

Innovative Techniques for Water Management on the Farm,

First a little general history of my farm,

The current farm was settled by my great-great grandfather in the 1850's. It operated as a multi-species mixed farm until I took over in the 1970's. At that time I established a beef cow-calf farm. Our herd grew to almost 200 cows by 1998. After weaning, the calves were sold as a commodity, normally going into feedlots in southwestern Ontario. Ten years ago we reduced our cow herd to around 60 cows, keeping all of the offspring for approximately 18 months, when we market grass-fed beef throughout the Ottawa Valley. So, we've gone from selling a commodity to marketing a product.

Now, some environmental history of the farm,

Growing up on the farm I experienced my Dad removing a lot of the fence rows around the small fields on the farm. Two or three smaller fields made one larger field. These fence rows contained a lot of trees and shrubs, ie, wildlife habitat. In those days the ministry of agriculture was encouraging more efficient farming methods especially with larger farm equipment becoming more prevalent. Most of the fields were fenced with the stream running across one side of the field. With the cattle traffic to the stream for water, very few trees and shrubs remained except for a number of American Elm. These few trees were dying of Dutch Elm disease and were all gone by the time I started farming. Consequently there was no woody growth along the banks of our stream.

Our Environmental Agenda, How do we manage our natural water resource's,

In 1980 I started planting trees and shrubs on the farm, first just a few rows of trees along existing fences, normally across the prevailing winds. We began thinking about how we could do things differently to make our beef farm more sustainable. Our cattle numbers were increasing and so was the pressure on the water in the stream. Both in terms of quantity and quality. I was not comfortable with the quality of the water that the cattle were drinking over the summer pasture season. Occasionally the stream would stop flowing for a few weeks in mid summer, disrupting the rotational pasture grazing system we were implementing.

We knew we needed to do something, but what. After some consideration we installed our first alternative livestock watering system in 1987. We call it the low tech. gravity watering system. For a cost of \$3200.00 we built a concrete water trough into the creek where the cattle drink. The stream runs right down the middle of the trough. The cattle reach over the edge to access the water. This trough virtually eliminated pollution from the creek. To ensure that we never again run short of water for the cattle we created an upstream water impoundment/storage pond which in itself creates enhanced wildlife habitat.

Now, that we had a reliable and safe water system we were able fence the livestock out of most of the creek. The strip of land between the fence and the water edge is now planted in

various species of trees and shrubs. This fragile strip of land provides a home to many species of wildlife while at the same time buffering the stream from the farm fields especially in periods of heavy rainfall or spring runoff. We have now planted all of the couple of miles of creek banks on the farm. We call this our "bring back the banks" program.

Our second alternative livestock watering system was constructed in 1994 in a different part of the farm. This was created in an area that I had always known even as a child growing up on the farm to be a constant wet piece of land. We excavated a 10 foot deep pond down to flat fractured limestone rock and the water poured out. From this spring feed water source we pump the water with solar energy 600 feet across the farm to a 1000 gallon cattle trough. This central water system located on an elevated area of the farm, a rocky knoll, well back from the stream provides water for about 100 acres of pasture. This system which cost about \$5000.00 still continues to operate as it did 19 years ago. At one time it provided water for over 100 cows and their calves.

Our third alternative livestock watering system is also used to access the land on the other side of the creek with equipment and for cattle. It basically consists of a hard surface, in our case a cement strip following the natural contour of the land from one stream bank across the stream to the other, fenced on each side. The water flows across the cement pad this is where the cattle access the water. This low-level system was our lowest cost alternative at about \$1500.00 and is only used by the cattle for a limited number of days per year. While this system is not a 100% solution it does work well for a small to medium sized herd.

Other management practices that we follow to protect the water would include feeding salt, mineral and hay well back from the stream. This should help reduce cattle droppings near the stream and spread the nutrients out on the field where they can fertilize the pasture plants. Composting livestock manure sites should also be located well back from the stream where there is no risk to the watershed. Generally cattle should not be wintered near the watercourse. The distance could vary depending on the topography.

Environmental Payback,

Thirty some years later we are still working to improve the natural environment on our farm. In early May you will find still us out on the land somewhere planting trees and shrubs now totaling approximately 30,000. In addition to the 2 miles of repaired stream banks we have also planted approximately 3 miles of upland shelterbelts. I have come to discover that this can take a long time but the rewards are many. The color of the water in the stream, the wildlife on the farm, the health of the cattle and even just watching the trees grow from little one foot seedlings to over thirty foot trees thirty years later. Our beef cattle spend their whole life outside and are now making use of these planted shelterbelts. We now have extremely healthy cattle, rarely having to treat a sick animal. This fits well with our beef production practices, no antibiotics, no added growth hormones, no sprays on our fields. In the early years of my farm operation we often treated the cattle for a number of ailments which have now virtually disappeared. Research has shown that access to ample and clean water will enhance the gain of the cattle. And now, that we are marketing a product from our farm direct to the public we are finding other benefits. I estimate that over 25% of our first time customers chose to

purchase beef from us based the environmental management on our farm. We also market elderberries from our buffer strip, fresh, frozen and pressed into concentrate. With the planting of thousands of trees and shrubs and our permanent hay and pasture fields we hope we are making some positive contribution to carbon sequestration.

How do you pay for environmental work on your farm,

There are a number of institutions and organizations that can offer financial assistance and professional guidance. They can range from Conservation Authorities to the Environmental Farm Plan (EFP) program. In recent years I've made use of the EFP program to cover 30% to 50% of improving and protecting the environment on my farm.

How do you know where to start on your environmental agenda. The landscape ecosystem approach,

First of all, and at different times of the year do a number of walks on your farm, observe the natural resources' you have on that piece of land. What natural features such as topography, soil type, water resources' do you have on your farm. Each farm is different and requires a different approach. Take tours to other farms when you can. One tool that I have found to be very useful is the Ontario Environmental Farm Plan and workshop. Completing this workbook has helped me focus on different environmental risks on my farm.

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