BUILDING YOUR SOIL

Meeting Challenges of a Changing Climate

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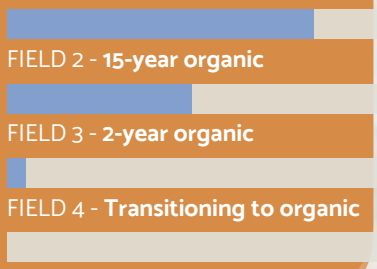
THE STUDY

In 2019, Basil's Harvest connected with partners across the food supply chain to plan and implement a farm-to-hospital model. This pilot has paved a distribution path through the Upper Midwest region of the United States, enabling over 4,000 pounds of oats to travel from one regenerative organic farm to patients and staff at a network of hospitals each year. This initiative also enabled a closer look at ecological impacts of organic agriculture and, thus, the connections between our farm, food and health systems.

Basil's Harvest partnered with Agroecology Solutions, Rodale Institute Midwest Organic Center, and the Bionutrient Institute to analyze the properties of the soil organic matter (SOM) and plant-available nitrogen (PAN) on four farm fields in central Illinois: Janie's Farm-Forrester Field (Field 1: 25-year organic), Janie's Farm-Brockman Field (Field 2: 15-year organic), Cow Creek Organics Farm (Field 3: 2-year organic), and Janie's Farm-Cullum Field (Field 4: in its first year of transitioning to organic).

Our initial efforts provided greater clarity on the linkages between farm management practices and critical soil characteristics essential to crop productivity. Future directions include evaluating changes in soil biology, microbial diversity and assessing the influence of soil health on crop nutrient quality.



MEET THE FARMS

Danforth, Illinois
janiesfarm.com

Paxton, Illinois
cowcreekorganics.com

KEY TAKEAWAYS

1 GROWING FERTILITY & SOIL ORGANIC MATTER (SOM)

SOM is critical to the fertility of a field, while also **increasing water-holding capacity** of the soils which **lessens the impact of drought**. The increased fertility and resistance against drought helps farmers overcome challenges of a changing Midwest climate, especially as they transition to organic practices. Growing SOM, which consists of **carbon**, provides farmers with the potential to harness carbon- or climate-conscious markets.

2 PLANT-AVAILABLE NITROGEN (PAN) CAPTURE & RETENTION

PAN (NO_3^- and NH_4^+) has **increased stability in soils** with greater organic matter (~3-5%), **preventing leaching** below the plant rooting zone. Crops can also utilize soluble organic-N (i.e. amino acids), however, the quality of soil organic matter pool and complexity of the microbial community can influence its availability.

3 BUILDING SOIL RESILIENCE TO THE CHANGING WEATHER WITH SOM & PAN

SOM and PAN are closely correlated: as availability and retention of one increases, the other follows. Building SOM and PAN is accelerated when there are **active and functionally redundant soil microbial communities**. Therefore, disrupting these communities through management practices such as intensive deep-tillage, compaction, and water/wind erosion limits development of SOM and PAN. On the other hand, practices including **green manure** (i.e. incorporating living plant matter into soil environment), **post-harvest biomass retention**, and **a greater diversity in both crop rotations and cover-crop mixes** will create an environment where SOM, PAN, and microbial diversity can build soil resilience.

RESOURCES

This list provides points of contact to organizations that specialize in building soil health and expanding farm-to-institution markets.

Categories of Expertise

- Market Entry Points
- SOM/PAN Research Resources
- Food Hubs/Distribution Resources
- Peer-to-Peer Education & Outreach
- Network-Building

Organization	Expertise	Contact
Artisan Grain Collaborative	Peer-to-Peer Education & Outreach; Network-Building	https://www.graincollaborative.com/
Central Illinois Young Farmers Coalition	Peer-to-Peer Education & Outreach	central.il.yfc@gmail.com (Jeff Hake or Amanda Christensen)
The Common Market	Market Entry Points; Food Hubs/Distribution Resources	https://www.thecommonmarket.org/
IDEA Farm Network	Peer-to-Peer Education & Outreach; Network-Building	https://www.regenerateillinois.org/idea-farm-network
Illinois FarmLink	Peer-to-Peer Education & Outreach	https://www.illinoisfarmlink.org/ nathan@thelandconnection.org or 217-840-2128 x90 (Nathan Aaberg)
Illinois Stewardship Alliance	SOM/PAN Research Resources; Peer-to-Peer Education & Outreach; Network-Building	https://www.ilstewards.org/
The Land Connection	Peer-to-Peer Education & Outreach	https://www.thelandconnection.org
Marbleseed	Peer-to-Peer Education & Outreach; Network-Building	https://marbleseed.org/
Midwest Cover Crop Council (MCCC)	SOM/PAN Research Resources; Peer-to-Peer Education & Outreach; Network-Building	https://www.midwestcovercrops.org/
Midwest GRIT	Peer-to-Peer Education & Outreach; Network-Building	https://www.midwestgrit.org/
Minnesota Soil Health Coalition	Peer-to-Peer Education & Outreach; Network-Building	https://www.mnsoilhealth.org/
Organic Agronomy Training Service (OATS)	Peer-to-Peer Education & Outreach	https://www.organicagronomy.org/
OGRAIN (University of Wisconsin-Madison)	SOM/PAN Research Resources; Peer-to-Peer Education & Outreach; Network-Building	https://ograin.cals.wisc.edu/
Rodale Institute Midwest Organic Center	SOM/PAN Research Resources; Peer-to-Peer Education & Outreach; Network-Building	https://rodaleinstitute.org/about/facilities-and-campuses/regional-resource-centers/midwest-organic-center/
Savanna Institute	SOM/PAN Research Resources	https://www.savannainstitute.org/
Soil Health Nexus	SOM/PAN Research Resources; Peer-to-Peer Education & Outreach; Network-Building	https://soilhealthnexus.org/
Soil Regen	SOM/PAN Research Resources; Peer-to-Peer Education & Outreach; Network-Building	https://www.agsoilregen.com/ liz.haney@agsoilregn.com (Liz Haney) or russell@agsoilregen.com (Russell Hedrick)
University of Illinois Extension - Local Food Systems & Small Farms	SOM/PAN Research Resources; Peer-to-Peer Education & Outreach; Network-Building	https://extension.illinois.edu/lfssf
University of Illinois Extension - University of Illinois Small Grains Lab	SOM/PAN Research Resources; Peer-to-Peer Education & Outreach; Network-Building	https://smallgrains.web.illinois.edu/wp/

Basil's Harvest — Rooted in Food, Farm & Health

Illinois Extension
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Read the entire article here:

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