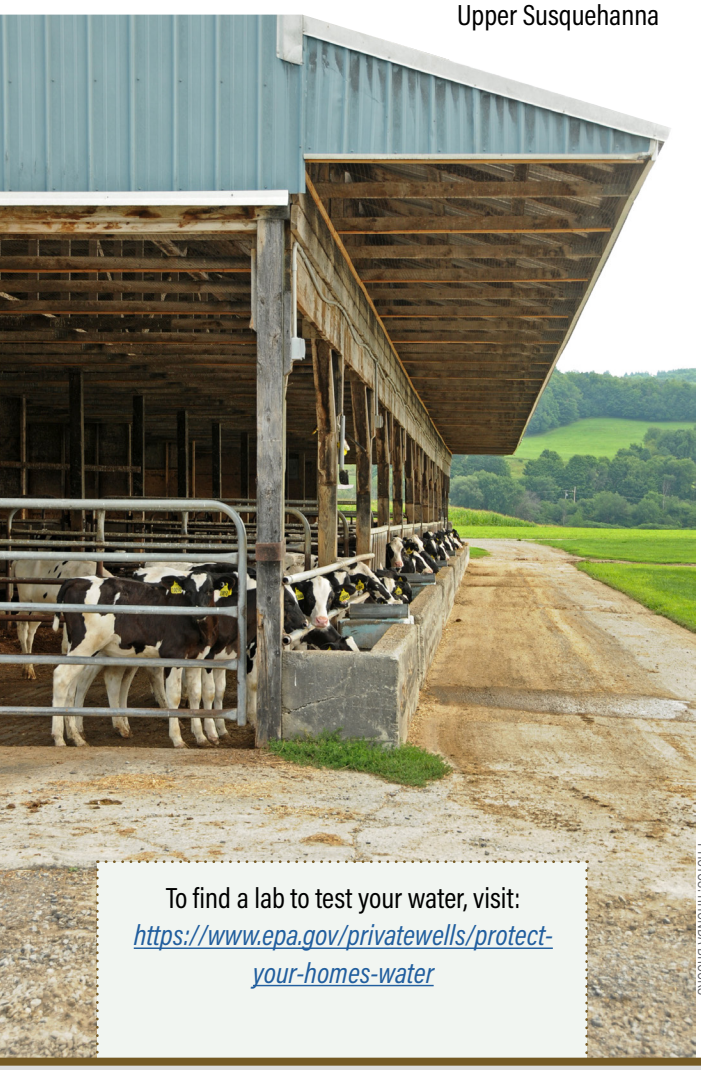
FARMER SPOTLIGHT: MIKE AND PETE MCMAHON *EZ Acres, Upstate NY*

ACCOUNTABILITY IN ACTION

A near perfect convergence of sensitive watersheds and a building project led Mike McMahon, a partner in EZ Acres farm, and his brother Pete to seek out additional help. EZ Acres is a 950-cow dairy with 750 head of young stock and 2,700 acres. The farmstead and around 70% of the land is located in the Upper Susquehanna River Watershed, which ultimately drains into the Chesapeake Bay. The remaining acres are part of the Skaneateles Lake Watershed, which provides unfiltered drinking water to six municipalities, including Syracuse.



PHOTOS: RHONDA BROOKS

To find a lab to test your water, visit: *https://www.epa.gov/privatewells/protect-your-homes-water*

The brothers are the 5th generation to milk cows in Cortland County, NY. In 1985, they took the business over from their father, and in 1995 they consolidated their herd from four locations into one new freestall and milking parlor.

"When we emptied the old facilities and brought the animals to our new location, we heard grumbling," McMahon says. "All of a sudden people think about you differently when you have a new building going up. We'd always known we were part of the aquifer but hearing people's concerns knocked us upside the head. It was a wakeup call for us."

A CASE STUDY IN THE MAKING

At the same time they were planning their new facility, the Cornell University's College of Agriculture and Life Sciences (CALS) was looking for a case study farm. EZ Acres is situated in two sensitive watersheds, bordered by two trout streams to the north and the south, and located over a sole-source aquifer. Topographically, there is an 800' difference in elevation from the top of the hills to the valley flats on their operation. That all made it the perfect place for a case study farm.

"With all of these things going on we knew if we didn't take some responsibility for the water running through our farm, we could

make life miserable for a lot of people who depend on that water," McMahon says.

EZ Acres partnered with folks at CALS and set about making changes.

They started by soil sampling every one of EZ Acres' 160 fields, looking at current nutrient loading and manure handling practices. Next, they overhauled their cropping system — from raising alfalfa and corn on high ground to intensively managing native grasses.

"We were worried we wouldn't be able to grow enough forage, but to our surprise the switch to reed canary grass has averaged almost 19 tons to the acre on the hills making more forage than ever," McMahon says. "It stays down for 10 to 12 years, is a voracious sink for manure and keeps the hills from eroding. We now have over 400 acres."

Through the years, they've worked with the Cornell Net Carbohydrate and Protein System and Cornell Nutrient Management Spear Program to change their feed rations and reduce the amount of nutrients brought on to the farm.

"Our grain-to-forage ratio was upside down, 60% grain/40% forage. In about 10 years time, we've flip-flopped that. Today we're at about 70% forage," McMahon says. "We also challenged the common thinking in the 1990s that you need a lot of phosphorus in the diet to have a successful breeding program. In a modern dairy, 85% of the phosphorus that comes on the farm comes in the form of feed, not fertilizer. Right out of the gate they dropped our phosphorus in feed by over 30% and we saw no detrimental effect."

CHANGE FOR THE BETTER

All the changes on their farm are with an eye to water quality, but also to profitability.

In 1995, their milk production was 68 lb. per cow. In the past 25 years, it has increased to 92 lb. per cow, which McMahon credits to high-quality forages.

With water quality top of mind, Mike and Pete McMahon have implemented numerous changes on their farm in the past 25-plus years.

All these changes have made their herd healthier and farm more profitable, but how have they impacted water quality?

Comparing 2003 to 2005 versus 2017 to 2019, their per-acre nutrient applications have decreased from:

- 200 lb. nitrogen per acre to 105 lb.
- 25 lb. phosphorus per acre to 4 lb.
- 41 lb. of potassium per acre to 17 lb.

When they moved the herd to one location, they did not till up their existing pastures. Those areas serve as natural buffers that have grown up with native grasses and trees to protect the trout streams. Since there were still a couple of sensitive areas that would flood at times, in 2019 they removed some tillable acres from production and planted 370 evergreen and deciduous trees to a 600' area on each side of the stream to create an additional 1,200' of buffer.

Over the past 15 years, they have planted thousands of willow shrubs on both streams to stabilize the stream bank and shade the

water, making a healthier environment for the trout. The most significant impact to prove their commitment to water quality has been the smallest expenditure. Since 1997, they have been pulling samples from five wells and two streams the first of the month every quarter. For $70 per quarter, they monitor phosphorus and nitrate levels.

The samples from the surface water/streams have never come back higher than 1 ppm nitrate-N unless pulled after a heavy rain.

"The wells are a different story. The municipal well has the whole valley's worth of agronomic practices flowing into it and there are a whole lot of people drinking out of that well," McMahon says. "In 1997, we had a batch of samples come back at 16 ppm nitrate-N — 44 ppm nitrate-N is cautionary and 100 ppm nitrate-N is do not drink. Through our agronomic practices it's decreased from 16 ppm nitrate-N to 9 ppm nitrate-N."

Their focus involves nutrient mass balance. EZ Acres weighs every input and every export from the farm and Quirine Ketterings, a professor at Cornell University, department of animal science, breaks it down into its nitrogen, phosphorus and potassium balance.

The study is morphing to include carbon because yogurt company Chobani is being asked by food retailers about the carbon footprint of dairies. The farm weighs all of its forages and everything that comes on to the farm so the numbers can be calculated.

"Surface streams, seasonal streams, groundwater — think about where that water goes. Think about your community," McMahon says.

Which bodies of water might impact your farm? List as many as you can.

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What downstream people, businesses or communities use water that flows through your farm?

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Who uses the water upstream from you before it reaches your farm?

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Where can you test water for nitrate and phosphorus (tile outlets, wells, etc.)?

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What will your test schedule be? (Quarterly? Spring and fall?) Add the dates to your calendar and order testing kits.

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