Starting with trees and sheep together

New York farm designed for the benefit of both

By Tamara Scully

Goshen, New York — At the non-profit All for One One for All Farm (AOOA), trees and shrubs are a major part of the operation.

The mother/daughter duo of Ariane and Alix Daguin, the farm's founders, grow tree fruit, as well as brambles and other small perennial fruits, and they utilize brush piles to attract insects and snakes.

Silvopasture is the farm's cornerstone. By design, the farm's grazing system includes nutritious fodder trees as well as pasture forages. The Karakul sheep flock grazes the fodder trees, which are planted within the orchards. Trees and shrubs are specifically selected for use on the same land as livestock and horticultural crops.

The goal is to promote animal wellbeing, enhance the biodiversity of flora, enrich soils, provide habitat for pollinators and wildlife, and promote water infiltration and tree health. Ariane and Alix want to showcase a biodiverse, community-focused farm that includes a market garden and flower production.

They have a farm stand, along with a farm kitchen to cook and sell food from the farm's bounty. Educational tours, workshops and events occur regularly, and private events can be held there as well.

For now the sheep are kept out of some areas of perennial crops — grapes, berries and asparagus — as AOOA hasn't implemented a grazing plan that would protect those plants. The flock is grazed among eight acres of orchards that have been specifically designed for grazing, as well as for the production of fruit for humans.

"The system is based on the intensive silvopasture systems that have been developed in South and Central America over the last 30 years," explains Eli Roberts, who manages the grazing.

Fodder between fruit

Fodder trees have been planted between the fruit tree rows to provide browse for the sheep. The fruit trees were planted in rows 42 feet apart. Fodder trees were established 14 feet from each row, providing two rows of fodder trees between the orchard tree rows.

A break was created in the fodder tree rows every 82 feet to allow electric netting to be placed to make paddocks, thus creating 60 grazing blocs within the orchard. Each grazing bloc was designed to support the flock for about two days depending on growing conditions. Netting also prevents sheep from accessing the fruit trees.

All for One One fo All Farm

Black locusts serve as fodder and, eventually, shade.

The fodder trees are still young, so inexpensive shade structures are being used until they mature enough to provide shade.

Forages include a mix of cool season grasses and legumes including timothy, orchardgrass, several fescues, quackgrass, clover, trefoil, stiltgrass, bindweed, chicory, burdock, thistle and a section of reed canarygrass. Planting annuals isn't really an option on the land due to the hilly terrain and odd layout of the pastures.

Sheep begin grazing each spring when the grasses are eight to 10 inches tall, which is just prior to the fodder trees leafing out. The grazing season is mid-May through mid-October.

Stockpiling for late fall grazing doesn't work here, as sheep will strip the bark off the fodder trees in the late season. The ground is too wet to support outwintering, so the flock is housed in a barn with access to an outside yard.

Grazing within an orchard requires some special management, and changes will have to be made as the orchard and fodder trees mature.

Once the fruit trees reach bearing age, for food safety reasons the sheep will not be able to graze during harvest season. And as both the fodder and orchard trees mature, growth of pasture grasses may be affected by added shade.

"Some research suggests that partly shaded conditions help keep the grass quality higher for longer into the summer. Our trees are just getting to that point, so we're hoping for some forage quality effects, too," Eli notes.

And once the fodder trees grow too large, they'll start competing with the fruit trees, and will need to be cut down. By coppicing the trees, new shoots will emerge quickly from the stumps.

Fodder as supplement

"The fodder trees are kept low and relatively shrubby so that the sheep can reach about half the leaves, and the other half provide shade and reserve feed," Eli explains. "We think of the leaves as a supplement to the normal pasture diet. It's nice to have a nutritious forage supplement growing during the summer slump in July and August."

The fodder species planted — mulberry, black locust, willow, false indigo and hybrid poplar — were selected because they are fast growing, nutritious, palatable and resilient.

False indigo can grow well in the farm's wet soils. Mulberry is high in protein and highly digestible. Black locust and willow provide tannins, which help fight parasite infestations. Fodder trees also keep the sheep from grazing too low, also reducing parasite loads.

"We're trying to give the sheep a nutritional, varied diet even when the cool-season grasses are not at their peak," Eli says.

This past August, the fodder trees didn't have many branches that hadn't already been browsed during earlier rotations, and the pasture grasses were suffering in dry conditions. To provide forage for the sheep, branches were cut and hauled over from fodder trees located in the vineyard acreage outside the paddocks.

Once the trees are more established, they'll provide additional flexibility in the grazing plan. Whether in a dry or a wet season, Eli anticipates the added fodder from more mature trees will allow for more strategic grazing management.

Refining the system

"We're still refining the grazing system. The trees are getting bigger and more productive, so that will give us more flexibility in both dry years and wet years," Eli says. "I think of it the same way I think of managing any diverse patch of vegetation: you manage the aggregate, not the individual plants. And if you have to make tradeoffs like grazing too hard or not enough, you can. And that affects how much recovery you need."

The system seems to be promoting flock health. "We're diligent about pasture rotations, and the sheep have ready access to high-tannin plants like birdsfoot trefoil, black locust and willow," Eli notes. "They browse above the level of the grass, and they have access to good nutrition throughout the summer, so we haven't had internal parasite issues. The deer mostly stay out, so our meningeal worm risk is low.

"In the end, if the sheep act happy and healthy, maintain good body condition and growth and lamb successfully, that's the ultimate determinant of whether we're doing a good job."

Tamara Scully is a writer based in Columbia, New Jersey.

Evidence indicates problems at Beyond Meat plant

Photos and internal documents from a Beyond Meat Inc. plant in Pennsylvania show apparent mold, Listeria and other food-safety issues, compounding problems at a factory the company had expected to play a major role in its future, according to Bloomberg news.

Products from the plant tested positive for Listeria on at least 11 occasions during the second half of 2021 and the first half of 2022, according to an internal document provided by a former employee concerned about conditions at the plant.

The occurrence of the bacteria at the facility was confirmed to Bloomberg by two former employees, who asked not to be named discussing information about the company.

Photos taken by a former employee from inside the plant in January and April show what appear to be spills, unsafe use of equipment, and mold on walls and ingredient containers, while spreadsheets, photos and internally prepared reports reveal that foreign materials such as string, metal, wood and plastic have been found in food from the plant at least as recently as December 2021.

Inspections by the Pennsylvania Department of Agriculture in March and September "found no instances of nonconformance with regulations," and the company's food-safety protocols "go above and beyond industry and regulatory standards," a spokesperson for Beyond Meat said.

"Mold growth takes a while — that underscores a lack of cleanliness," said Bill Marler, a food safety attorney, after viewing some of the photos. "If neat and tidy is 1 and filthy is 10, I'd put this at an 8."