

CONSERVATION *Showcase*



Cows Major Source of Farm Power

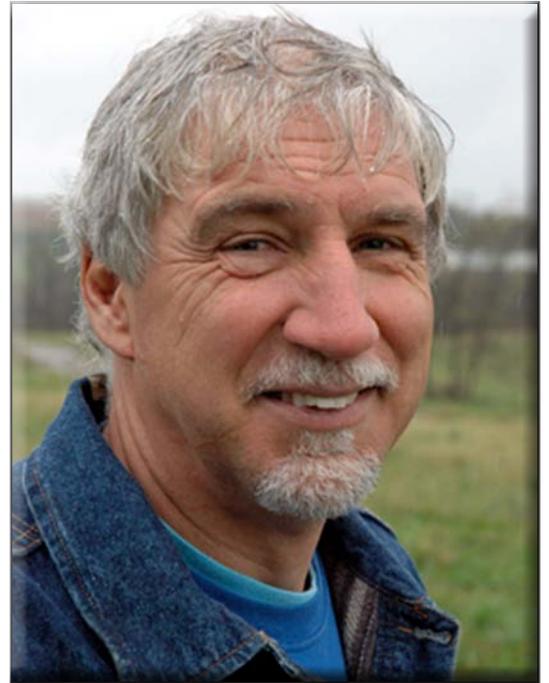
Dairy farmer Francis Thicke says cows power his dairy farm.

Some may think he is joking, but Thicke is serious. He says letting his cows walk to grass is much more efficient and economical than mechanically harvesting forage and transporting it to the cows. Thicke says he designed his Jefferson County dairy operation to be as energy efficient and environmentally friendly as possible and set up his farm so that available cow power is captured.

He also credits solar power for providing another on-the-farm power source.

U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) is helping Thicke harness the sun and maximize his "cow power."

Thicke and NRCS District Conservationist David White stand next to a solar panel that powers a submersible pond pump which waters his 140 head of cattle.



Francis Thicke

Thicke (pronounced tick'-ee) and his wife Susan own Radiance Dairy near Fairfield. They graze 140 head of cows on 236 acres of land. The farm is tied into the electrical grid and he uses traditional fuel in his trucks and tractors, but that's where the similarity to many traditional dairy farms ends. Thicke lets his cows go to the grass instead of mechanically harvesting

most of his cattle's feed and transporting it. The Thicke farm is divided into 60 two-acre paddocks. He milks 80 cows twice a day. At milking time cows move to the milking parlor by themselves. After milking is done, they go to a fresh paddock to graze.

NRCS helped design and provided financial assistance on Thicke's paddock system.

The Thicques also use portable fencing to subdivide paddocks when needed.

"This paddock pasture system allows me to build topsoil instead of losing it with row crops," said Thicke. "When you graze tall grass, cattle cut it short. Then the plant doesn't need a long root mass so it sloughs off the deep root system. Repeated cycles of

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this builds organic matter deep in the soil and increases it on top. The high organic matter allows the soil to better soak up rainwater and prevent erosion. It's also more productive."

Thicke said, "We can graze at the right stage of plant growth which makes for a higher quality forage. This ensures the cows get the best nutritional benefit from the grass and the grass paddocks can efficiently produce high quality feed."

The paddock grazing system also eliminates hauling manure. The cattle evenly deposit their waste throughout the farm saving him time, equipment and fuel and fertilizer costs.

The Thickeys purchased their farm in 1996. David White, NRCS district conservationist in Jefferson County, says the farm used to be row cropped. The Jefferson County soil survey labels the entire farm as being highly erodible land (HEL) with high clay content.

"High clay fields don't drain well," said White. "In Jefferson County, it takes us three times as long for fields to dry out than ground two counties north of us. Some of our fields have such high clay content that tiling is not effective. This limits farm productivity. HEL soil that is row cropped is much more likely to erode."

The HEL ground on Thicke's farm did erode when it was row cropped. Thicke says they found a number of bare spots where all the topsoil had washed away on their newly purchased farm. He changed that by planting the farm ground to pasture.



White and Thicke examine a geothermally heated watering tank. A large tube under the watering tank extends deep enough into the ground to bring up geothermal heat to keep the water tank from freezing in the winter. The system allows Thicke to outwinter dry cows and heifers in paddock areas below a dam built to form a gully stopping pond.

Planting the farm to grass helped cut erosion, but both men agree additional measures were needed. NRCS designed and helped Thicke fund the construction of an erosion control structure on his farm. The structure stopped gully erosion and the pond it formed is now a source of water for the cattle.

Thicke says the key to an effective paddock system is getting water to the cattle. Thicke injected over a mile of one-inch polyethylene pipe eight inches underground. The pipe feeds short vertical pipes connected to float valves in water tanks cattle can access at each paddock.

At one time, rural water supplied the water Thickeys' cattle needed. Not anymore. Thicke turned to NRCS for help and a solar watering system was designed and installed. Solar panels convert sunshine to electricity and power a submersible pump which sends pond water up a hill to a 4,000-gallon tank. The tank uses gravity throughout the underground piping system to water the cattle in each paddock.

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Thicke said, “The solar powered pump system works very well. It cost us \$5,000 to install. NRCS provided financial assistance through EQIP, the tax code gave us a tax credit, and we are saving \$150 a month on our rural water bill. I’m very pleased with the results.”

White said, “Francis Thicke makes a very good case for cows and solar power being

major energy sources on his farm. I’m just pleased NRCS has been able to help Radiance Dairy be more efficient and better protect the environment. That’s something in which we can all take pride.”

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