



# ORGANIC FARMING RESEARCH FOUNDATION

*Fostering the improvement and widespread adoption of organic farming.*

## OFRF Grant Awards Summary 2019

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**Timothy Bowles, Assistant Professor of Agroecology, UC Berkeley**

[Assessment of Nitrogen Flows on Diversified Organic Farms: A Road Toward Enhancing Soil Health from the Ground Up](#)

Soil health is a central part of organic farm management. This project seeks to determine how diversification practices such as crop rotations and cover crops that build soil health influence nitrogen availability from soil organic matter. This is particularly important to consider when determining the timing and choice of organic fertilizer application on diversified organic farms. The goal of this project is to provide farmers in Yolo County, California—an area with a high concentration of diversified farms—with both technical support and a community of practice that allows for more informed decision-making about nutrient management.

**Impact:** More precise information for making informed decisions about fertilizer application, ultimately reducing added costs and environmental impacts associated with nutrient losses from organic fertilizers.

**Alex Woodley, Assistant Professor, North Carolina State University**

[Evaluating Benefits of Winter Annual Cover Crop Systems for Organic Sweet Potato in North Carolina](#)

Despite a steady demand for organic sweet potatoes in North Carolina, marketable yield often does not reach the yield potential for this region due to challenges in weed, insect, and soil fertility management. Weed proliferation and soil borne pests such as wireworm have been identified as two areas of concern. Using a roller-crimper modified to work on raised beds, this research will assess the viability of winter cover crops seeded onto autumn formed beds and terminated in the spring as effective tools for weed control. The researchers will also determine if there is a trade-off of including cover crops in rotation by potentially providing improved overwintering conditions for wireworms, and if this translates into increased root damage and marketable yield losses. Lastly, by embedding increasing rates of organic nitrogen fertilizer in each cover crop treatment, they will determine if this management practice requires modification to nutrient recommendations.

**Impact:** Innovative weed, insect, and soil fertility management options to help increase organic sweet potato yields.

**Jed Eberly, Assistant Professor, Montana State University**

[Evaluating the Effects of Seeding and Inoculant Rates on Weed Suppression, Nodulation, and Soil Health on Organic Lentil Production in the Northern Great Plains](#)

Lentils are important for diversifying wheat-based cropping systems and are also beneficial in enhancing soil health. These benefits have contributed to the exponential growth in pulse crop acreage in The Northern Great Plains (NGP). However, little is known about the optimum seeding and appropriate inoculation rates to improve crop growth, nutrient acquisition, weed management, and yield potential for lentils in organic systems. The goals of this project are to evaluate effects of seeding rates on lentil yields and weed competition. These goals will be achieved through a multi-site replicated trials on grower's fields in three different lentil growing areas of Montana. Three lentil varieties would be selected based on seed sizes; large, medium, and small and will be seeded at four different rates.

**Impact:** Improved lentil yields, nutritional quality, and better returns on investments for organic lentil growers.



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**Aysha Peterson, Ph.D. Student, University of California, Santa Cruz**

[Plant-based Nutrient Management for Socially Disadvantaged Organic Farmers](#)

This research aims to promote successful utilization of best organic nutrient management practices by employing qualitative social science research. The researchers will examine barriers to implementation of plant-based nutrient management strategies among organic, socially disadvantaged farmers in California's Salinas Valley. Findings will directly inform educational programming via ALBA's Farmer Education Course and will be incorporated into economic and infrastructural assistance available through ALBA's Organic Farm Incubator. Empirically based conclusions will provide for comparative analysis with other agricultural regions of the U.S.

**Impact:** Widespread improvement of organic farmer assistance services among socially disadvantaged organic farmers.

**Edmund Frost, Farmer, Common Wealth Seed Growers LLC, Louisa, Virginia**

[Development and Assessment of Bacterial Wilt and Downy Mildew Resistant Cucumber Seedstocks - Year Two](#)

Downy mildew (DM) is a central limiting factor for cucumber production in the eastern U.S, especially for midseason and late season crops. Frost will continue his assessment of DM resistant cucumber seedstocks, with increased focus on evaluating and advancing high-performing lines selected in 2018. Trials will take place at University of Massachusetts, North Carolina A&T University, University of Mount Olive, and four farms around the Southeast U.S. Trials will evaluate yields in high-DM conditions, rate the impact of DM on foliage, and provide feedback on fruit quality and marketability. Frost will conduct a BW-focused trial in early-planted, low-DM conditions on his own farm, as well as a late-season breeding trial of his selected slicing and pickling cucumber lines.

**Impact:** New cucumber varieties that are easier to grow, offer a longer harvest window, yield better under disease pressure, and help assure conventional farmers considering organic certification that transition is workable.