

TAKING STOCK:

ANALYZING AND REPORTING

ORGANIC RESEARCH INVESTMENTS, 2002 - 2014



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OREI PROJECT 2014-05348 ORGANIC FARMING RESEARCH FOUNDATION FINAL REPORT

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EXECUTIVE SUMMARY

The Organic Farming Research Foundation (OFRF) analyzed 189 organic agriculture research, education, and extension projects funded by the USDA Organic Research and Extension Initiative (OREI) and Organic Transitions (ORG) competitive research grant programs from 2002-2014. This assessment provides information on the progress these programs have made in addressing critical research needs as well as recommendations for enhancing program efficacy. To evaluate the projects, we reviewed

Key Research Questions

Have OREI and ORG addressed organic producers' research needs?

Were producers and other stakeholders effectively engaged as partners in funded research projects?

Did the projects yield practical outcomes for organic farmers, ranchers, and processors?

Were project outcomes effectively delivered to farmers, researchers, farm advisors, other end users, universities, producers' organizations, and other entities?

the project abstracts in the USDA Current Research Information System (CRIS) database, further explored 47 selected projects by visiting project websites and other sources, and conducted interviews with principal investigators (PIs) and farmer participants.

Results

With a total investment of \$142.2M during 2002-2014, the OREI and ORG programs have developed a substantial body of research-based information on a range of organic farming topics. Many projects delivered valuable information and tools

to organic producers, while others laid groundwork for future outcomes, including research data, new methods, and advanced plant breeding lines. OREI and ORG represent a long-term investment that needs to be sustained with increased funding, as well as refinement of program administration and delivery.

Funding by region and entity

Of the four USDA regions, the North Central region received the most OREI and ORG funding (35%), followed by the Northeast (26%) and Western (25%), and the Southern region the least (14%). Primary funded entities consisted mostly of 1862 Land Grant Universities (90% of funding), with USDA Agricultural Research Service (ARS) receiving 8%, and other entities 2%. However, many projects included 1890 Land Grants, other universities and colleges, nongovernmental organizations, and other entities as partners.

Funding by amount

During 2002-2008, most OREI and ORG awards ranged from \$250K to \$750K. From 2009-2014, OREI funded larger projects, with awards over \$1M representing 81% of funding. During those years, OREI also offered small grants (up to \$50K) for conferences and project planning.

Funding by commodity

About three-quarters of OREI and ORG funding supported research on organic crop production, with the remainder going to livestock, crop-livestock systems, and general topics (Figure 1). Crop studies addressed a wide range of agronomic and specialty crops, while livestock studies emphasized dairy, which accounts for 20% of US organic sales. Rice, cotton, tree nuts, cut flowers, herbs, beef, and pork were under-represented relative to their importance in US agriculture and commerce.

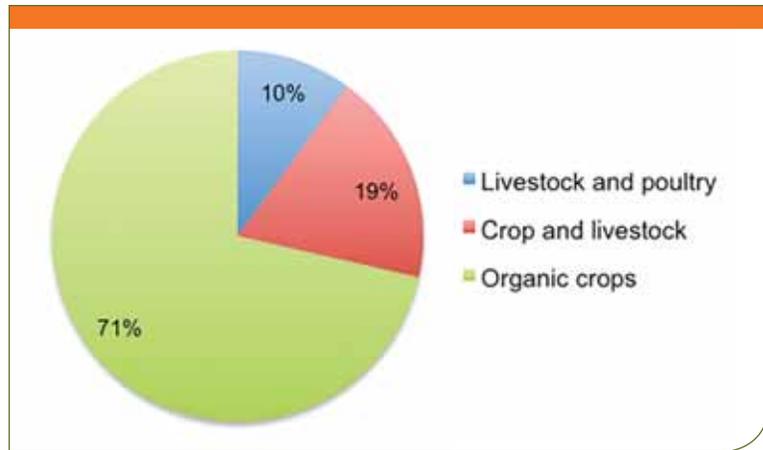


FIGURE 1. OREI and ORG funding by commodity type.

Funding of high priorities

Most OREI and ORG projects reflected organic research priorities identified in the OFRF National Organic Research Agenda (NORA) (Sooby, 2007). Over half (123) addressed soil health, soil biology, or nutrient management; and 129 projects included systemic approaches to crop pest, disease, and weed management. Of these, 36 tackled the organic dilemma of how to manage weeds adequately to sustain crop yields while protecting and building soil health.

The NORA priority of plant breeding was addressed by the establishment of several ongoing farmer-participatory breeding networks. Twenty plant breeding projects produced several dozen new publicly held cultivars and developed hundreds of breeding lines with disease resistance, nutrient efficiency, and other priority traits for organic systems. Another 32 projects evaluated existing cultivars for organic production systems and markets.

Livestock system projects addressed several NORA priorities, including pasture management, animal nutrition and health, product quality, and crop-livestock integration. However, no projects undertook animal breeding for organic systems.

OREI and ORG requests for applications invited proposals addressing economic, environmental and policy issues, as well as organic production challenges. One hundred seventy-eight projects (94%) addressed one or more requests for applications priorities for their funding year, 91 (48%) included economic analyses, and 82 projects (43%) evaluated environmental impacts of organic systems. During 2009 - 2014, ORG priorities shifted to a specific focus on greenhouse gas (GHG) mitigation and other ecosystem services, while OREI priorities covered production and economics, with increased emphasis on crop and livestock breeding and genetics.

Producer engagement, dissemination, and outreach

Most projects engaged producers in hosting on-farm trials or field days, collecting research data, evaluating outcomes, or serving on an advisory committee. A few projects emphasized experiment station or lab research, and engaged producers mainly as end users of outcomes.

Project outcomes were disseminated to producers, service providers, and other audiences via oral presentations, field days, written materials, web sites, and other venues. Most projects published articles, manuals, videos, or webinars for producers and/or researchers, and about 25% established research or learning networks of producers and agricultural professionals. The eOrganic communities of practice, launched in 2007 with OREI funding, provided a platform through which 60 other OREI and ORG projects delivered outcomes to producers, other stakeholders, and the general public. OREI-funded conferences and symposia offered additional venues for dissemination and exchange of ideas and findings among project teams.

Project outcomes

Many projects produced valuable results, including some with smaller budgets (\$30K-300K) and simple experimental methods. Examples include field evaluation of 500 potato clones for organic systems (\$140K), grazing hogs in apple orchard for pest control (\$33K), an organic weed management manual (\$106K), organic flea beetle control tactics (\$74K), and an Organic Seed Partnership that released 25 new vegetable cultivars (\$894K).

Projects that tackle complex issues such as GHG mitigation or soil biology often require long-term research. Although some of these projects may not have produced farmer-ready outcomes, many provided valuable insights into topics such as soil health, weed management, and crop yield. GHG studies gave inconsistent results related to environmental and management variables.

Farmer/researcher collaboration

In interviews, most PIs reported positive experiences working with farmers. Farmers reported various levels of engagement, from hosting on-farm research to working as an equal partner in the project. Most farmers found relationships with researchers rewarding. Some projects inspired and supported farmers to conduct controlled trials based on their own ideas or practices.

Most of the PIs interviewed felt that OREI and ORG funded projects are as scientifically rigorous as other USDA funded research. Several PIs cited the great importance of practical outcomes from OREI and ORG projects.

Recommendations

Based on the review, OFRF recommends making several improvements in funding for priority areas and project administration. Strengthening the OREI and ORG programs based on the following recommendations will require additional funding for these programs. Increased organic research funding is urgently needed and would ensure the continued growth of the organic sector.

Increase research on underfunded and emerging priority areas.

- *Continue to address current, ongoing, and emerging organic research needs, including priorities identified by the National Organic Standards Board (updated annually), and the Organic Farming Research Foundation (Jerkins and Ory, 2016).*
- *Continue and expand long-term support for public crop cultivar development for organic systems, and farmer-participatory plant breeding and organic seed production networks.*
- *Invite and fund proposals to develop new and improved livestock and poultry breeds for pasture based organic production systems.*
- *Invite and fund proposals for meta-analysis of past OREI and ORG research on complex issues such as soil health, weed management, and GHG mitigation in organic systems.*
- *Invite and fund proposals on commodities under-represented in OREI and ORG during 2002-2014, including beef, pork, turkey, rice, cotton, tree nuts, herbs, and cut flowers.*

Balance funding for smaller proposals with simple goals and on-the-ground methods, with larger, more complex, and multi-institutional projects.

- *Continue to fund conferences, symposia, and planning projects.*
- *Continue to invite and fund proposals from underserved regions (the Southern region) and constituencies (minorities), 1890 LGUs, other smaller institutions, and non-government organizations (NGOs).*
- *Fund smaller, targeted projects (<\$500 K) as well as larger, multi-disciplinary, multi-institutional projects.*

Improve project reporting, dissemination, outreach, and access to project outcomes.

- *Require and facilitate up-to-date reporting for all projects in the CRIS database, including clear summaries of key project outcomes, and links to farmer-ready products.*
- *Expand the CRIS database to enable producers and other end users to easily search for OREI and ORG project outcomes by commodity, region, or topic.*
- *Ensure ongoing funding of the eOrganic communities of practice to facilitate OREI and ORG project outreach via the eXtension website.*