USDA United States Department of Agriculture

ECONOMIC CASE STUDY

Farmer Profile: John Kemmeren Farm - Angel Rose Dairy

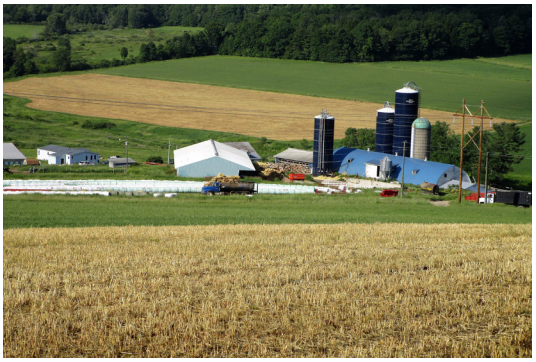
October 2016

Introduction

Angel Rose Dairy is situated in the hills above the town of Bainbridge in Chenango County, New York. In just over two miles from the bank of the Susquehanna River to John Kemmeren's farm, the land gains 500 feet in elevation and continues its rise behind the farm house and barns. The farm's topography is perhaps John's single most influential farm management factor. The Kemmerens' 350 acres of cropland contains mostly Lordstown, Mardin, and Volusia soils. The majority of the cropland has 3 to 15 percent slopes with some ranging to 25%. When John's father bought the farm in 1968 it was pretty obvious that keeping the ground covered at all times would be important for preventing the soil from simply washing away. They hoped that strip cropping would allow them to farm their steeper land, but decided not to try it after seeing their hay seedings erode out during moderate rainfall.

As a result, in 1975 prior to development and availability of Glyphosate, the Kemmerens were among the first farmers in the area to start experimenting with no-till. They borrowed a no-till drill and tried seeding hay into sod using 2,4-D six months beforehand and Gramoxone just prior to the seeding with good results. Ten years later, they began no-tilling their corn using a borrowed planter and then bought their own no-till planter the following year.

While this change significantly reduced erosion on their steepest ground during the growing season, continued erosion problems after corn harvest prompted the Kemmerens to become early cover crop adopters, first trying it in 1980 through a cover crop seeding program offered by the Chenango County Soil and Water Conservation District. That year cereal rye was flown on by helicopter in August. They were very happy with the results from this first attempt. However in the second year nothing grew and they gave it up until 1986 when they decided to try disking in rye seed after their corn silage harvest. Success with this method convinced the Kemmerens to purchase a used no-till drill in 2007. They



decided to try it out on a field surrounded by woods that hadn't been farmed for three to four years. After brush hogging the field, they sprayed then seeded cereal rye, purple top turnips and Barkant turnips to attract deer. John considers this one of their deer plots where they have game cameras to monitor deer activity. Heavy deer activity on the field actually worked the ground. Even so, the field yielded an "amazing amount of straw" the following spring.

Present Day Cropping Practices

John's current rotation is two years of corn and five to six years of hay consisting of either alfalfa or a sudangrass/ red clover mix. They spread lime every third year and apply liquid manure primarily on hay after the second and third cuttings and on their corn fields following harvest and prior to cover crop seedings. They will also spread manure in the spring when it's dry enough to allow it. As a result, they have few compaction problems.

John plants a cover crop whenever possible. This is easy where he is chopping corn silage but harder to achieve following a later corn grain harvest. To compensate, John has begun using short season hybrids that in good years allow him to finish harvesting corn for grain by October 10, giving him just enough time to plant cereal rye. Most of the cereal rye is harvested as straw usually during the first week of June. In addition to using it for bedding, the Kemmerens like cereal rye because it is relatively inexpensive, grows quickly, and has high survivability.

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Soil Health Benefits

Because of the steep topography most the farm had never been plowed when the Kemmerens began farming, having been mostly in continuous hay since the 1800s. As a consequence, the percent soil organic matter was already high at 5% when John started checking in 2000. Since then it has increased to 6.5%. This means that the Kemmerens have been able to cut back on corn nitrogen inputs by 50 pounds per acre while achieving a 10% increase in corn yields. Adopting both no-till and cover cropping on the farm has reduced erosion by more than 2/3rds. Ultimately, the switch from conventional tillage to no-till has saved the Kemmeren's nearly $30 per acre in corn planting costs and $74 per acre for hay establishment.

The no-till savings come from reducing time requirements, resulting in lower labor and machinery costs. In fact, John will tell you that the savings in time is a large factor in making no-till work. They can plant no-till corn in one day whereas conventional tillage involves plowing, disking, and planting. More often than not rain would come before they could conventionally plant corn, leading to greater erosion. Also, no-till fields dry out faster after a rain event due to better soil structure and faster infiltration. John can get back on a field to plant no-till within 3 days of a heavy rain. The wait would be much longer if the field had been plowed and disked. The savings in time also means that the Kemmerens have been able to better manage their soil pH requirements. Prior to adopting no-till, it was more difficult to find the time to spread lime when it was needed.

In addition, no-till has reduced weed issues allowing the Kemmerens to stop using oats as a nurse crop to control weeds in their hay seedings, resulting in another $40/acre in savings.

A partial budget analysis was used to summarize the economic effects of adopting no-till and cover cropping on Angel Rose Dairy. This type of analysis limits its focus to variables that are affected by making changes to an operation. These effects, characterized as either increases in net income or decreases in net income, are shown below.

Closing Thoughts

The Kemmerens' focus on soil health and forage production has paid off in many ways. In addition to realizing a 100% return on investment by adopting soil health practices, they have won multiple awards for high quality forage and John has become a sought after speaker at various soil health related events. In addition, John was one of only three recipients to be given the Responsible Nutrient Management Award at the National No-till Conference this past January. While all of this recognition is appreciated by John and his family, their main goal has always been to get as much from the land they farm as possible by taking care of soil under their feet. This focus has allowed them to increase their soil's productivity while cutting costs, leading to more sustainable farming both economically and environmentally.

Angel Rose Dairy Partial Budgeting Analysis

Increases in Net Income			
Increase in Income			
Item	Value	Acres[1]	Total
Yield Increase, Corn	$61	100	$6,100
Total Increased Income			$6,100
Decrease in Cost			
Item	Value	Acres	Total
Nitrogen Reduction	$23	100	$2,300
Planting Cost Savings, Corn	$29	100	$2,900
Planting Cost Savings, Hay	$74	50	$3,700
Reduced Erosion, Corn & Hay[2]	$21	150	$3,150
Reduced Nurse Crop Cost, Hay	$40	50	$2,000
Total Decreased Cost			$14,050
Total Increased Net Income			$20,150
Total Acres Farmed			350
Per Acre Increased Net Income			$58

Decreases in Net Income			
Decrease in Income			
Item	Value	Acres	Total
None identified			
Total Decreased Income			$0
Increase in Cost			
Item	Value	Acres	Total
Cover before Corn	$95	100	$9,500
Cover before Hay	$50	50	$2,500
Total Increased Cost			$12,000
Total Decreased Net Income			$12,000
Total Acres Farmed			350
Per Acre Decreased Net Income			$34

Total Net Benefit = $8,150

Per Acre Net Benefit = $24

[1] *Two years of corn followed by five years of hay means that in any given year, 2/7th of the 350 acres farmed is planted to corn and 1/7th is planted to hay. (100 Acres of Corn, 50 Acres of Hay planted each year.)*

[2] *Based on estimated per ton value of soil productivity in Northeast. Hansen and Ribaudo, Economic Measures of Soil Conservation Benefits, Regional Values for Policy Assessment, USDA, ERS, 2008.*

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