



Living mulch cover crop of buckwheat, radish, and field pea, planted in between rows of potatoes on plastic mulch.

Plato Dale Farm

Six Generations of Stewardship

Since the mid-1800s, hundreds of acres of the land that follows the small Plato Brook stream in Arcade, New York, have been passed down through six generations of the Miller family. Kent Miller grew up on the farm, working alongside his parents in their dairy operation until 2010.

“My grandfather was involved in developing the American Jersey Cattle Association, and when my dad took over in the 1970s, he helped build the smaller herd up to about 200 cows,” Kent said. “When I came home, we expanded to almost 1,500 cows.”

However, dairy prices collapsed in 2007–2008, so the family sold the dairy and all but 200 acres. In 2010, Kent started Plato Dale Farm with a small herd of Jersey bull calves left over from the dairy and a one-acre CSA vegetable crop. Over the next decade, he continued to grow the farmstead, which now includes beef, sheep, pork, chicken, eggs, fruit, and vegetables.

“Why do we do what we do here? It starts with family, but it’s more than that,” he said. “Our why is to share the gift we’ve been given with the community and our customers. It’s incumbent upon us to care for and share this beautiful place.”

Prioritizing sustainability

Plato Brook, which flows through the farm, feeds the headwaters of Buffalo Creek, underscoring the importance of conservation and environmental stewardship. Across the operation, Kent

employs a range of conservation practices, from rotational grazing and the use of native species in pastures to strategic management of vegetable and fruit crops and pollinator-friendly practices. “We are very cognizant of our need to manage these well because our facilities and pastures are directly connected to the Buffalo Creek through the Plato Brook,” he said.



Kent Miller and Eric Rose.

When the opportunity arose to participate in the American Farmland Trust Demonstration Farm Network to trial different sustainability practices, Kent was immediately on board. His father had served as an AFT board member, and the family wholeheartedly believes in conserving agricultural lands.

“We are always looking to do interesting and fun things,” he said. “Running trials also helps us develop our team around ways we can make positive change in what we do every day.”

After discussing with staff, Kent and the farm’s vegetable field manager, Hannah Prutsman, chose to trial using hay as a mulch for potatoes rather than plastic mulching.

Farm at a Glance

COUNTY: Wyoming County, NY

WATERSHED: Headwaters Buffalo Creek, Buffalo-Eighteenmile

CROPS: Organic vegetables, organic pastured chickens, grass-fed beef

FARM SIZE: 200 acres

SOILS: Howard-Madrid gravelly loam

SOIL HEALTH PRACTICES: Cover crops, crop rotation, reduced tillage, organic methods, mulching, soil amendments



Potatoes planted into hay mulch.

All photos courtesy of Plato Dale Farm



This material is based on work supported by USDA NRCS Cooperative Agreement: NR232C31XXXXC005.

Plato Dale Farm

"We want to get away from using plastic on longer season crops for sustainability, and pulling plastic at the end of the season is nobody's favorite job," Hannah shared.

Trial setup and treatments

In one block, the farm planted two rows of hay-mulched potatoes alongside 15 rows of plastic-mulched potatoes. For the plastic rows, it took 10 minutes to lay the plastic, while mulching with hay took about two hours per row, she explained.

Throughout the growing season, weed pressure was lower in the hay rows. "Once we mulched heavily with the hay, we didn't have to weed those rows much," she said. "The plasticulture took a little more weeding. We did go through and weed those potatoes once."

The most striking difference was the yield. Plastic rows averaged 300 to 320 pounds per row, while hay rows averaged nearly double, about 620 pounds.

"The tubers were much larger for the hay rows," she said. "Fewer potatoes per plant, but larger tubers."

The hay-mulched plants also stayed green longer, giving the team more flexibility on harvest timing, while the plastic-mulched plants had already died back.

There were a few tradeoffs. The hay-mulched potatoes were more prone to blight, and at harvest, pulling back the hay exposed workers to dust and mold spores, prompting the farm to provide masks. Hannah recommends using good-quality, weed-free bales to help reduce dust and mold. Harvest labor was also higher: about nine hours per row compared to six for the plastic rows, and mulching costs were higher: \$90 per row for hay versus \$8 for plastic. Overall, Hannah said the trial was a success, and they would continue to experiment.

One critical factor in making hay mulching feasible was mechanization, specifically the use of a manure spreader to distribute the hay. Two years prior, an attempt to mulch with hay failed because the team hadn't left enough space for the spreader and had to move hay by hand.

Finding Additional Benefits

In addition to reducing plastic use on the farm, the hay mulch system also supports soil health.

Conventional potato production typically involves plowing, tilling, and cultivating in furrows, practices that disturb soil and can increase erosion. Hay mulch, by contrast, means less soil disturbance and likely less erosion, making it more sustainable. It also appears to support beneficial insect activity.

"The black plastic tends to get really hot in July," Hannah said. "The hay is probably cooler for the soil, and I'm sure there was more insect life around those rows."

For Plato Dale Farm, the trial wasn't just about the business side of growing potatoes. It was about continuing a commitment to stewardship that has defined this land for six generations, and finding practical, sustainable ways to carry that legacy forward.

"American Farmland Trust has played a pivotal role in taking us from where we were to where we are today," Kent said. "I think we are close to an existential crisis today in farmland loss, and American Farmland Trust's support and trials can take us to a future where we can produce food healthily, we can interact with our community responsibly, and we can preserve the environment in ways that allow us to curb climate change."



Side-by-side: potatoes in plastic vs. hay mulch.

Early Observations

- Potato yields under the hay mulch were nearly double that of potatoes grown on plastic mulch.
- Potatoes grown under hay-mulch were slower to die-back compared to potatoes grown on plastic mulch, allowing for a staggered harvest.
- Harvest labor was also higher: about nine hours per row compared to six for the plastic rows and mulching costs were higher: \$90 per row for hay mulch vs. \$8 for plastic.

Next Steps:

- The farm will continue to trial growing potatoes in hay mulch vs. plastic mulch in order to determine how the treatments fair across seasons, and differences in precipitation from year-to-year.


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