Organic food sales have tripled in the United States over the last decade, and industry analysts project that this fast-paced retail growth will continue into the next decade. At the direction of Congress, USDA played a key role in market development by establishing national organic standards and enforcing them. USDA’s Strategic Plan recognizes the important potential of the organic economy and envisions 25 percent growth in US organic businesses from 2009-2015. We are building technical assistance, conservation programs and other measures to assist organic producers. Research on organic farming systems will also play a crucial role in supporting the growth needed for organic production to meet the fast-growing demand.

On March 16-18, 2011, USDA held a major conference in Washington, DC, to examine findings from research on organic farming systems, including many longstanding projects. Researchers from over a dozen universities and other research institutions presented empirical findings on the agronomic, economic, ecological, and quality-of-life performance of organic farming systems. Researchers from both within and outside of USDA presented findings on organic farming systems.

The papers in these proceedings are organized into the main topics represented at the conference—research findings from long-term experiments, research findings from producer surveys, and organic research activities in USDA. Three keynote presentations are also included in the proceedings. Reganold’s opening keynote presentation tackles the issue of how we measure and compare the impacts of alternative farming systems. He examines the use of particular metrics and integrative research approaches, and notes the expanding set of parameters being used as well as the expanding set of opportunities for organic systems research.

The first group of papers examines the agronomic, economic, and ecological findings from long-term organic cropping systems experiments in different parts of the US—Iowa, Minnesota, Maryland, and Pennsylvania. All four papers present evidence that organic corn and soybean yields can be competitive with conventional systems, and can out-compete conventional systems in terms of profitability. Delate’s results from the Iowa State University’s Long-Term Agroecological (LTAR) experiment also show higher levels of soil organic carbon, total nitrogen, and extractable potassium and calcium in the organic systems. Coulter also finds higher levels of particulate organic matter and potentially mineralizable carbon in the organic systems in the University of Minnesota’s Variable Input Crop Management Systems trial.

Cavigelli’s perspective piece examines the USDA’s Beltsville Farming Systems Project in Maryland, which was established in 1996. This trial has three organic grain cropping systems that differ in crop rotation length and complexity. Research findings show that increasing cropping system diversity improves the agronomic, economic, and environmental performance of organic systems. In his perspective piece, Moyer examines research findings from
Rodale Institute’s Farming System Trial, which has compared organic and conventional systems since 1981. Moyer argues that it is time to embrace new, economically-viable organic production strategies to improve the health of the soil, use less energy, release less greenhouse gas into the atmosphere, and help mitigate the impacts of a changing climate on crop production.

In the second group of papers, economists compare organic and conventional systems based on data from a nationwide USDA survey of producers. In 2005, USDA started including targeted samples of organic producers in its major annual economic survey. McBride used data from the USDA survey of soybean producers in 2006, and found that total economic costs for producing organic soybeans were higher and yields were lower—partly due to the predominance of food-use varieties in organic production—but price premiums made organic production more profitable in 2006. Taylor compared two methods of estimating the production costs of organic and conventional apple producers in the US using data from the USDA’s 2007 survey. She concluded that in Washington State, where both conventional and organic apple production is concentrated, production costs are not much higher for organic producers than for conventional producers.

The third group of papers discusses the organic research and outreach activities underway in USDA’s research, education and economics agencies. In her introduction, USDA Chief Scientist Woteki notes that organic systems offer significant potential for helping to address the agricultural challenges of our time. This section offers a window into some ways that USDA science programs are exploring that potential.

According to Smith, organic research is currently taking place in approximately 20 percent of USDA’s Agricultural Research Service (ARS) research locations across the United States. Smith notes that many of the results from ARS organic research can be applied to conventional systems and vice versa. Research from USDA’s Economic Research Service (ERS) shows that growth in the organic sector has been driven by consumer demand and Greene indicates that ERS has expanded its portfolio to include research on organic supply chains and consumer characteristics. USDA’s National Agricultural Statistics Service conducted the first-ever nationwide survey of organic producers in 2008, according to Buysse, and is collaborating with ERS to include organic samples in USDA’s annual economic survey. O’Reilly describes the major programs that USDA’s National Food and Agriculture Institute uses to fund extramural organic research, and indicates that these programs have expanded substantially in recent years.

The last set of papers examines organic agriculture and sustainability. In the first paper, Constance examines some of the social dimensions of organic agriculture. According to Constance, organic food production began as a social movement in the US many decades ago, but the tenor has changed substantially in recent years with the entry of large firms. In the final paper in the Proceedings—the closing keynote presentation at the conference—Scialaba widens our focus to examine organic agriculture’s contribution to sustainability from an international perspective. She discusses a number of studies that examine the positive impacts of organic agriculture on soil fertility, energy use, and greenhouse gas emissions. Scialabba also notes the contribution of organic agriculture to social well-being and intergenerational equity through avoided harm and healthy community development.

Most of the conference sessions were streamed live by eOrganic—an online extension service supported by USDA—and are archived at http://www.extension.org/pages/33545/usda-2011-organic-farming-systems-conference-webinars.

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