- Promote training in economics and business as foundations for agricultural careers.
- Create opportunities for youth from all demographic backgrounds to become involved in agricultural based professional organizations (Agriculture Future of America (AFA), 4-H, The National FFA Organization (formerly Future Farmers of America) (FFA)).

Dr Robert Easter, the dean of the College of Agricultural, Consumer, and Environmental Sciences, University of Illinois, reinforced the needs of attracting and educating the future workforce. His recommendations on attracting and enhancing the technical and practical experiences of students in agricultural related areas included:

- Recognize the importance of urban extension programs as a connector to inspire and educate the public and youth in agricultural related fields of study.
- Begin early to educate youth, their parents and school counselors through the various venues of established programming (4-H, AITC).
- Capitalize on the growing awareness and media coverage of food cost/shortages, food security, and food safety.
- Develop an evolution of private support for education in agriculture. Create, encourage and search for internships/fellowships within agricultural industries.
- Recognize the need to educate international students in agriculture and related areas.

The NAREEE Advisory Board encourages USDA to invest in producing materials that clarify key linkages between and among the current high profile science & technology fields such as

genomics, nanotechnology, food and nutrition sciences, remote sensing satellite technology and high performance computing.

### **3) Leadership development at all ages and all levels of the agricultural/food systems is critical.**

The Board supports leadership programs such as AFA, FFA, 4-H and other similar youth professional organizations to address preparing the future workforce.

Thomas J. Hogheem, Monsanto and Conrad Rebello, Pepperidge Farms emphasized that their recruitment of prospective employees goes beyond the technical and functional knowledge and experience needed for a specific area. Skill sets in leadership, communication, people and project management are paramount in selecting the best candidates for their companies. It will be important for higher education institutions to develop collaborative partnerships with private industry as well as professional trade organizations to broaden opportunities for students.

Increased global competition for future workforce talent places an even greater need for the existing youth professional organizations and higher educational institutions to work in developing a pipeline of students. Combining the technical skills with leadership development skills will strengthen the available educational opportunities for students throughout the continuum of learning.

## **SUMMARY**

Creating a new brand or image for agriculture encompasses several different aspects. One approach is to actively associate products, ideas, concepts, items, processes, etc. with agriculture, rather than attempting to link agriculture to a variety of scenarios after the fact. It is important to recognize the existing need to educate the public about the depth and breadth of present-day agriculture and its relevance to human existence. The term “agriculture” itself is too self-limiting. Ten years ago, the American Association for the Advancement of Science re-branded its “Agriculture” section. The new title “Agriculture, Food, and Renewable Resources” more accurately reflects the content in the section, and the association of agriculture to more than simply farming. No resistance was found in the renaming process, which is indicative of the society’s recognition and support of the necessary change.

The Cooperative State Research, Education, and Extension Service “Agriculture in the Classroom” program is an excellent educational program that promotes agricultural literacy in K-12 classrooms. With increased funding as a result of funds reallocation, the AITC program could be farther reaching. The result of the classroom learning about agriculture can carry through to post-secondary training, as was evident by the young professionals who spoke at the meeting. Broader distribution of materials and enhanced classroom teacher awareness could alleviate the waning attitude and perception of agriculture, as well as engage youth in science and math to prepare for agricultural careers by tying both subject areas to the environment and agricultural fields. The Board encourages USDA to invest in producing materials clearly linking

agriculture to high profile fields such as nanotechnology, genomics, health science, food and nutrition, remote sensing satellite technology, and energy sciences.

The support and development of leadership skills were heavily emphasized by industry representatives. In the competitive marketplace, employers are not only looking for job skills, but also leadership and team-building skills in new employees. Combining technical skills with leadership development skills will strengthen the available educational opportunities for students throughout the continuum of learning, and prepare them to be competitive in today's global marketplace.

It is apparent that a wealth of materials and programs exist on the diversity of agricultural careers. However, to attract the future workforce necessary for today and the future, USDA, in cooperation with land grant colleges and universities and other institutions must address the branding and image of agriculture as a priority. Enhancing the connections between agriculture and current food and nutrition, health, natural resources, energy and sustainability topics in traditional classroom and extension education programs, will allow students the opportunity to view agriculture and related areas through a contemporary lens and see the real time opportunities for the future.