BLUEPRINT
for an organic world
Raising Organic Research to Scale

Dean Helene Dillard  University of California, Davis
Brise Tencer  Organic Farming Research Foundation
Jane Sooby  CCOF
Organic Farming Research in the US and the UC

Helene Dillard, Dean
College of Agricultural & Environmental Sciences
University of California, Davis
Organic Agriculture Research and Extension Initiative (OREI USDA-NIFA)

- Funding opportunity for land grant universities, private universities and institutions
- $18M estimated total program funding
- Fund projects that will enhance the ability of producers and processors who have already adopted organic standards to grow and market high quality organic products
- Assist farmers and ranchers with whole farm planning
- Fieldwork must be done on certified organic land or on land in transition to organic certification
Organic Farming Research Foundation (OFRF)

- Funding opportunity for land grant universities and private institutions, farmers
- Works to foster the improvement and widespread adoption of organic farming systems
- Strong advocacy for organic systems and policies that help farmers transition into organic production
- List of resources for organic and transitioning farmers
- Searchable database of research projects
- http://ofrf.org
University of California

- UC Santa Cruz – Center for Agroecology and Sustainable Food Systems; UCSC Farm and the Alan Chadwick Garden used for training and research, both are certified organic. Apprenticeship – 6 month full time residential program
- UC Berkeley – Berkeley Food Institute; supports changes in food systems to promote diversity, justice, resilience, and health. Gil Tract Community Farm; urban agricultural learning center; provides access to organic food
- UC Riverside – known globally for research on organic insect pest management using natural enemies, mating disruptions, pheromone traps
- University of California Division of Agriculture and Natural Resources (Cooperative Extension). Numerous organic resources on web site. Small and Organic Farm Advisor Yolo, Solano, Sacramento Counties
University of California, Davis

- Agricultural Sustainability Institute
- Russell Ranch Sustainable Agriculture Facility (300 acres): irrigated and dry-land agriculture, Century Experiment comprised of 72 one-acre plots measuring long term impacts of farming systems and inputs
- Certified Organic Student Farm (20 acres): ecological garden, market garden, student farm shop, vineyard, student farm compost; kids in the garden program
- Internships; on farm experience
- Sustainable Agriculture and Food Systems Major
UC Davis, Training the next generation
UC Davis, Training the Next Generation

- In the last 5 years, student participation in the Student Farm has expanded dramatically.
- The number of internships completed has increased ten-fold to more than 125/year.
- The total number of students engaged through all modes of weekly participation (as course enrollees, employees, volunteers or interns) has tripled to more than 480/year.
- An additional 1,000 students/year participate in the Student Farm in other ways, such as through class visits and workshops.
University of California, Davis

- Organic plant breeding project: partnership with Agriculture Sustainability Institute, faculty and student breeders in plant sciences, Organic Seed Alliance, producers, seed industry and UC Cooperative Extension. Goal is to provide CA organic producers with crop varieties that are specially bred for organic farming. Funded by OREI.

University of California, Davis

• Organic management of garden symphylans in annual cropping systems (Mark Van Horn)
• Harnessing aphid alarm pheromone to rid broccoli heads of aphids (Phillip Fujiyoshi)
• New and effective fertilizers for organic rice producers (Linquist, Wild, Lundberg, Scheidel)
• Cost effective weed and nutrient management practices in organic pear orchards (Ingels, Lanini, Klonsky, Frieders, Shackel)
• Developing test protocols to assure the quality of fertilizer materials for organic agriculture (Horwath, Parikh)
• Statistical review of California’s organic agriculture (Klonsky)
Challenges = Opportunities

• Funding for research and outreach (supplies, equipment, graduate students, post docs, undergraduate interns, publication costs, conference and workshop costs, travel)
• Availability of Certified organic land for research
• Whole farm (holistic approaches, ecological and systemic approaches) … university plot/farm research (controls, applied research, scientific reductionism)
• Need for systems AND component studies
• Ecological webs are often site specific
• Scaling the research…organic farms can range in size from less than one acre to over 10,000 acres
• Short duration studies (irrigation, insect pest)…long duration studies (soil health, biodiversity, weed and disease management, fertility, breeding, invasives)
For more information:

Agricultural Sustainability Institute
www.website.ucdavis.edu

Student Farm at UC Davis
http://asi.ucdavis.edu/programs/sf

Russell Ranch Sustainable Agriculture Facility
http://asi.ucdavis.edu/programs/rr

Plant Breeding for Organic Systems
http://orei.faculty.ucdavis.edu/

Center for Agroecology & Sustainable Food Systems
http://casfs.ucsc.edu/

UC Division of Agriculture & Natural Resources
http://ucanr.edu/
BLUEPRINT
for an organic world
Mission: To foster the improvement and widespread adoption of organic farming systems.

Vision: Organic farming is the leading form of agriculture, leading to healthy and resilient people, ecosystems and economies.
Developing a National Organic Research Agenda - a roadmap for farmers, researchers, policy makers
Gathering Input on Research Agenda

Listening Sessions:

8 farmer/researcher sessions around the US.

Research Survey:

Distributed to all US certified organic farmers.

Over 1,000 organic farmers participated.
Most pressing challenges by region

**West**
- Water shortage
- Weeds
- Plant diseases

**South**
- Labor shortage
- Weeds
- Stinkbugs and insect pests
- Drought and excess rain

**Northeast**
- Weeds
- Milk and live profitability
- Market entry

**North Central**
- Soil health
- Weed management
- Cover cropping
- GMO contamination
CA Region grower responses

- 173 complete survey responses and 71 partially complete responses
- 3 CCOF hosted listening sessions with 38 growers participating
CA research priorities

- Irrigation and drought management
- Soil health, biology, quality and nutrient cycling
- Fertility management
- Weed management
- Disease management
- Insect management
- Nutritional quality

Percent of respondents rating topic as high priority (%)
Top needs:

**Water management:** optimum water for different plant species, groundwater monitoring, climate impacts on water and tree fruit maturity

**Weeds:** new weed machinery, cape ivy, Johnson grass

**Pests:** ants, vine mealybug, wireworms, aphids, citrus psyllid, bagrada bug, olive fly, spider mites, flea beetle, lygus, rodents

**Disease:** fireblight, mildew in wine grapes, leaf curl virus, Pierse’s disease, brown rot, botryosphaeria
OTHER HIGH PRIORITIES

- Fertility management
- Nutritional quality and health benefits of organic food
- Insect pest management
- Water management
- Disease management
- Pollinator health
- Economics and marketing of organic products

http://nothingbutdelicious.squarespace.com/
Research on weed management a high priority for 61% of CA respondents

“Using animals to manage weeds, disease and pests.”

“Rotation strategies to decrease annual weed pressure from specific weeds, especially purslane.”

“Rotation/tillage strategies or organic approved materials to eliminate bind weed.”

“Using weeds to our benefit (what do they put back into the soil if tilled in), killing with vinegar and molasses.”
# NORA Survey Acknowledgements

## Research Team

<table>
<thead>
<tr>
<th>OFRF Team</th>
<th>Funders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Diana Jerkins</td>
<td>Foundation for Sustainability and Innovation</td>
</tr>
<tr>
<td>Dr. Joanna Ory</td>
<td></td>
</tr>
</tbody>
</table>

## Washington State University

- Thom Allen
- Rose Krebill-Prather
Where are USDA Organic Research Dollars Going?

124 Organic Research and Extension Initiative (OREI) projects &
64 Organic Transitions (ORG) projects conducted between 2002 and 2014

✓ Many projects take integrated & holistic approach
✓ Innovative methods used to improve understanding of agro-ecological processes
✓ Projects developing & testing practical applications,
✓ Delivering findings to producers.
✓ Many projects engage producers and other stakeholders in all phases of the project
✓ Most projects addressed nutrient management, soil quality, and crop protection
✓ Most crop research (31%) was for vegetables, followed by fruits and grains
✓ Biggest category of livestock research was in dairy (10%)
✓ Investment in “environmental” issues: soil and water conservation; and water quality, soil improvement, and carbon sequestration
✓ 48% of projects involve some economic analysis
✓ 33% of projects addressed cover cropping, and over 25% of projects addressed crop rotation
USDA funded projects address many of the priorities identified in OFRF’s 2007 National Organic Research Agenda.

Soil microbiology, fertility, and quality
a. nutrient management, budgeting, balance, plant availability – 100 projects (53%)
b. evaluation and enhancement of soil life and soil quality – 95 projects (51%)

Systems approaches to crop pest management
a. weeds – 83 projects (44%)
b. insects – 70 projects (37%)
c. diseases – 66 projects (35%)

Organic livestock and poultry production systems
a. animal health – 20 projects (11%)
b. pasture management and animal nutrition – 35 projects (19%)
c. crop-livestock integration – 12 projects (6.4%)
d. NOP-compliant livestock production systems – 11 projects (5.9%)

Breeding and genetics
a. crop plants – 48 projects (26%)
b. livestock and poultry – 8 projects (4.3%)
Examples of CA Projects

**Nutrient Management in Organic Systems**

*Fertility and pest management, and strengthening researcher/grower networks*

OREI 2004-05136, Gliessman, U California, Santa Cruz, $572 K

Improved N management strategies for strawberry

Tradeoff between yield and N leaching in broccoli

*Researcher and farmer innovation to increase nutrient cycling on organic farms*

OREI 2009-01415, Louise Jackson, U California, $372 K

Practical field methods for monitoring and managing N in organic systems

Team acquired additional funding to continue development of organic N management
CA Project (cont.)

Disease Management and Functional Agricultural Biodiversity

Soilborne pathogens and pests in organic vs conventional plots with conservation versus conventional tillage

ORG 2004-05151, L. Epstein, U California Davis, $187 K

Soil nematode and micro-arthropod biota and disease suppression.
Part of a long term (100 year) systems study begun in 1990s

Nutrient dynamics, soil biota, and functional biodiversity at an organic farm

ORG 2004-05207, L. E. Jackson, U California Davis, $298 K

Case study of organic farm in Yolo County
Led to wider study and CA Energy Commission white paper on climate change impacts
CA Project (cont.)

• **Farmer-researcher Networks**

  • *A collaborative research and extension network for sustainable organic production systems in coastal California*

  • OREI 2011-01969, Carol Shennan, U. California Santa Cruz, $2.61 M

  • On-farm research and periodic discussion of two- and four-year crop rotations assessed for C sequestration, net GHG footprint, disease suppression, nutrient cycling, and yield.

  • Seven on-farm trials supplement research station trial.

• The two Nutrient Management projects also included strong farmer-scientist networks.
Proposed Recommendations to USDA-NIFA

• Continue and expand USDA funding for research into current priority issues for organic producers

• Continue funding farmer participatory classical plant breeding, with continuation grants when warranted.

• Continue to encourage innovative approaches to farmer engagement.

• Fund proposals for under-represented commodities (pork, beef, rice, cotton) and topics (animal breeding for organic), and under-served regions (Southern) and minority constituencies.
SUPPORT ORGANIC FARMERS BY SUPPORTING ORGANIC RESEARCH

OFRF- Supporting organic research for 25 years.
www.ofrf.org
Collaborative Approaches to Further Organic Research

Jane Sooby
CCOF
Senior Policy & Outreach Specialist
Bagrada Bug Working Group

- Bagrada bug issue raised by CCOF board

- CCOF contacted Karen Ross, Secretary of Food & Ag, who asked Plant Health and Pest Prevention Services to work with us
Bagrada Bug Working Group

- PHPPS convened weekly conference calls—David Pegos
- Additional partners have joined: UC Cooperative Extension, USDA-ARS labs, UC Riverside, UC Davis, others
Bagrada Bug
Working Group Activities

Public Meeting Dec. 2015

• Public research meeting in Salinas
• Scientific presentations
• Farmer panel
• Broadcast for remote participants
Bagrada Bug Working Group Activities

Newsletter

- Published quarterly
- Bagrada Bug updates from around the world
- Emphasis on practical management for farmers
Funding

- Each collaborator chips in staff time and resources to support the group effort
- CDFA-PHPPS hosts conference calls
- CCOF and UCCE shared lunch cost for public meeting; UCCE provided meeting space
- Farmer input at public meeting vital for successful grant applications
- Primary expense: time
Partners

CCOF Organic
CDFA
UCCE
USDA
EBCL
UCDAVIS
UCRIVERSIDE

2016 CCOF Annual Meeting & Conference
Public-Private Partnerships: Great Potential

Clif Bar Spearheads $10 Million Investment to Fund Five Endowed Chairs Focused on Organic Agricultural Research

Partners with Organic Valley on the first chair at the University of Wisconsin-Madison
Emeryville, Calif. – June 23, 2015
First Endowed Chair: Bill Tracy
University of Wisconsin-Madison

- The grant will be funded in perpetuity by both companies
- Will be matched by a gift from University of Wisconsin graduates John and Tashia Morgridge.
- Supports organic crop breeding
What Other Creative Partnerships Can We Build?
Thank You

Jane Sooby
Senior Policy & Outreach Specialist
jsooby@ccof.org
BLUEPRINT
for an organic world
2016 CCOF Annual Meeting & Conference
Questions
BLUEPRINT
for an organic world