APPENDIX B: ACTIVE UW-MADISON ORGANIC RESEARCH

The following information was gathered through a search of the USDA Current Research Information System and updates from researchers. This list may not include all organic research occurring at UW-Madison. If you know of other projects we should include, or if you have any questions about organic research at UW-Madison, please contact Erin Silva at 608-890-1503 or emsilva@wisc.edu.

Weed and Fertility Interactions in Organic Vegetable Crops
Researchers: A.J. Bussan (UW-Madison Department of Horticulture), 608-262-3519, ajbussan@wisc.edu; Matt Ruark (Department of Soil Science), Jed Colquhoun (Department of Horticulture) and Erin Silva (Department of Agronomy)
Description: The goal of this research is to develop effective weed management systems for large-scale organic production of sweet corn for processing. Specific objectives include optimization of weed and nutrient management in organic sweet corn and determination of weed interference and seed production under different organic management practices.

Strategies of pasture supplementation on organic and conventional grazing dairies: assessment of economic, production and environmental outcomes
Researchers: Victor Cabrera (UW-Madison Department of Dairy Science), 608-263-3308, vcabrerawisc.edu; David Combs (UW-Madison Department of Dairy Science), Rhonda Gildersleeve (UW Lancaster Agricultural Research Station) and Michel Wattiaux (UW-Madison Department of Dairy Science)
Description: USDA National Organic Program (NOP) standards for dairy and livestock production require that 30 percent or more of dry matter intake is provided by pastures on organic farms during the grazing season. Managed pastures provide abundant, high quality forage, but also present challenges when balancing dairy rations. This project is designed to investigate the impacts of pasture supplementation decisions made by Wisconsin organic and conventional grazing dairy farmers on selected economic, production and environmental variables. Organic dairy producers, transitioning producers and even conventional producers will benefit from this project as it identifies the farm level factors that influence pasture supplementation decisions and feed resource management on dairy farms. Project results will be utilized to develop outreach materials and decision aids that will be useful to farmers, extension agents and other agricultural professionals as they assist organic, transitioning, beginning or grazing dairy producers with farm planning and risk management decisions.

Organic certified seed potato production in the Midwest
Researchers: Amy Charkowski (UW-Madison Department of Plant Pathology), 608-262-7911, amycplantpath.wisc.edu; Ruth Genger and Doug Rouse (UW-Madison Department of Plant Pathology), Russell Groves (UW-Madison Department of Entomology) and Shelley Jansky (UW-Madison Department of Horticulture)
Description: Use of certified, disease-free seed potatoes limits tuber-borne diseases in potato crops, improving yield and quality. Limited organic production of certified seed potatoes in the Midwest forces organic growers to import at least some of their planting stock from other regions and increases the risk of accidental introduction and spread of diseases. This project will support organic production of certified seed potatoes in the Midwest through field-based and economic research. Our research will provide growers with detailed agronomic, sensory and nutritional data on heirloom and specialty potato varieties that are likely to perform well under low-input, organic conditions and appeal to consumers. Heirloom potato varieties will be grown in on-farm trials and characterized for yield, quality, disease resistance, taste and nutritional quality. We will define best management practices for organic production of seed potatoes, testing strategies for control of aphid-transmitted viruses that are a major seed potato production problem. A microeconomic analysis will be conducted based on the results of on-farm trials, and will be complemented by a macroeconomic analysis of organic markets.

Crop plant nutrition and insect response in organic field crop production: linking farmer observation to university research and extension
Researchers: Eileen Cullen (UW-Madison Department of Entomology), 608-261-1507, cullenentomology.wisc.edu; Kevin Shelley (UW-Madison Nutrient and Pest Management Program), Robin Mittenthal (UW-Madison Department of Entomology) and Paul Whitaker (UW-Marathon County)
Description: This project examines the link between crop plant nutrition and insect response, as well as the premise that organic soil fertility management plays a sizeable role in managing insect pests. The project has three components: 1) A long-term, controlled experiment at the UW-Madison Arlington Research Station comparing two methods of organic fertility management (soil balance with calcium additions, compared with a standard organic manure and legume source N-P-K sufficiency approach) in a four-crop rotation. The farmer-selected crop-insect associations examined include soybean-soybean aphid, alfalfa-potato leafhopper and corn-European corn borer; 2) Similar data collection on six established organic farms representing the two approaches to soil fertility management; 3) Undergraduate on-farm research partnerships with organic farmers and greenhouse experiment collaboration with UW-Marathon County.
Evaluation of organically approved fungicides for vegetable crops.

**Researchers:** Amanda Gevens (UW-Madison Vegetable Pathology), 608-890-3072, gevens@wisc.edu

This program evaluates the efficacy of OMRI and organically approved fungicides for control of diseases in potato and vegetable crops in Wisconsin. Evaluation of materials is carried out both in production fields and in university greenhouses and laboratories. Results are extended to producers at various educational sessions throughout the year and via the Vegetable Crop Updates newsletter from UW-Madison.

Evaluation of organically approved pesticides for organic vegetable crops

**Researchers:** Russell Groves (UW-Madison Department of Entomology), 608-262-3229, groves@entomology.wisc.edu

**Description:** This program evaluates the efficacy of organically approved compounds against some of the more commonly found vegetable insect pests faced by Wisconsin’s organic vegetable producers.

Fertility strategies for hoop house-grown organic raspberries

**Researchers:** Rebecca Harbut (UW-Madison Department of Horticulture), 608-262-6452, harbut@wisc.edu and Jesse Dahir-Kanehl (Department of Horticulture)

**Description:** This project investigates the breakdown of organic fertilizers such as compost, manure and emulsions used in the organic production of raspberries in a hoop house. The higher humidity, higher temperatures and drip irrigation characteristic of hoop house production have the potential to alter nutrient availability. This project incorporates a trans-disciplinary approach, addressing diverse topics such as high tunnel and greenhouse management, raspberry management, organic/sustainable agriculture, season extension, plant nutrition, soil microbiology and soil science.

On-farm research with organic graziers

**Researchers:** Janet Hedtcke (Department of Agronomy), 608-265-2948, jhlrieste@facstaff.wisc.edu; Josh Posner (Department of Agronomy), Alfrid Krusenbaum (organic farmer), Ken Nordlund (UW-Madison School of Veterinary Medicine), Gary Frank (UW-Madison Center for Dairy Profitability) and Bob Van De Boom (organic farmer)

**Description:** Over the past two decades, research projects have been ongoing at the Krusen Grass Farm in Elkhorn, Wisconsin, while it has transitioned from row crops to organic rotational grazing. Herd health, performance and productivity, farm financial and economic performance, and nutrient management have been monitored. More recently, heifers and steers are being weighed two to three times per year to evaluate weight gains with a custom grazier.

Organic and conventional production systems in the long-term Wisconsin Integrated Cropping Systems Trials: productivity, profitability and environmental impact

**Researchers:** Janet Hedtcke (UW-Madison Department of Agronomy), 608-265-2948, jhlrieste@facstaff.wisc.edu; Josh Posner (UW-Madison Department of Agronomy), Jon Beldock (AGSTAT), John Hall (Michael Fields Agricultural Institute), Dwight Mueller (UW-Madison Agricultural Research Station), Darwin Frye (UW-Madison Agricultural Research Station) and Jean-Paul Chavas (UW-Madison Department of Agricultural and Applied Economics)

**Description:** In 1989, in response to the debate about the relative agricultural sustainability of low-input and conventional systems, a large-scale, long-term study entitled the Wisconsin Integrated Cropping Systems Trials (WICST) was initiated at two locations in southern Wisconsin to compare the productivity, profitability and environmental impact of a range of conventional and organic cropping systems.

Reducing risk associated with organic snap bean production in Wisconsin

**Researchers:** James Nienhuis (UW-Madison Department of Horticulture), 608-262-6975, nienhuis@wisc.edu

**Description:** In Wisconsin, organic snap bean production for processing meets less than one-third of current demand. In spite of price incentives, it is difficult for processors to contract sufficient acres to meet demand due to the high risk and low yields associated with larger-scale organic production. The principle limiting factors to organic snap bean production include: 1) root rot disease, 2) nitrogen management, 3) seed corn maggot and 4) the availability of certified organic seed. The objective of this proposal is to integrate technologies, strategies and experience to determine optimal levels of genotype, fertilizer type, fertilizer rate, seed treatment and seed source to optimize benefits and reduce risk associated with organic snap bean production in Wisconsin.

Impact of organic management on dairy animal health and well-being

**Researchers:** Pamela Ruegg (UW-Madison Department of Dairy Science), 608-263-3495, pruegg@facstaff.wisc.edu; Linda Tikofsky & Ynte Schukken (Cornell University); Mike Gamroth (Oregon State University)

**Description:** The overall objectives of this project are to assess cow health and well-being on farms that use organic management systems and evaluate, develop and disseminate recommendations for cost-effective, preventative health management programs. Animal health and management data will be collected on 200 organic and 100 conventional dairy farms located in Wisconsin, New York and Oregon. Management factors that influence animal well-being and farm profitability will be identified. This data will be used to develop cost-effective, preventative, health management programs. Indicators of herd health and milk quality will be identified and used to create herd performance benchmarks that will be provided to participating farms.

Developing carbon-positive organic systems through reduced tillage and cover crop-intensive crop rotation schemes

**Researchers:** Erin Silva (UW-Madison Department of Agronomy), 608-890-1503, emsilva@wisc.edu (in collabora-
organic vegetable seed adoption and usage by increasing our

The overall goal of this project is to expand

Determination of perceptions and use of organic seed and

mer internships at each hub will be key aspects of the work.

work more accessible. Graduate student training and sum-

needs and guidance for further improvement toward cultivar

of material at various stages of development will provide key

will be measured by accounting for returns to organic farmers

resulting from lower production costs through reduced tillage.

Northern organic vegetable improvement cooperative
(NOVIC)

Researchers: Erin Silva (UW-Madison Department of
Agronomy), 608-890-1503, emsilva@wisc.edu (in collabora-
tion with North Dakota State University)

Description: A national, collaborative network of organic
vegetable breeders will benefit the organic community by de-
veloping improved vegetable varieties that are adapted to or-
ganic systems. These varieties will combine disease resistance,
nutritional and flavor quality, and contemporary productivity
traits crucial to modern markets. We will focus on four hubs
in the Northern U.S. and five crops: pea, broccoli, sweet
corn, carrots and winter squash. Variety trials and evaluation
of material at various stages of development will provide key
information regarding adaptability. We will solicit input from
growers regarding the suitability of the vegetables to their
needs and guidance for further improvement toward cultivar
development. Outreach activities will make the results of this
work more accessible. Graduate student training and summer
internships at each hub will be key aspects of the work.

Veggie Compass: which way will you grow?

Researchers: Erin Silva (UW-Madison Department of
Agronomy), 608-890-1503, emsilva@wisc.edu; Paul Mitchell
(UW-Madison Department of Agricultural and Applied
Economics) and John Hendrickson (UW-Madison Center for
Integrated Agricultural Systems)

Description: This project will create a farm business
management tool specifically for diversified organic vegetable
growers. Veggie Compass will improve the profitability of
these growers by helping them better understand their own
production costs, thus improving their decision making and
whole-farm planning capabilities. We have created a strong
outreach plan for the Midwest region though the develop-
ment of ongoing, supportive communities of practice as well
as grower workshops, presentations at organic farming confer-
ences and webinars on the eOrganic website. This project will
have strong economic and social benefits for organic farmers.
Not only will this project assist growers in making effective
business decisions to increase their efficiency and profitability,
but also will assist farmers in effectively managing their labor.

Carrot improvement for organic agriculture with added
grower and consumer value

Researchers: Philipp Simon (UW-Madison Department of
Horticulture), 608-262-1248, philipp.simon@ars.usda.gov;
Erin Silva and Jed Colquhoun (Department of Agronomy) (in
collaboration with Organic Seed Alliance, University of Cali-
ifornia, Purdue University and Washington State University)

Description: The long-term goals of this project are to 1)
develop and release carrot germplasm with improved disease
and nematode resistance, marketable yield, nutritional value,
flavor and storage quality for organic production, 2) improve
our understanding of cultivar responses to organic production
systems and identify desirable traits for organic producers,
3) inform growers about production and pest management
schemes including cultivar selection to maximize carrot pro-
duction, 4) inform consumers about the positive environmen-
tal impact of organic production systems and carrot nutrition-
al quality and flavor and 5) train undergraduate and graduate
students and postdocs in critical organic agriculture issues.