

## Summary & Resources - Barr Farms September 2024 OAK Farmer Field Day



### Perennial Possibilities and Annual Rotations

#### Event Summary

“What’s great about organic agriculture is that it requires that you’re always thinking holistically. It’s all tied together.” Adam Barr introduced dozens of Field Day participants to his family farm with this thought, as he and Rae Strobel explained how they - as the seventh generation to steward their family land, are always thinking about long-term sustainability, for their family and in their farm management. The event highlighted how Adam and Rae are growing organic vegetables with practices that build healthy soil while adding perennials into their farmscape to expand their crop diversity, support their ecosystems and improve resilience “for the next seven generations.”

OAK staff discussed Barr Farms’ conservation practices, provided a visual demonstration of what Barr Farms’ practices are building underground, and shared resources on OAK’s [Climate-Smart Project](#). Adam shared his work with OAK’s Global Farm Metric tool, assessing his on-farm climate-smart practices as part of his whole farm sustainability efforts.

#### Organic Vegetable Production Since 2014

Barr Farms has offered Community Supported Agriculture (CSA) shares of vegetables since they started in 2007. As they made plans to double the farm’s growth in 2014, they found they were no longer able to have conversations with every customer about their commitment to land stewardship and healthy growing practices, so they sought organic certification as a way to communicate their values to customers. Barr Farms currently grows certified organic vegetables and berries for 300 CSA shareholders (including many via the [Kentucky Farm Share Coalition](#)), local farmers markets and restaurants, and food access programs like [Fresh Rx](#) and [Bringing Justice Home](#). They also raise and sell grass-finished beef and pastured poultry.

## Energy, Water and Land Efficiencies

*“There’s so much funding available for Kentucky farms.” - Adam Barr*

As they have grown their farm and markets and improved production and business systems, Rae and Adam have used the ethos of long-term sustainability to guide their decision-making. In doing so, Barr Farms has utilized multiple farm funding resources, free technical assistance and agriculture research. They’ve added alternative energy systems, like solar panels for their primary farm infrastructure: pack shed, cold storage and meat freezers (see below for USDA REAP grant details); and a solar-powered water pump for irrigation from their pond. To manage water for crop irrigation, Barr Farms developed four farm ponds with technical assistance from a USDA-Natural Resources Conservation Service (NRCS) water management plan. Adam purchased some irrigation supplies through the Small-scale On-Farm Water Management Grant from the Kentucky Horticulture Council.

Research from the [University of Kentucky](#) (UK) has helped Barr Farms work more productively with their fragipan soils, which have low water-holding capacity and limit root growth. Adam and his crew have learned to read the land, noting where water pools and adding drainage and tile systems to help divert and control water. The most effective solution Adam has found is the use of ryegrass cover cropping, sown in late summer or early fall over the entire field. The crop beds are then covered in early spring with plastic mulch, and the ryegrass continues to grow in the pathways (managed by mowing and dying out with the first frost). Adam is now integrating a diversity of [Cover Crops](#) to further the benefits to his soil and crops, like nutrient balancing, water retention, soil tilth and structure, and erosion reduction.

While the shallow water table of the fragipan helps hold water near crop roots during limited rainfall periods or dry summer months, it can also delay planting if fields flood during seasonal rains. The hot and increasingly dry months of July and August, however, are especially challenging for crop moisture, so the cover crops and additional soil health practices like [Conservation Crop Rotation](#) help mitigate the risks. Rotating crops from season to season diversifies the biodiversity below the soil, reduces pest and disease pressure, builds soil organic matter and supports pollinators and biodiversity. For consistency in rotations, materials and planning, Barr Farms standardizes their bed and field sizes, working blocks of 500-foot beds and rotating the blocks.

With up to half their production in brassicas in multiple seasons, Adam uses brassicas as the base of their annual crop plan, moving each plant family to a different block from the previous year. With this year’s addition of two 500-foot Haygrove-style caterpillar tunnels, the crew is working to move all solanaceous crops under covered production, removing them from the field rotations. Adam aspires to have cover crops in rotation in every field within one and a half to two years, yet removing those blocks from vegetable production is a challenge. Not all of Barr Farms’ available acreage is suitable for vegetable production due to water access, drainage, soil type or size to accommodate the 500-foot bed blocks.

## Perennial Plantings

In working with the land with the long-term vision in mind, Adam and Rae have chosen to use some of the farm’s “unsuitable” (for vegetable production) acreage for perennial fruit and nut trees. These long-term crops allow better use of the acreage, support diversity within the farm’s ecosystems and broaden Barr Farms’ market offerings. In 2015, Barr Farms sourced from local nurseries and planted

an orchard of diverse nuts and fruits (in the style of Mark Shepard's [Restoration Agriculture](#)). Within a few years, they realized this diversity worked well for their home/family use but limited the scale of commercial production.

To standardize their systems, Adam uses a practice called [Alley Cropping](#). (While this Practice is not yet adopted by NRCS-Kentucky, OAK's Climate Smart Project does provide Adam support and financial incentives for Alley Cropping.) In 2020 and 2021, after preparing the ground with biochar-rich compost, Rae and Adam planted new sections of perennials with standardized rows of similar species to facilitate more efficient (and someday mechanical) management and harvesting. One field block holds hazelnuts and pecans alternating down the row, with two rows of blackberries between them. Another block has pecans and chestnuts with blackberries between them; landscape fabric suppresses weeds between the plant rows, and wood mulch surrounds the plants.

A third block holds a mixture of pecans and almonds, with annual crops between them (currently okra). Adam uses a chisel plow along the edges of the tree rows to prune the roots, making smaller trees that need transplanting easier to remove and encouraging larger, healthier trees to grow deeper roots. Adam noted that annual crops are stunted under the perennial crop's drip line, so he continues to experiment with alley spacing, tree pruning and annual crop selection.

#### *Hazelnuts*

- Barr Farms is working to create systems where coppicing maximizes nut yield while providing material for other enterprises like basketry and building
- Varieties: Grand Traverse, Beast; one row of American Hazelnut at field edge for pollination.

#### *Pecans*

- Northern varieties are [recommended](#) due to the length of Kentucky's growing season
- Pecans require eight years to yield a harvest, and grafted trees yield earlier than seedlings.

#### *Chestnuts*

- [Chinese chestnut](#) varieties resistant to chestnut blight with the largest nuts (eg, Qing). Chinese chestnuts are self-sterile, so two or more different cultivars are required for good pollination
- The first harvest for seedling chestnuts can be expected in five to six years. Grafted trees will begin to bear within three to five years,

#### *Blackberries*

- While the nut trees mature, blackberries are great sellers and profitable
- Winter work: clipping new green vines with tomato clips to single-line trellising
- Varieties: Arapahoe, Osage, Triple Crown (early fruits; nothing later than this due to [Spotted Wing Drosophila](#))

#### *Almonds*

- Can be grafted to peach tree stock for improved success
- Recommended varieties discussed within the Field Day: All-in-One, Hall's Hardy

#### *Apples*

- Grafted varieties from [Brambleberry Farm](#)
- Single row of apples planted densely for [tall-spindle trellising](#)

## Gratitude

OAK is grateful to Rae Strobel and Adam Barr and the entire crew at Barr Farms for their time and efforts for this Field Day and to all the farmers and ag professionals who took time out of their busy schedules to share in the learning and conversation.

*Support for this project comes from the U.S. Department of Agriculture's Partnership for Climate Smart Commodities under agreement number NR233A750004G092.*

## Related Resource Links:

### OAK Resources:

- [Soil Health and Climate-Smart Project](#) - Build soil health and improve on-farm resilience. Enrolled farms have access to direct technical and educational resources and receive incentive payments from implemented climate-smart practices. Learn more; apply today!
- [Upcoming OAK Farmer Field Days](#) - Hosted on working farms, these events highlight organic practices used in crop and livestock systems and best practices in production, marketing, business and resilience on Kentucky farms. Register today to learn from and with other farmers!
- [Annual Organic Farming Conference](#) - Save the date for OAK's 14th Annual Organic Farming Conference, *Grounded In Organics: From Soil To Market*, January 23-25, 2025, at Kentucky State University's Harold R. Benson Research and Demonstration Farm in Frankfort, Kentucky.
- [Organic Production Assistance Program](#) - The organic production consultation services provide dedicated organic technical assistance to Kentucky farmers who are currently using or interested in adopting or expanding organic practices.
- [OAK Transition Program](#) - Organic Transition specialists assist farmers interested in transitioning to USDA-certified organic production. Organic Specialists are available for one-on-one consultations, providing a personal level of service and technical assistance on-site, at the farmer's convenience.
- [Join OAK today!](#) The sustainable food and farming network in Kentucky is growing, and together, we can create a thriving local food system. Your support and participation helps OAK deliver educational programming, provide community outreach and enhance market opportunities for growers across Kentucky.! Receive discounts on OAK events and other member benefits!
- [Sign up for OAK newsletters](#) - For farmers and consumers, OAK offers a variety of regular communications to stay connected to Kentucky food and farming news, research and events.
- [OAK YouTube](#) - View recordings, snapshots and lessons learned from host farmers in past conference and field day playlists.
- [Suppliers and Farm Resources](#) on OAK's Find-A-Farm Directory

### Climate-Smart Agriculture Resources:

- [Soil Health and Climate-Smart Project - Build soil health and improve on-farm resilience. Enrolled farms have access to direct technical and educational resources and receive incentive payments from implemented climate-smart practices. Learn more; apply today!](#)
- [Climate-Smart Practices](#) highlighted at Barr Farms Field Day:
  - [Conservation Crop Rotation](#)

- [Cover Crops](#) (more resources below)
- [Nutrient Management](#)
- [Alley Cropping](#) (NOTE: This practice is not yet included in Kentucky-NRCS's supported practices but is supported through OAK's Soil Health and Climate-Smart Project.)
- Details of the USDA-NRCS Practice Standards for the Practices above are included in the [Field Day participant packet](#).

#### Soil Health Resources:

- Soul Fire Farm's [How Alive Is My Soil?](#)
- [Cornell Soil Health Manual](#) - Cornell University's College of Ag and Life Sciences
- [Building Soil Health in the South](#) - Organic Farming Research Foundation (OFRF)
- Cover Crops
  - [Cover Crops for Sustainable Crop Production](#) - Sustainable Agriculture Research and Education (SARE)
  - [Managing Cover Crops Profitably](#) and [Building Soils for Better Crops](#) - SARE
  - [Covers Under Cover: Managing Cover Crops in High Tunnels](#) - University of Kentucky et al
    - [Cool-Season Cover Crops for High Tunnels in the Southeast](#)
    - [Warm-Season Cover Crops for High Tunnels in the Southeast](#)

#### Crop Production Resources:

- [OAK virtual event recordings with Adam Barr, Barr Farms](#)
- [General Production Resources | Center for Crop Diversification](#)
- [Organic Agriculture | Center for Crop Diversification](#)
- [Crop Rotation on Organic Farms | SARE](#)
- [Community Supported Agriculture \(CSA\) Production Manual](#) of the Organic Farming Unit at the University of Kentucky
- [Resources for Commercial Growers: Fruits and Nuts | Department of Horticulture](#)
- [Fruit and Nut Nursery Directory](#)

#### Funding /Technical Assistance Resources and Service Providers:

- Kentucky Center for Agriculture and Rural Development ([KCARD](#))
  - Free [business planning](#) for Kentucky farms and agribusinesses
  - [Funding assistance and grant information](#) (Kentucky and beyond)
  - Sign up under "GET UPDATES" on [KCARD website](#) to receive e-newsletters
- U.S. Department of Agriculture (USDA)
  - Read this first! [A Guide to USDA Resources for Historically Underserved Farmers](#)
  - USDA [Farm Service Agency \(FSA\)-Kentucky](#)
    - [How to Start a Farm: Beginning Farmers and Ranchers](#)
    - Find your county's office in [West Kentucky](#) or [East Kentucky](#)
  - [USDA Natural Resources Conservation Service \(NRCS\)-Kentucky](#)
  - [USDA's Rural Energy for America Program \(REAP\)](#)

- Kentucky Department of Agriculture (KDA)
  - [Organic Marketing Program](#)
  - [Grants and Funding Opportunities](#)
- Grants:
  - Kentucky Horticulture Council
    - [Small-scale On-Farm Water Management Grant](#)
    - [GAP \(Good Agricultural Practices\) Cost-Share Program](#)
  - [SOAR loan](#) - southern and eastern KY
  - [KSU Small-Scale Farm Grant](#)
  - [County Ag Investment Program \(CAIP\)](#) grant: county-specific! Ask your County Cooperative Extension Agent