

# Soil Care Creativity, Ingenuity At Work On Lancaster Farms

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pressure came from feeding corn silage — a lot of weed seed left over with the manure was causing weed emergence.

For controlling weeds, a fall cultivation is completed on fields that will rotate off of corn. The manure is "precomposted" as much as possible, said Don, and is aerated by pump underneath.

The precomposted material is applied in the fall and a moldboard plow is used to turn the stalks into the ground to raise the organic matter in the soil and prevent nitrogen leaching.

Two types of weeds challenge the Weavers the most — burcucumber, also known as "wild pickle," and shattercane. Nelson mostly uses a spot sprayer with a cultivator, using a variety of herbicides.

Don said that soil pH is maintained at 7.0-7.2. Also, the cation exchange properties are monitored. Don said the calcium-magnesium saturation ratio is 5:1.

He indicated that too many growers have a high magnesium to calcium saturation ratio, which can hinder soil productivity. But with the use of soil microbes, more careful application of manure, and good rotations, the corn was "tremendous this year," he said, with one field during a field day containing stalks "14 feet tall."

Ground used for corn is planted when the temperature is right, according to Don. He said he didn't like to "plant corn in coveralls and a knit cap," and to wait until the soil temperatures were right. Nelson checked the soil temperature a few days ago and the readings were low — only 47 degrees — not warm enough to plant. But a temperature check on Wednesday confirmed that it was OK to plant — by almost noon, soil temperature stood at 58 degrees.

Before planting, Nelson makes use of a rotary hoe to aerate and loosen the soil a few inches down. Corn, a 118-day variety, is planted on 30-inch rows at 27,000-29,000

plants per acre.

More about the Weaver Farm, their history and cropping strategies, and some of the reasons they switched to these methods will be included in next week's *Lancaster Farming*.

At the Justa Jersey Farm operated by Enos Hoover, also near New Holland, eight pigs hop onto and cavort around on a two-and-a-half-foot pile of manure in an area measuring about 25 feet wide and 100 feet long. The area holds manure from the dairy cows in the heifer barn.

What are the pigs doing up there? They are rooting around, aerating the manure, according to Enos.

Some call this management strategy "pigaeration." But Enos claims it works to prepare the manure a little better for spreading on the farm fields.

Enos and his wife purchased the 55-acre farm in 1971 from Mrs. Hoover's parents. The farm had been in the family three generations.

Enos used to manage a herd of 30 Holstein cows. He followed a fairly standard crop rotation of four years of alfalfa followed by four years of silage corn. The first and fourth cuttings of alfalfa were stored as haylage. The moldboard plow and disc were used for tillage. Crop fertility needs were supplied with the manure and purchased fertilizer. Herbicides were used for weed control in corn and for establishing alfalfa. Leafhoppers in alfalfa and corn rootworm were controlled with insecticides.

But over the years Enos made some changes. He switched to a more biologically based system. The past year, he started using pigaeration. He gradually reduced the purchase of off-farm inputs and realized better profits, he noted.

"Profits is what counts and they are better," he told the tour members.

He replaced his Holstein herd with Jerseys over a period of time and began converting cropland to intensive grazing.



With the use of spelt, which Hoover showed the tour members, the environment can handle it easily. Spelt is similar to oats but higher in protein. It's a good fiber feed. He has been able to harvest 80-90 bushels of the grain, fall seeded.



Nelson Weaver operates the rotary hoe on the tour Wednesday.

He became totally organic — certifying his farm as organic in 1994 has enabled him to get a \$6.38 premium as of March for his milk.

In 1982, Enos began using a cropping system that uses the increased biological activity of the soil. Soybeans were added to the rotation to break up the sequence of corn following corn. The new rotation included two years of alfalfa, corn, soybeans, corn, and back to alfalfa. By switching from a moldboard plow (stored away now, unused, for 10 years, he said) to a chisel plow, Hoover was able to change from deep to shallow tillage. With these changes and several others, Hoover saw an improvement in the tilth of his soils and a positive impact on yields.

In 1993, Hoover became interested in the prospect of selling organic milk and began buying Jersey cows. Hoover finds the Jerseys require less labor and are easier to handle.

As he switched over his herd, he decided to try grazing. He now has 28 acres in grass and the remaining 27 acres in crops. He crop rotation consists of fall-seeded spelt (a wheat with lax spikes and spikelets containing two light red kernels) and timothy, followed by one year of alfalfa/timothy and one year of corn. The timothy/alfalfa mix is harvested as hay, and the corn as ear corn.

With the switch to grazing and his crop mix, Hoover no longer

uses the silos and the TMR mixer.

Hoover began using the pigaeration method last year, when he purchased three pigs. He told the tour members that he picked ones from his neighbor that were "runts and had floppy ears — they were cheaper that way." He spread corn ears on top of the windrow to encourage the pigs to work the manure. He turned the manure three times with a skid loader and, with the pigs' help, applied the composted manure to his alfalfa field. The pigs were also fed soybeans.

Hoover maintains a herd of 31 Jerseys, including dry cows. He milks 27 Jerseys with about the same number of replacements. The herd tests at about 11,000 pounds. A top producing cow milks about 16,000 pounds.

With his manure aeration strategy, he is simply getting by with the pigs. Mostly, he is work-

ing to keep the organic matter and earthworms predominant in the soil. "We make a soil that's alive and produces its own plant foods and has them available as we go," he said.

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Also at the tour, Arden and Caroline Landis of Car-Den Holsteins, Kirkwood, spoke about their experiences of switching to grazing.

The tour continued Wednesday evening with a tour of the Rodale Institute Experimental Farm. On Thursday, the tour resumed with stops at Cedar Meadow Farm, operated by Steve Groff, and the Pequea-Mill Creek Project in Smoketown.



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# MILK

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