Supporting Organic Agriculture in USDA’s National Institute of Food and Agriculture (NIFA)

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The purpose of this article is to briefly describe how NIFA’s research, teaching, and extension investments in the three programs focusing on organic agriculture were apportioned to geographic areas, agricultural commodities, and topics from 2002-2011. NIFA investments in other competitive and non-competitive programs supplement this funding to some extent. However, most NIFA organic agriculture funding (Fig. 1) can be traced to the Organic Transitions Program (ORG), created by the 1998 farm bill and originally funded at $500,000 annually; and the Organic Agriculture Research and Extension Initiative (OREI), created by the 2002 farm bill and originally funded at $3 million yearly. In 2009, ORG funds were combined with funds from another NIFA program, the Integrated Water Quality Program (IOWQP), to focus on environmental services. In 2009, funding for OREI increased to $18 million, followed by funding of almost $20 million from 2010 through 2012. ORG funding changed in 2010 to $5 million and then to $4 million in 2011 and 2012. IOWQP was only offered in 2009, but the environmental services focus continued in ORG and was removed from OREI in 2011 and 2012.

Fig. 1. USDA 2002-2011 OREI, ORG, and IOWQP funding.
NIFA’s investments in competitive programs are guided by priorities in the request for applications (RFAs) and awardees are selected through a rigorous peer review panel process based on relevance and scientific merit, among other factors. Only a small percentage of applicants receive NIFA awards: 26 to 47% and 8 to 16% for ORG and OREI respectively, from 2010 to 2012. Thus it is interesting to examine the extent to which the geographical distribution of these awards (Fig. 2) reflects the geographical distribution of the organic industry (1) (Fig. 3).

Most states have received at least one NIFA research award, but institutions in the Midwest, North Atlantic, and Pacific West regions (Fig. 2) have been the most successful. These three regions also led the US in organic sales in 2011 (1) (Fig. 3) with over $2 billion in sales in the Pacific West region, followed by over $519 million in sales in the Midwest region and over $340 million in sales in the North Atlantic region.

![Fig. 2. USDA 2002-2011 OREI, ORG, and IOWQP funding totals by ARS region, in millions of dollars. Note that the regional totals do not reflect even distribution between states.](image)

Similarly, the emphasis on fruits and vegetables in the distribution of awards to specific crop commodities (Fig. 4) reflects their importance to some extent. Markets for organic vegetables, fruits, and herbs have been developing for decades, and fresh produce was the top category in 2008 retail organic sales (2). From 1995 to 2008, certified organic fruit and nut production acreage rose from zero to 121,066 acres or 3.15% of total cropland (2). Organic carrots accounted for 13% of all US carrot acreage, the highest of any major commodity, followed by lettuce at 8% and apples at 5%. Although organic grain and oilseed crops represent only a small fraction of total US acreage: corn (0.2%), soybeans (0.2%), and wheat (0.7%) projects were funded to address a shortage of organic feedstocks or because of regional interests in niche markets, such as bread wheat for the northeast. The need for feedstocks for organic livestock is increasing because of growth in the dairy and egg sectors, which now constitute 2.7% of all dairy cows and 1.4% of all layer hens (2). NIFA organic programs have also funded a considerable number of studies on animals and animal systems, although not nearly as many as have been funded on plants and plant systems (Fig. 5). Other areas that have been supported consistently are natural...
Fig. 3. Organic Sales by ARS region in 2011, in millions of dollars. Note that the regional totals do not reflect even distribution between states (1).

Fig. 4. Crops studied in the OREI, ORG, and IOWQP program between 2002-2011. Each bar represents the number of times the crop was listed as a Subject of Investigation.
Within these geographical and commodity emphasis areas, the approaches taken have evolved. Most awards build on previously funded projects to improve production systems, include new crops, use more sophisticated or novel approaches, and to create regional and national collaborations. For example, an early award created the Organic Seed Partnership to address stakeholder concerns about the availability of high quality seed for organic farming systems. The concept of a national network for farmers to access seeds was further developed in a 2009 partnership between universities and the Organic Seed Alliance to expand organic vegetable breeding and outreach through the Northern Organic Vegetable Improvement Collaborative (NOVIC). OREI has also supported collaborative, grower-focused breeding projects for hops, grains, carrots, and quinoa.

Marketing and profitability studies have also evolved and have often been integrated with production and management studies. For example, a 2004 study on the profitability of northeast dairy farms found they were more profitable than comparably sized conventional dairies, but the price of feed, which was up 70% from 2005 to 2007, was a major limitation and many farmers were interested in raising their own grains to reduce costs. Awards were made to improve organic grain production for the northeast and southeast as well as to reduce off-farm grain inputs on northeast organic dairy farms. Other strategies to reduce feed costs and improve organic dairy profitability include a 2009 award to study the economic, production and environmental outcomes from pasture supplementation on organic and conventional dairies.
Fruit production (Fig. 4) has been another focus area of evolving objectives, with at least one award every year since 2004. Topics include replant disease, fire blight, season extension, integration with animal production, nutrient availability, increasing adoption in the northeast, and weed management.

In summary, 2002-2011 OREI, ORG, and IOWQP awards covered a wide range of geographical areas, crops and livestock, and subject areas. These have reflected not only the geographical and commodity distribution of the organic industry, but also the evolving interests of the organic community (3) in improving practices and resources for specific regions, crops, and livestock systems. Integrated, systems-based approaches to weed and pest management, tillage, nutrition, and environmental services, as well as ongoing consideration of stakeholder input, have characterized most studies. For further information on specific awards funded during this period, please consult the CRIS system: cris.csrees.usda.gov.

Resources