



**THE
ORGANIC
CENTER™**

Over the past six years, The Organic Center has stepped up its research and communication portfolio, with multiple new projects in three research areas: applied research, human health, and environmental health.

HIGHLIGHTED PROJECT



Soil Health and Climate Change Research

The Organic Center is advancing a powerful portfolio of soil health and climate change research that delivers undisputable proof points on the positive impacts of organic. Through collaborations with the University of Maryland and University of California, Berkeley, we will provide organic farmers with science-based, actionable recommendations for further improving soil health and increasing carbon sequestration. We are also connecting these environmentally friendly practices with real-world gains for farmers by accounting for economic considerations such as yield.

HUMAN HEALTH RESEARCH



Pesticide, Hormone, & Antibiotic Presence in Milk

This peer-reviewed and published project looks at the extent to which hormones, antibiotics, and pesticides used in milk production can be detected in retail conventional milk, as compared to organic milk. Specifically, cow's milk was tested for a wide variety of growth hormones, pesticides, and antibiotics. Organic milk tested clean, with no detectable levels of synthetic residues, as compared to conventional milk where over 60% of samples showed contaminant residues. Results were highlighted in media outlets such as *USA Today*.



Net-Positive Impacts of Organic

The Organic Center is collaborating with the Sustainability and Health Initiative for NetPositive Enterprise (SHINE) at the Harvard School of Public Health to look at the benefits of organic for the environment and human health. Traditional models of examining environmental and health effects focus on ways to decrease negative impacts. This project takes a different perspective by focusing on the positive aspects of organic. By combining the benefits of organic as well as reduced negative impacts, this project will be able to identify the net positives of organic food and farming to combating climate change and supporting human health.



Farmworker Health

This project details the science on the health effects of occupational exposure to pesticides for agricultural workers and how the organic regulations reduce these exposures, providing a safer working environment on the farm. It also highlights techniques used on organic farms that can be incorporated by all farmers – regardless of farming system.



Combating the Development of Antibiotic-Resistant Bacteria

The Organic Center released a report on organic food and farming as a tool to combat antibiotic resistance and to protect public health. This report takes an in-depth look at the role of antibiotic use in conventional agricultural livestock production in contributing to the development of antibiotic-resistant bacteria. It covers everything from mechanisms by which resistance develops in bacteria to how organic agriculture provides a simple and effective means to combat the rise of antibiotic-resistant bacteria and to protect the health of consumers.

ENVIRONMENTAL HEALTH RESEARCH

Measuring On-Farm Biodiversity



In collaboration with Furman University, the Organic Center released a simple, straightforward tool that allows farmers to track their individual on-farm biodiversity from year to year. Building on this release, The Center collaborated with Professor John Quinn to develop a calculator that will help farmers translate the new Natural Resources and Biodiversity Conservation Guidance into clear steps that farmers can take to easily adhere to the guidance.

Locking Carbon Away into Long-Term Reserves



The Center collaborated with the National Soil Project at Northeastern University on a project showing that organic farms sequester more carbon in the soils than their conventional counterparts. Specifically, the project examined the long-term storage reservoirs of carbon in the soil. A peer-reviewed scientific article was published in the journal *Advances in Agronomy*, and communications about our findings have reached around the world.

Pollinator Health



The Organic Center released a Pollinator Health report that documents the benefits of organic on pollinator populations. The publication reviews specific cases of pesticide impacts on pollinator health, and discusses the lesser-known benefits of organic farms, such as more diverse habitat for pollinators and an increase in food sources.

Effect of Organic Farming on Nitrogen Pollution



This project examines the effects of organic farming practices on nitrogen pollution. We published our results in a scientific journal, showing that conventional agricultural practices introduce around 50% more new reactive nitrogen into the global system than organic farming practices. Consumers are also able to measure how choosing organic lowers their nitrogen footprint based on personal consumption choices using the Nitrogen Footprint Calculator developed as part of this project. We recently expanded this calculator to allow largescale institutions, such as universities, to measure the impacts of the food available in their cafeterias.

Soil Health on Organic Farms



While a growing body of scientific literature suggests that organic systems improve soil health, there is little research on specific practices within organic systems that have the greatest potential to build healthy soils. This project, published in a scientific journal, takes an inventory of current knowledge on best practices within organic management for enhancing soil health, and provides a roadmap for current management opportunities and future research directions to support long-term sustainability. We look at all the data that have been collected on organic soil building strategies from around the world to pull out general themes of organic practices so that we can get a big picture understanding of the trends around which strategies have the biggest impacts on soil, and how we can be strategic in filling gaps in our knowledge to advancing ecological organic practices.

Connecting Soil-Friendly Farming Practices with Yield



Different soil-building practices do not necessarily have an equitable effect on yields. While most farmers are committed stewards of the land, many operations maintain thin margins of return. Thus, when considering the adoption of new practices, it is important for farmers to be able to evaluate which practices are most likely to promote environmental sustainability while simultaneously maintaining (or increasing) their bottom line. This project quantifies the interaction between different management practices on soil health and yield.



Quantifying Carbon Sequestration on Organic Farms

This project quantifies the effect of different soil-building practices on soil carbon to better understand the specific practices employed by organic farmers that have the biggest impact on carbon sequestration. Results from this study will enable farmers to leverage organic techniques to make the biggest impact on mitigating climate change.



Environmental Footprint of Organic Cotton: From Field Through the Supply Chain

Cotton is one of the most widely grown crops in the world, and conventional cotton is one of the most chemically intensive crops with serious consequences for both the environment and farmworkers. This up-to-date report compares costs and externalities (biological, environmental, and social) of organic and conventional U.S. cotton and textile production.



The Importance of Choosing Organic Meat

When you eat meat, choosing organic is especially important, because meat production can have cascading effects on human health, animal welfare, and the environment. This report synthesizes scientific literature that shows the differences in the way organic meat is produced, and why those differences are important for the health of the animals, the health and safety of consumers, the health of the soil, and the impacts on climate change.

APPLIED RESEARCH



Benefits and Risks of Integrating Livestock Into Crops

This project is funded by the USDA Specialty Crop Multi-State Program grant to look at the benefits of livestock integration through cover-crop grazing on bacterial population dynamics, soil building, and environmental health. The project is led by the University of California, Davis in partnership with The Organic Center, USDA's Agricultural Research Service, the University of Maryland Eastern Shore, and the University of Minnesota.



Creating Sustainable Strategies for IPM in Southern Organic Rice

This is a collaborative project among researchers at Texas A&M University's AgriLife Research & Extension Center, Texas A&M Department of Soil and Crop Sciences, USDA's ARS Dale Bumpers National Rice Research Center, University of Arkansas Rice Research and Extension Center, University of Arkansas at Pine Bluff Department of Agriculture, and The Organic Center. It employs a multi-stakeholder research team to develop a multi-disciplinary approach to developing Integrated Pest Management strategies for organic rice production in the Southern United States.



Balancing soil health and food safety for organic fresh produce production

The Organic Center is collaborating with researchers at USDA, the University of California, Davis, Woods End Laboratories, University of Maine, the University of Minnesota, and Cornell University to further study the use of animal-based manure and compost in organic agricultural practices to prevent the risk of soil pathogens. Funded by a large-scale federal grant, this multi-regional project looks at the interaction of pathogens with soil health on organic farms. Its aim is to ensure that FDA regulations on food safety incorporate information from organic systems.



Organic Alternatives to Conventional Celery Powder for Meat Curing

The Organic Center and the Organic Trade Association are collaborating with researchers from the University of Wisconsin, Madison, on a USDA NIFA Organic Research and Extension Initiative (OREI) Grant to identify and evaluate substitutes for conventional celery powder in curing organic meat products. The focus is on crops that are economically profitable for organic farmers and environmental issues such as nitrogen use.



Decreasing Arsenic Uptake in Organic Rice Systems

The Center completed a research project in collaboration with USDA's Agricultural Research Service at the Dale Bumpers Rice Research Center looking at methods for decreasing arsenic uptake in organic rice systems. Specifically, the project covered two areas: variety trials looking at natural arsenic uptake due to the effects of rice variety, annual variation, farming systems and milling, and fertility and crop cover trials identifying active agricultural techniques for reducing arsenic uptake in organic systems, including soil amendment type, fertilizer rates, and cover crops.



Fire Blight in Organic Apple and Pear Orchards

This project was an emergency response to the sunset of antibiotics approved for use on organic apple and pear orchards prior to final research on organic material alternatives. The Center published a document detailing tried and true holistic protocols for controlling the disease, as well as new organic materials currently being tested. The project is complete, and was an unmitigated success. In addition to the thousands of press release pickups, The Center has given several workshops at grower meetings such as MOSES and EcoFarm to present the project findings.



Organic Control of Citrus Greening Disease

The Center is collaborating with university professors, USDA scientists, farmers, industry members, and other non-profits on research examining organic alternatives for controlling citrus greening disease. Citrus greening is a disease spread by the Asian Citrus psyllid, and has been negatively affecting both organic and conventional farms. The Center completed research looking at the efficacy of organic controls for psyllids and antimicrobials, published a report that pulls together existing literature identifying protocols for organic farmers to prevent and reduce the spread of citrus greening, and recently received funding by a USDA OREI Planning Grant to detail organic citrus grower needs and develop a comprehensive research framework for addressing those needs.



Protecting Organic Farmers from Inadvertent Pesticide Residues

Unintentional pesticide contamination in organic crops has been flagged as a major challenge by the organic sector, across the supply chain. However, little data has been collected synthesizing the current experiences and specific research needs of the organic community. This grant brings together organic stakeholders across the supply chain with scientists to determine the crops that are most heavily impacted by contamination, pesticides that the organic industry has detected on its crops, losses that organic farmers and industry members have experienced, strategies that organic farmers have undertaken to reduce pesticide drift, and research needs for identifying vectors and preventing contamination to inform the development of a large-scale and multi-disciplinary research project that will provide farmers with strategies for combating current contamination.