

Effectiveness of Research, Extension and Economics Programs for U.S. Specialty Crops

Annual Report and Recommendations of the Specialty Crop Committee

of the

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

Fiscal Year Ending September 30, 2008

The National Agricultural Research, Extension, Education and Economics Advisory Board (NAREEE) Specialty Crop Committee is assigned the task of studying the scope and effectiveness of the research, extension, and economics programs affecting the U.S. specialty crop industry. The objective is to determine how effective these programs are in assisting it in achieving long-run industry sustainability.

The Specialty Crop Committee met on August 28-29, 2007. In particular, the committee sought regional input on high priority research and education issues focusing on “Measures to Improve the Efficiency, Productivity and Profitability of Specialty Crop Production in the United States” and “Measures Designed to Improve Competitiveness of Research, Extension, and Economics Programs Affecting the Specialty Crop Industry.” Stakeholder comments were requested on two or three of the most important issues facing their industry segments and solicited perspectives which the U.S. Department of Agriculture (USDA) can use to enhance its research, extension, education, and economic programs to address the needs of the nation’s specialty crop sector.

In the introductory phases of the listening session, the Committee heard about features included in the then proposed Farm Bill which were directly related to the Committee’s charge from California Congressman Dennis Cordoza, Chairman of the U.S House Agriculture Subcommittee on Organics. USDA Undersecretary for Research, Education and Economics, Dr. Gale Buchanan pointed out that the proposed *mandatory* funding for specialty crop research would be a first.

USDA Cooperative State Research, Extension and Education Service National Program Leader Tom Bewick informed the Committee about a recent workshop addressing engineering solutions for specialty crop challenges. These involve using robotics, geographic information systems and engineering in combination to deal with issues in spraying, pruning and harvesting mechanization. He also reported on an internal Research, Education and Economics Specialty Crop Research Initiative Implementation Planning Team (SCRIIPT) created to explore how to more effectively use any new research funding as well as prioritize research needs for currently available funding.

Dr. Sally Schneider, Program Leader in the Agricultural Research Service, USDA informed the Committee about several recent and upcoming workshops they had sponsored to explore research status and needs related to topics in human nutrition, leafy greens and vegetables. She also reported on a successful effort by SCRIIPT group to identify goals for new funding which

may become available. They have been able to get good input from the specialty crop grower community but not from the processing industry.

The Committee then heard from representatives of various segments of the specialty crop industry, engaged in question and answer exchanges with them and subsequently formulated its recommendations.

The Committee acknowledges and commends the USDA on making a \$4.1 million grant on July 17, 2008 to fund research on Colony Collapse Disorder and other diseases affecting bees which are critical pollinators of some specialty crops. The Committee also commends the USDA on quickly implementing the Food, Conservation and Energy Act of 2008 provisions on research and extension projects by making available \$28.4 million for projects in fiscal year 2008, as announced July 18, 2008. These actions indeed start to address a number of the issues highlighted in this report.

KEY RECOMMENDATIONS

The Specialty Crop Committee recommends continued funding for research focusing on Colony Collapse Disorder (CCD) in honeybees. Honeybees play a critical role in the success of the specialty crop industry in particular. The rapid decline in the bee population could have serious implications for the industry. The Committee strongly recommends that research on the possible causes and development of potential solutions for CCD be pursued by the Agricultural Research Service (ARS) through its own research proposals and that the Cooperative State Research, Education and Extension Service (CSREES) provide funding for university research in this area.

The Committee urges USDA to increase the investment in research, extension and education for the specialty crop industry. Providing convincing data to producers and industry groups may help them make a case for additional industry or other non-USDA funding. Further, the decline of public scientists and extension specialists associated with specialty crops is cause for concern. There are currently approximately half as many researchers and less than half as many extension personnel as existed in 1971. An increase in the investment in research and extension may help entice researchers to refocus on specialty crops and/or attract young professionals to the field.

ADDITIONAL RECOMMENDATIONS

1. Measures to Improve Efficiency, Productivity, and Profitability

The Committee encourages the REE mission area agencies to pursue analysis of the impact of efforts to reduce greenhouse gas emissions. California recently established a goal of returning to the 1990 greenhouse gas emission levels by the year 2013. It is important that economists work

with biologists and other experts to look at the costs and the benefits—economic, agricultural, environmental, and human—of the reduction of greenhouse gas emissions. Climate change will continue to have an impact on agriculture and the economics of ecology, carbon sequestration, etc. Analysis and projection of these impacts may form the basis for important decision-making in the near future.

With the increase in land development and the tension surrounding rural-urban interface issues, it is apparent that there is a need to nationally assess the amount of agricultural land being developed and the potential this creates for conflicts with non-rural neighbors. Among other concerns, land development causes competition for road space for farm vehicles. Further research is needed to fully investigate the issues surrounding the rural-urban interface. Potential remedies may be developer fees being used to reimburse farmers and encourage them to not sell property for development, thus indirectly decreasing the environmental impacts of land conversion. Federal funding may also be necessary to develop plans for land use and transportation infrastructure coordination. It must be determined how to plan policy that does not provide unintended incentives to further develop agricultural land. It is also necessary to educate newly-relocated urban residents about the importance of agriculture and their farmer neighbors.

In the specialty crop industry, producers need further education and encouragement from extension personnel to demonstrate the importance of planting more than one variety of any given crop. Planting a single variety can lead to serious problems including decimation of the industry should a disease or pest invasion occur. An assortment of varieties planted worldwide could contribute to ongoing germplasm reserves. Further research should also be considered to develop genetically stronger, more pest- and disease-resistant varieties of specialty crops.

The Committee encourages the Economic Research Service (ERS) to consider conducting an economic analysis of the impacts of proposed legislation clamping down on illegal immigration, and the potential increase in labor costs to specialty crop producers.

2. Measures to Increase Competitiveness in Research, Extension, and Economic Programs

The Committee commends CSREES and ARS for incorporating industry input into their planning activities. The Committee suggests that CSREES and ARS direct some of the focus in their respective specialty crop programs, particularly the Specialty Crop Research Initiative Program on broad systems-based approaches to increasing specialty crop competitiveness in the agricultural industry.

The Committee recognizes that there is a common list of issues and concerns associated with the specialty crop industry regardless of geographical location. It is a challenge to address these issues (inputs—water, land, chemical, pesticides, fertilizer, etc.; labor, food safety) outside the REE mission area. However, the Committee urges REE agencies to try to engage or collaborate with other USDA agencies to address some of the concerns.

3(A). Enhance Quality and Shelf-life, Taste and Appearance

No new issues were identified.

3(B). New Crop Protection Tools and Integrated Pest Management

Pesticide registration continues to be of great importance to the specialty crop industry. Ensuring that new pesticides are being developed and are readily available for use on crops is particularly important in developing successful integrated pest management programs. Additionally, further research is needed to continue seeking alternatives to methyl bromide. It is equally important for researchers to investigate ways to mitigate environmental impacts of on-farm practices.

3(C). Prevent Introduction of Foreign and Invasive Pests and Diseases

Invasive species are a fact of life in the current global economy, despite inspection protocols and regulations. One critical element in preventing the introduction of foreign and invasive pests and diseases is being proactive in anticipating and predicting potential invasions before they occur. To do this requires careful, diligent monitoring of surrounding and other countries exporting to the United States and ongoing trends. Research is needed in pest risk analysis to identify where to concentrate resources for preventing entry and for isolating new invasions.

The next step in the process is to investigate and develop new bio-control agents to eradicate pests once they are detected. Control measures must be taken swiftly, to prevent the spread of the pest or disease throughout the geographical area. The current approach is primarily reactive rather than proactive. The recommended research in bio-control methods should focus on pests that are not yet invasive in the U.S., to better prepare for their arrival. This systematic approach to preparing for the pests ahead of their potential arrival is especially important due to the prevalent nature of such pests in countries conducting trade with the U.S.

Further research is also necessary to develop better detection techniques and tools. USDA's ARS, Animal and Plant Health Inspection Service (APHIS) and Natural Resource Conservation Service (NRCS) should consider working jointly to accomplish this research using an integrated approach.

3(D). Develop New Products and New Uses

No new issues identified.

3(E). Develop New and Improved Marketing Tools

No new issues identified.

3(F). Enhance Food Safety

There are still many unanswered questions regarding how fruit and vegetable producers, livestock producers, and wildlife can co-exist in a manner safe to human health and to an

untainted food supply. Conservation and biodiversity practices are beginning to conflict with food safety concerns.

The core of the food safety issue is microbial contamination. The recent outbreak of E. coli in spinach reinforces the concerns surrounding the development of management practices to minimize contamination. Additional research focusing on the medical ecology of pathogens may offer real opportunities to better control them.

Extension materials regarding food safety and safe management practices need to be translated into languages other than English so that they may be used and understood by farm workers.

It is important to better understand the economics of the risks associated with various management practices. Because outbreaks are sporadic, there hasn't been much success in defining useful metrics, or sufficiently sensitive tests to determine incidences to develop distribution curves to use in future mathematical modeling of risks. Economists should be involved in this process.

3(G). Improve Mechanization of Production

Labor issues pose a tremendous challenge to the competitiveness of the U.S. specialty crop industry. Labor replacement in the form of improved harvesters, planters, sprayers and labor assistive devices requires research on both mechanization and plant breeding. Mechanization of some tasks may also reduce food safety contamination concerns. Plant breeding research is necessary to ensure that the plants are physically more compatible with mechanized cultivation and harvest. The integration of plant breeding techniques and mechanization may take place in universities and in USDA.

Almonds are an example of one such crop in desperate need for mechanization. Peach and apricot producers also lost significant production to Greece and Turkey, respectively, due to U.S. labor losses and inability to resolve the problem with a mechanized solution.

3(H). Enhanced Irrigation Techniques

It is critical that the specialty crop industry achieve more intensive water use in orchards and in post-harvest handling chains through research to enhance water use efficiency in the industry. Food processors in California in particular are being affected by water concerns. A typical canning operation, for example, uses between 1 and 3 million gallons of water per day in processing. Sixty percent of that water is recycled to land for irrigation, but there are still concerns about managing salt, nitrogen, and other wastewater contaminants. The processors contribute less than 1% of the salt problems in the environment, but represent a big target for environmentalists and others. Further research needs to be conducted to develop better wastewater treatment and handling processes to make it cleaner for recycling onto fields.

Specialty Crop Committee

Dr. Walter Armbruster, NAREEE Advisory Board Member; President Emeritus, Farm Foundation, *Chairman*

Mr. Dan Botts, Director, Environmental and Pest Management Division, Florida Fruit and Vegetable Association

Dr. Nancy Creamer, Director, Center for Environmental Farming Systems, North Carolina State University

Mr. James Lugg, NAREEE Advisory Board Member, President, Trans-Fresh Corporation and EVP-Fresh Express

Mr. Matt McInerney, Executive Vice President, Western Growers

Mr. Craig Regelbrugge, Senior Director of Government Relations, American Nursery and Landscape Association

Dr. Mary Wagner, NAREEE Advisory Board Member and General Manager/Chief Science Officer, Mars Botanical