



## **AOOA FARM FAQ**

*The type of farming we should all rally for and support is farming that produces nutritionally rich food by shepherding rich, biodiverse, and healthy environments. Agriculture can deplete and harm, or we can leverage it as a tool to replenish and augment. It is time that we come together and promote rampant beneficial agricultural practices!*

### **How large is the farm?**

The property is 14.53 acres. We estimate that with the barn, stable, farmhouse, and roads, about 10 to 11 of those acres are productive and used for farming.

### **What does “regenerative silvopasture farm” mean?**

AOOA is a regenerative silvopasture farm. It is a “regenerative” farm because the work we do ameliorates the soil and supports biodiversity. AOOA is a “silvopasture” farm because we utilize a land management practice that involves planting trees and shrubs within pastures or fields where livestock are grazed. This practice creates a diverse and multifunctional landscape - a framework where the deck is stacked to produce delicious harvests, support the local ecosystem, and ameliorate environmental conditions.

Many studies show these are the best and most responsible farming practices. We use the standard suite of regenerative practices including: planting trees, no-till vegetable growing, occultation practices, mulching, conservation, biocontrol, brush piles, multifunctional plants, planted vineyard alleys, diverse native plants, wildflower meadows, matching crops to the land, keyline design (row layout), multispecies rotational grazing, cover cropping, and maintaining perennial cover. We are also leveraging flora resources (pollinator gardens for example), overwintering habitats, and egg laying habitats which encourages pollinators to stay and fructify!

### **What are the benefits of silvopasture farming?**

Here are the top five reasons silvopasture farming is vitally important and beneficial:

1. Improves habitat for native wildlife and pollinators.
2. Improves soil health through leaf litter, deep roots, and rotational grazing.
3. Reduces runoff and improves water quality by promoting year round perennial cover.
4. Has the potential to produce higher crop yields than single crop systems. Promotes biodiversity and therefore a more resilient system, enabling independence from commodity markets.
5. Sequesters more carbon due to the number of trees and healthy soil.



## **How is AOOA managing soil health?**

Prior to purchasing this land, the soil here had become very compacted over time. Our ultimate goal is no-till management, which minimizes soil disturbance and reduces the loss of soil nutrients and organic matter. Tilling the soil can lead to erosion and the loss of soil structure, as well as the release of carbon dioxide and other greenhouse gasses into the atmosphere. By eliminating tillage, no-till management can help to improve soil health and productivity, reduce erosion, and decrease greenhouse gas emissions.

In the meantime, we are focused on improving soil health through applying compost, planting legumes, practicing intensive rotational grazing, and using a large percentage of perennial plants. We will also be subsoiling judiciously and rototilling only in the establishment phase. Subsoiling is a farming technique that involves breaking up the soil at a deeper level than regular plowing or tilling. The goal of subsoiling is to loosen compacted soil, improve drainage, and increase the infiltration of water and air into the soil.

We have designed the farm to minimize soil erosion. We monitor pasture productivity using a grazing stick and clipping samples and monitor soil compaction with a penetrometer. We irrigate with a water-conserving drip irrigation system.

## **What does rotational grazing within a silvopasture system look like?**

Rotational grazing is a method of managing pastureland and livestock that involves moving animals to fresh paddocks or pastures every couple of days or so. It allows the pasture to recover and regrow before being grazed again, which helps to maintain the health and productivity of the land. This is typically done using portable fencing, which can be easily moved to create new paddocks as the animals graze.

In AOOA's silvopasture system, the paddocks include both grassland and tree or shrub plantings. Rotational grazing in a silvopasture can help to improve the health and productivity of both the trees and the forage, as well as the overall ecosystem. The trees can provide shade, wind protection, and habitat for wildlife, as well as helping to stabilize the soil and reduce erosion. The forage can provide feed for the livestock and help to maintain the health and productivity of the pasture.

Rotational grazing can help to increase the efficiency of pasture utilization, improve animal health and productivity, and help to reduce the risk of overgrazing, which can lead to soil erosion and other negative impacts on the land.



## **How is the AOOA silvopasture designed and maximized?**

We have planted a diverse orchard of fruits and nuts planted in widely-spaced rows so that our paddocks can fit between. We are growing common fruits like apples, peaches, and pears, and some not-so-common fruits, like pawpaw, black currant, and seaberry. We have also planned a block of hybrid, blight-resistant chestnuts selected for hardiness and productivity.

The orchard trees are spaced 42' apart, and there are two rows of fodder trees between the rows of orchard trees. There are 14' between all tree rows. Blocks of fodder trees have breaks every 82'. This spacing fits a rectangle of three-by-seven electronet panels nicely.

These rows make up about 60 82' x 42' blocks available for grazing. We have a mix of cool season grasses and legumes: timothy, orchardgrass, fescues, quackgrass, clover, trefoil, stiltgrass, bindweed, chicory, burdock, thistle, and a section of reed canarygrass, too.

We move the sheep and chickens every 1-4 days depending on many factors, such as the season, the grass length, and which trees are in the block. The chickens typically follow the sheep in rotation. Once the sheep have rotated through and eaten down all of the paddocks, about 60 days will have elapsed and the first paddock will have regrown. We monitor the grass in between grazing sessions and mow when necessary to ensure it stays immature and optimally nutritious.

We have also incorporated plants like willow, witch hazel, and white oak, and herbaceous plants like milkweed, coreopsis, and buckwheat that provide for pollinators and encourage the predators of orchard pests (parasitic wasps and ground beetles, for instance). We also grow annual vegetables and crops like asparagus and rhubarb.

## **What kinds of crops does AOOA cultivate and what growing practices are used?**

Our vegetable garden consists of six groups of seven 60' long beds on a southern facing slope. That's 42 60' rows all together! Here, we grow a wide variety of crops: beans, beets, bok choy, butternut squash, carrots, garlic, herbs, kale, kojnut squash, lettuces, onions, peppers, potatoes, radishes, tomatillos, tomatoes, turnips, eggplant, chard, summer squash, and more. We also grow flowers, lots of culinary and medicinal herbs and are cultivating mushrooms all around the property.

At times, we do use organic-approved materials like Bt and kaolin clay on crops, but we do so judiciously. We use composted chicken and lamb manure fertilizer. We use wood chip mulch for weed control, but we try to use an integrated pest management (IPM) mindset for deciding where to intervene.



We also erected a high tunnel in 2022 to extend our growing season!

### **Why are there brush piles around the property?**

Brush piles are a part of our integrated pest management strategy and are a habitat for beneficials. Native bees, predatory ground beetles, parasitoid wasps, snakes, birds, all use wood at various stages of decay. We want the bees for pollination, the beetles and wasps to eat our pest insects, snakes to eat voles, birds to eat caterpillars, etc. Plus, we have over a thousand trees, and we need some places to put broken branches! The brush piles will attract some pests, too, but we believe that we get more benefit from having a fuller ecosystem than to trying to make the farm inhospitable to all wildlife.

### **What kind of native species can one find at AOOA?**

*Trees and shrubs:* pawpaw, persimmon, black locust, red mulberry, honey locust, elderberry, american plum, hazel, white oak, blueberry, aronia, juneberry, false indigo, cottonwood, river cane (semiarundinaria gigantea, the only native bamboo). Our chestnuts are hybrids with mostly Chinese chestnut, *Castanea mollissima*, bred for making lots of nuts.

*Flowers:* early sunflower, baptisia, wild bergamot, bee balm, milkweed, anise hyssop, black-eyed susan, maximilian sunflower, Jerusalem artichoke, lupine, echinacea.

### **Why do you mulch?**

Mulching retains moisture in the soil, breaks down to become soil organic matter, provides habitat for bugs, and keeps the weeds down.

### **Why do you tarp the ground, what is it good for?**

Occultation or “weeding with tarps” is considered an important weed management tool and often used in small-scale organic vegetable production. It is a process to get us closer to a neutral seed bed. We tarp, untarp, and tarp again. Weed seeds germinate in the warm, moist environment, then die due to lack of sunlight, and decompose back into the soil.

### **Tell us about the Karakul sheep!**

We started with two pregnant ewes in the spring of 2021 and currently have a small herd of twenty Karakul sheep.



We use the sheep for meat, wool, and milk. We process the wethers in the fall, and use the meat in the farm stand kitchen. We shear twice a year, usually March and September, and process their fleece into beautiful and durable yarn and felt to sell at our farm stand as is or make rugs and hats. We hope one day to process the milk into the most amazing yogurt. Until we build out the milk processing facility and get our license we cook with the milk as an ingredient in the decadent products we have at the farm stand.

To breed the sheep, we “rent” a ram who arrives in mid-November, after the ewes had access to nice lush pastures, taken a couple of months off from lactating, and are in good condition for pregnancy. We aim to lamb in mid-April in the barn. We begin to ramp up supplemental feed to the ewes starting six weeks before lambing. April lambing is much less stressful than earlier in the winter, and it matches up with our goals of getting the sheep on pasture in May to start milking.

We register our ewes with the Karakul Shepherds’ Association.

### **Tell us about your chickens and pastured eggs.**

We typically rotationally graze 300-500 heritage or livestock-endangered breeds of hens. We keep them in salvaged horse trailers modified with nesting boxes and a roost. These trailers are fortresses, so at night when the hens go in and the door closes behind them, they are super safe from predators. During the day, we have kites to help ward off attacks from hawks. In farming, we are wholly dependent on nature, meaning that we occasionally succumb to a nature tax.

We believe happy animals are best for humans and the planet. Our chickens are rotationally grazed in the silvopasture separately after the sheep. They do their part in the fields to fertilize and control insects. They have access to sunlight and real ground every single day—even when it snows. They forage for their food and receive supplemental feed as well as veggie scraps from the farm stand. The meat and eggs from birds are undeniably tastier and more nutritious (search “free range vs. factory farmed eggs” for more info on this subject). Our menu at the farm stand is egg-forward thanks to these amazing birds.



## **ADDITIONAL RESOURCES**

### ***On silvopasture farming and its ecosystem services and benefits:***

“Chapter 2: Reducing Threats and Enhancing Resiliency.” Agroforestry: Enhancing Resiliency in U.S. Agricultural Landscapes Under Changing Conditions. United States Department of Agriculture. November 2017. Online PDF: [https://www.climatehubs.usda.gov/sites/default/files/gtr\\_wo96.pdf](https://www.climatehubs.usda.gov/sites/default/files/gtr_wo96.pdf)

### ***On how carefully planned trees do wonders for water quality:***

Working Trees for Water Quality. USDA National Agroforestry Center. 2012. Online PDF: <https://www.fs.usda.gov/nac/assets/documents/workingtrees/brochures/wtwq.pdf>

### ***On how more trees in ag lands help prevent runoff and how nitrogen, phosphorous, and sediment export are reduced with perennial grass strips and tree rows:***

Udawatta, R.P., J.J. Krstansky, G.H. Henderson and H.E. Garrett. 2002. Agroforestry Practices, Runoff and Nutrient Loss: A Paired Watershed Comparison. Journal of Environmental Quality. 31:1214- 1225. <https://doi.org/10.2134/jeq2002.1214>

### ***On the benefits of integrated brush piles:***

Bentrup, G., J/ Hopwood, J., N.L. Adamson, and M. Vaughan. Temperate Agroforestry Systems and Insect Pollinators: A Review. Forests 2019, 10(11), 981; <https://doi.org/10.3390/f10110981>

### ***On how a silvopastoral system like AOOA's has the capacity to deliver positive outcomes related to land productivity as well as environmental and climatic benefits:***

Sales-Baptista, E., Ferraz-de-Oliveira, M.I. Grazing in silvopastoral systems: multiple solutions for diversified benefits. Agroforest Syst 95, 1–6 (2021). <https://doi.org/10.1007/s10457-020-00581-8>