



In this issue...

Food, Farms and Rivers

In all the talk --sometimes abstract and conceptual, sometimes shrill and defensive -- about how agriculture impacts rivers, it's easy to overlook that we are talking about producing food.

In this issue of The FLOW, we start with the actual food produced and work our way up the river, over the bank and up into the fields, offices and barnyards of Wisconsin food producers. We confirmed two things in this exploration: farming as we know it is hard on rivers, and there are better ways to grow food than many current methods allow.

We were provoked in this exploration by something we overheard said by a "high level official" -- "We may have to sacrifice a few rivers to grow the food we need to grow." Really?!

We set out to confirm or deny his contention by asking food producers that very question. Our findings, from a Manitowoc County dairy farm to a Jackson County cranberry operation, follow. And we include suggestions for you to find "river friendly farms."

The Meat We Eat and the Streams We Love: Star-Crossed?

Meat production can hit rivers pretty hard – cows in streams trampling banks and causing sediment erosion, liquid manure fouling up the water.

There are better ways to raise animals for meat that don't have to sacrifice rivers. Some pioneering farmers in Wisconsin are showing us that sustainable farming can happen and -- with a little bit of entrepreneurial elbow grease - you can make a decent living at it too. We feature two of the state's leaders in river-friendly beef and pork production, respectively: Cates Family Farm in Spring Green (Iowa County), and Willow Creek Farm in Loganville (Richland County).

Where the cows and the brook trout roam: Cates Family Farm

For decades, the mantra for responsible cattle farming was *keep cows out of the river* – and not so much because it damaged rivers but because it was unproductive. Dick Cates, owner and operator of the Cates Family Farm, has challenged that notion with his practices. Not only are his cows grazing the riverbank but his methods are actually restoring native grasslands and making trout streams healthier. Grazing on riverbanks can be beneficial, but timing is everything: how long you pasture cows on a piece of land, how long that piece of land is left to grow afterward, and even what time of the year you do it matters.

"Cows want to loaf in cool refreshing grass, not hang about on slippery muddy banks," says Cates. If you don't allow pastures to be overgrazed, the grasses collect solar energy and keep the ground moist and cool – perfect cow loafing conditions. It's only desperation that drives a cow to trample uneven muddy banks and muck up river bottoms in search of some relief from hot, dry uplands.

Careful grazing of riverbanks could provide additional benefits to groundwater-fed streams like those that characterize the driftless region of the state where Dick's farm is located: it keeps stream banks from getting woody and overgrown. Some fisheries experts have long felt that the dense root system of native grasses actually holds the soil better than the roots of woody or scrubby vegetation that often dig into an unmanaged riverbank. The end result of less woody stuff and more grass? Cleaner water and happier fish.

These kinds of practices are not just good for the environment. Cattle that roam and forage are known to be tastier and healthier than their feedlot counterparts. And according to Cates, producing one pound of feedlot beef gobbles up a couple of gallons of oil while one pound of pastured beef only needs about 12 ounces. With rising oil and feed costs, this math is starting to matter. There is no doubt that conventionally produced beef continues to have a lower sticker price than its pastured cousin, but that is largely due to the "funny math" that overlooks the external costs of meat production beyond the process of getting to the kitchen table.

"If we ever put a carbon tax on our food, these price differences would work themselves out pretty quickly," Cates points out. Sustainable farming can be an uphill battle. (Cates admits distribution for small farmers is a weak link in the system.) But for so many reasons, Cates feels it is a far better way to make a living on the land. By direct marketing his food, he takes control of his market, rather than be at the mercy of commodity pricing. His customers appreciate what he does and he doesn't live under constant criticism of his practices.

And what about the conventional wisdom that food production is worth the sacrifice of some of our natural resources? Cates voice softens, "We're so used to discounting the ecosystem services that our rivers provide us. We have a special spot in the world, a beautiful productive rain-fed ecosystem. We need to cherish it."



Dick Cates entertained about 30 River Alliance members in October, during our "Barbecue on the Banks" event that featured hamburgers made from Cates farm beef. He explained how grazing cattle requires a very different mindset than raising cattle by conventional means. (River Alliance photo)

Changing the rules one porkchop at a time: Willow Creek Farm

Ask Tony and Sue Renger about why Willow Creek Farm makes a good model for environmentally sound pig farming and their response is modest: "We're just doing things the way they did it thirty or forty years ago."

That means pasturing, not confining, their pigs, building up straw bedding throughout the winter and keeping their herd small – ideally, no more than 500 pigs. Straw bedding is key, say the Rengers, to responsible management of manure. Their farm doesn't generate liquid manure, a toxic waste product of conventional hog farming that frequently finds its way into nearby streams and wells, and causes major water quality problems around industrial hog production facilities. Tony and Sue feel strongly that pig farming doesn't have to mean environmental degradation.

Tony grew up on a family farm that raised over a thousand head of hogs a year. "That's manageable," says Renger, "even two thousand head is manageable. Beyond that, you may have to move to an industrial model, and that's where the problems begin."



A view of the Cates pastures, located along Lowery Creek in Iowa County. (Photo courtesy Cates Family Farm)



Dick Cates demonstrates that raising livestock does not have to damage streams. This Dane County farmer (photo taken in 2007) needs to visit the Cates farm. There's everything wrong here – including the fact the cows are actually fenced into the stream area.

Once there are thousands of animals confined in a small space (known as a CAFO), you have to deal with a sea of liquid manure, with overcrowding of the pigs and inhumane conditions. CAFOs became increasingly common in the 1980s but it was the drastic drop in pork prices in 1997-98 (from \$0.40/lb to \$0.08/lb), coupled with low oil and feed prices, that made CAFOs virtually the only model by which a pig farmer could make any money.

From mortgage-lifters to living widgets

“When I was growing up, hogs were called mortgage-lifters,” recalls

Farm Wisdom

Conventional agriculture says you gotta feed the world. I say “bullshit.” What farmer gets out of bed in the morning and thinks, “I have a moral obligation to feed the world?” That implies that the more cows you have, the closer to godliness you are. In Saudi Arabia, they operate the largest dairy farms in the world, yet excess milk flows into the desert. It’s not feeding the starving in Africa.

- Dick Cates

Farm Wisdom

The notion that you need to sacrifice a few rivers in order to grow our food represents two things: ignorance and arrogance. For generation after generation, we could feed ourselves without resorting to industrial farms, pollution and stuff like that. It represents ignorance of food production in this country and the changes in food production that have occurred. We need to challenge the notion of cheap food production and all its negative consequences.

- Tony Renger

Renger, “but that’s no longer the case. Buying stations have disappeared and hog farmers have just become contract growers.” After nine months of working on a Minnesota CAFO during his college years, coughing up blood from the compromised air quality, he concluded that these facilities might be better described as factory operations than farming. And Renger doesn’t mince his words: “You hire out the lands, you hire out the workers and you kind of treat everyone and everything horribly.”

And yet when asked why Willow Creek Farm would take on small-scale farming in the face of such discouraging trends, Renger’s response echoes that of Dick Cates.

“If you want sustainable pork production, you’re going to need to find a way for farmers to make money doing it.” This means either government subsidies or becoming entrepreneurial. Rengers has chosen the latter. In addition to also using direct marketing to sell their pork, Willow Creek is building their own processing facility and will be able to contract with other small pork farmers who show the same commitment to resource protection and animal welfare that they do.

“CAFOs have created a huge opportunity for farms like Willow Creek,” says an optimistic Renger. “Right now, I think we are the one of the few pig farms in Wisconsin developing this model. But I liken what we are trying to do to the explosion of microbreweries in this country. Two decades ago, only a very few attempted to craft local beers. Now it’s a major trend.” (We don’t miss a beat: see our story on Page 7 about microbreweries and water.)

For both Dick Cates and the Rengers, the environmental impacts of conventional meat production are an artifact of larger systemic and cultural problems around agriculture: blind embrace of technology, loss of indigenous knowledge and the expectation that food should be cheap. So what would happen if tomorrow all farms switched to sustainable practices? Dick Cates muses, “For one thing, the carbon footprint of meat production would definitely shrink significantly.” ■

The Politics of Phosphorus Citizens’ Summit

sponsored by



RIVER ALLIANCE
of Wisconsin

Date: Saturday, November 14, 2009, 9 am – 3 pm

Location: University of Wisconsin-Stevens Point,
Dreyfus University Center Theater
1015 Reserve St., Stevens Point, WI 54481

Registration fee: \$30/person. Registration includes lunch. Because space is limited, we ask watershed and lake association groups to send no more than two representatives.

Questions? Contact Matt Krueger at 608-257-2424 x125 or mkrueger@wisconsinrivers.org. Registration form at: www.wisconsinrivers.org

Are you troubled by the quality of Wisconsin’s waters? Are your local lakes or rivers turning into a stinking green soup because of polluted runoff?

Join fellow citizens, watershed groups, researchers and natural resource professionals in discussing solutions to this issue. Discussion topics include:

- Sources and effects of phosphorus pollution
- How cities and farms contribute to the problem
- The role of politics and regulation
- Developing solutions to this serious water quality threat



Stream of Thought

Denny Caneff
Executive Director

Amidst the Farm Fields, the Rivers

Journalist and food system critic **Michael Pollan's** Madison visit in September – a visit amplified by UW-Madison chancellor **Biddy Martin's** using Pollan's book *Omnivore's Dilemma* as virtually required reading on campus – fertilized a lot of discussion about food, farming and eating in this very food-conscious city. Some of the debate was fruitful, but much of the public discourse was disappointingly unedifying.

Tired old positions were tossed out on the discussion table as if the arguments had never been filed away, let alone updated. The Wisconsin Farm Bureau was so spooked by Pollan they had to label some of his contentions "immoral." Gheesh! Mainstream farm organizations like Farm Bureau have a very binary view of food and farming: criticize how agriculture operates, and you are relegating somebody, somewhere, to starvation and putting thousands of "family farmers" out of business.

The "alternative agriculture" community wasn't much better, failing to resist jerking its knee when the Farm Bureau came tapping its reflex hammer. Folks seem compelled to rebut the Farm Bureau and other Pollan critics point by point, while hammering home all that is wrong with the industrial food system the other guys vehemently defend. It would have been much better to proudly brag about Wisconsin's thriving grow-local-buy-local food movement, reflected in burgeoning numbers of farmers' markets, subscription farms and restaurants featuring food from a farm down the road.

Cross Pollan-ating

Three developments -- the Pollan visit, our ongoing focus on agriculture here at the River Alliance because of how much farming affects the state's rivers, and our "Barbecue on the Banks" fund raising event at the **Dick and Kim Cates** farm in early October – conspired to create this newsletter issue's theme of food, farming and rivers.

Even though we dwell a lot on agriculture here because every potato field irrigated, every corn field tilled, every manure load spread, has some effect on a river, we still learned a lot in assembling this collection of stories. We wanted to start from the farmer's point of view. In so doing, we got a much more nuanced, less black and white picture of how farming affects rivers. Still, not a single farmer we interviewed bought the notion, overheard one day in the Capitol, that we'd have to sacrifice rivers to produce healthy, abundant food. They tell us their compadres are far more conscientious about the impacts of their farming practices than we might think, and, as individual farmers, a lot less cavalier and arrogant about those impacts than their organizations would lead you to think.

The farmers we interviewed were nearly unanimous on a few other notions. The most prominent one -- the "cheap food" system that nourishes us cuts a lot of corners; we get what we pay for from that system. On the other hand, eaters – that is, all of us – have an incredible array of choices if we want to vote with our wallets for something we believe is easier on the land and the water.

I came away from reading (or doing) these farmer interviews, and reviewing the many articles and web sites related to food, farming and rivers, thinking: we have it pretty damn good here in Wisconsin. You could easily feed yourself well from food grown within one hundred miles of your place (and probably find a local brewery along the way). Doing so doesn't have to mean that you don't appreciate the productivity and efficiency of the "mainstream" food system (it is undeniably both), or that you have to eschew (so to speak) oranges and coffee in your support of local farming. It can be as simple as, "I like to get as much food as I can from people that I know and whose farms I can visit."

Trying to calculate all the trade-offs of eating this foodstuff vs. that one, grown here vs. there, can make your head spin. **Allison Werner's** piece on cranberries got me to thinking: what kind of food are we getting for all the water used to grow those sour little berries? It boils down to Vitamin C, and how else can we get it in fresh form? I thought, "Well, grapefruits or oranges." Yes. And they come from as "close" as Florida and as far away as Chile. And then I think, "Wow, that's a lot of energy just to get them here. And are they irrigated? How much and how often are they sprayed?"

And there you can go, analyzing this endlessly -- until you're hungry. I hope we've made these thorny and complex food-farming-rivers issues more interesting, if not less complicated, with these stories. I know one clear and eloquent bit of advice from Michael Pollan that everyone could subscribe to: Don't buy food where you buy gas.

Notes from the shop

We welcome another young river rat to the River Alliance family. She's Azelle White, newly minted daughter of River Alliance business manager **Sharon White** and her husband Jed. Congratulations to them! And by the next time I make an entry in this column, long-time River Alliance river restoration program manager **Helen Sarakinos** will have introduced to her and husband Jake VanderZanden's second river rat. She's looking real ready to deliver.

Special kudos to **Matt Krueger** and **Christina Anderson**, who made themselves so useful as interns that we have put them on the treadmill on part-time basis as program assistants. Matt is helping out on our urban rivers work and our Wisconsin River Initiative, and Christina is managing our digital communications and some fund raising work.

Finally, we hope you like our new look and name for the newsletter. We had way too many looks to our various media, and they will be unified now. We thank our good friends at **Tingalls Dzyn** for their design work, and the focus group of River Alliance members and friends who gave us invaluable, and unvarnished, advice about how we look and sound to you. I hope the improvements are just that, in your eyes. ■



Starkweather Creek, Madison (Photo courtesy Jon Beers)

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On the cover: A view of the circa 1900 barn of the Cates Family Farm, located south of Spring Green, Wisconsin. (River Alliance photo)

Potato Man of the Central Sands

By Denny Caneff

We met Portage County vegetable farmer **Justin Isherwood** and his wife Lynn earlier this year, in the midst of their battle with the local drainage district over dredging a ditch they felt was unnecessary and would be better left to revert to its original job as a trout stream.

Isherwood is no apologist for the impacts of agriculture on land and water. According to area conservationists, he is probably one of the most conscientious farmers in Wisconsin's central sands farming region. A keen and clever observer of both the land and people's interactions with it, Isherwood has published scores of essays about the pain and beauty, the thrill and tedium, of farming.

A one-time seminarian and Viet Nam war veteran, Justin describes himself simply as a commercial farmer – a category of farmer that, in the heated rhetoric about agriculture, with its archetypal “factory farm,” “family farm,” and “organic and sustainable farm,” is often misunderstood and disparaged by consumers lacking an understanding of the modern dynamics of farming.

Blue and red farmers

In the essential function they provide – growing food – “farmers control a lot of the landscape,” he acknowledges. “And there's a lot of coloration in the farm community – ‘blue’ farmers and ‘red’ farmers. The red ones would say we can do what we want – we own it. They are the bigger growers who feel the economic load on their back, through the people they employ and the tons of produce they grow. They might say, ‘We'll use it until it's gone.’”

“The next step up is those who say, ‘I'm Generation X, I'm part of a continuum and we owe something to that continuum, I don't know what I owe but I think I owe something.’ Their bloodline is in conservation.”

Isherwood points out that even big-scale potato growers (5-6,000 acres) are coming around to this belief. “It's why I've come to love my industry. These guys are literate about the fact that water is politics. ‘How much can I put back?’ is fair to ask.”

On their farm, Lynn and Justin irrigate only at night. By avoiding the heat of the day, they use three to four acre-inches less water during the growing season, resulting in 20% lower water use.

“Farmers are the collective fall guy in economics. We figure out a way to produce more abundantly, then we hit the wall at full speed. We're not in control -- we just created another surplus! Capitalism is not kind to surplus.”

– Justin Isherwood

Low-tox spuds

Another way the Isherwoods reduce their farm's impact is participating in a production and marketing program called Healthy Grown potatoes. The idea was that potato growers using certain methods that reduced chemical use would market their potatoes stating that fact, and get a premium price for it. They have never seen the premium price.

There's a premium in the exercise for Justin, even if there's not a premium in the check he gets from the potato buyers.

“There's a real intellectual engagement with your crop,” he says. “I'm literally aiming for a score. The chemicals we use all have a numeric risk value. You reduce your toxicity number, and also your expenses. It's a mindset in which you are willing to suffer some damage. You see a lot of cosmetic weeding in my industry. You don't need a perfectly clean field.”

Seven generations

Justin and Lynn's grandson, living a mile down the road, represents the seventh generation of Isherwoods on the family's land in Portage County, just east of the village of Plover. The original Isherwoods ran a stage house, and became farmers so they could feed their guests. Today they produce potatoes, snap peas, and sweet corn, with perhaps lingonberries and sugar beets (as road de-icer) in their future.

“I'm proud I'm still here,” he says. “I feel like the guy in the boxing match who's still standing.” ■



Justin Isherwood (River Alliance photo)

Small, Sour Red Berry = Big Water Issues

By Allison Werner

Recently my River Alliance colleague Chris Clayton and I attended the annual breakfast that the good folks at the South Fork Flambeau River Watershed Association (SFFRWA) organized.

One stretch of the South Fork has a cranberry operation upstream, and if nutrients or plant debris are entering the river it could lower the oxygen levels in the water.



The cranberry: bright red, bitter, iconic, and berry, berry water-needy. (Photo courtesy U.S. Dept. of Agriculture)

Our conversation quickly turned to how the members of the association could work with the cranberry operator about changes he could make to reduce the impact on the river. Building a relationship with an individual, organization, or business is an approach we often advocate at River Alliance. Usually, once a relationship is built and each party better understands the other's point of view, some common ground can be found.

Love those cranberries, but not their effects

But cranberry operations pose some messy issues for watershed activists and people who love their streams and lakes. Cranberries are an extremely water-intensive crop; growing them affects both quality and quantity. Water is used to grow and harvest the berries, prevent frost and winter freeze, and to distribute fertilizer and pesticides.

The average annual water use is six acre feet. (Think of a football field, then imagine it under six feet of water: that's the annual average water use of a cranberry operation.) After the fields have been flooded to harvest the berries, the water is usually released all at once to an adjacent river or lake. This water may have fertilizers, chemicals and plant debris and is usually warmer than the surface water it is mixing with. This can cause algae blooms, lower dissolved oxygen and raise the water temperatures that would make the water unsuitable for cold water fish species such as trout.

This is why a closed loop or tailwater recovery system can be a better alternative. The stored water is used over and over again and less water leaves the farm. Some cranberry growers have seen an added benefit to this type of system in times of extreme weather. In times of high water the grower can hold their water back instead of dumping it into an already overwhelmed river.

The infamous cranberry exemption

Local watershed groups who want to engage with their neighbor cranberry grower have a unique obstacle that amounts to a huge legal

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Mega-Sprinklers

The advent of the center pivot irrigation machine, used by central sands farmer Justin Isherwood and his counterparts, took irrigated agriculture to an entirely new level in Wisconsin. Two things can be said about irrigating crops in Wisconsin: how that pumping affects the groundwater that is the lifeblood of irrigated crop farming is not clear. And it's a lot less wasteful to irrigate crops in Wisconsin than in the desert southwestern and western United States.



A center pivot irrigator at full bore. (Photo courtesy Missouri Dept. of Natural Resources)

The effect of center pivot irrigation machines on the landscape is most evident flying over the Great Plains states where corn is produced. (See photo)

From the road, a center pivot irrigator looks like a giant robot arm squirting water high into the air. From its center pivot, where the robot arm is attached to a well, the arm does a 360 degree pass around the field, watering crops as it goes.

You'll see hundreds of them in operation in the growing season in Wisconsin's vegetable-producing heartland, the so-called Central Sands region (Wood, Portage, Adams, Waushara counties). Agriculture would not be possible in those sandy soils without irrigation.

But just how hard is irrigation on the groundwater? According to research by University of Wisconsin soil scientists that compared how the water table is recharged on irrigated farmland vs. perennial ground cover, there is an average of two inches per year less "recharge" on irrigated cropland.

Does it? Or doesn't it?

"We can't ascribe the current drop in groundwater levels in central Wisconsin to crop irrigation," says **Bill Bland**, soil science professor and chair of that department at UW-Madison.

However, says **George Kraft**, a UW Stevens Point hydrologist who has researched the comings and goings of central sands water for decades, "You can't explain low water levels on climate alone. My research shows agricultural irrigation wells do impact the water table. I see 'missing water' in streams, lakes and groundwater, and it can't all be explained by climate."

The two agree that relative to irrigating the desert, growing irrigated vegetable crops in Wisconsin does a lot less damage. We have notions about the ill effects of crop irrigation because so much of it takes place in arid areas – what Bland calls "the folly of the notion of making the desert bloom."

One other thing is clear: irrigating vegetable crops in Wisconsin's central sands helps produce crops that make sense for the region and that people actually eat. Even though the volumes don't compare, it's a much better use of water to irrigate peas than it is to water suburban lawns. In any event, people concerned with water will still watch closely to be sure farmers aren't exploiting the resource. ■



Aerial view of center pivot irrigated fields, Alamosa County, Colorado (photo courtesy Valmont Industries, Inc.)

Cows Cause Concern, But Klessigs and Buelow Show Better Ways

By Lori Grant

For most of the 20th century, the classic image of Wisconsin was a bucolic scene of cows contentedly chewing their cud on a rolling green pasture. Over the past twenty years, that scene has changed dramatically with most dairy farms moving away from cows grazing on pasture to cows inhabiting large barns or feedlots. Cows use less energy when confined and protected from the elements, and milk production increases. Purchasing feed frees up labor otherwise devoted to producing hay on site. In general, costs to produce a unit of milk decrease as herd size increases, driving the trend to large farms with thousands of cows.



There is tension all over rural Wisconsin over the effects of big livestock farms on air and water. Karl Klessig (right) and his neighbor Russ Tooley, of Centerville CARES, have had friendly but heated debates about the smell and the runoff from industrial dairy farms in their area. How the Klessigs' manage their cows, on grass, is far less offensive to neighbors than large-scale industrial operations can be. (River Alliance photo)

But with these shifts in the dairy industry come environmental challenges and additional costs, especially in dealing with manure.

Runoff from fields spread with manure is the top source of phosphorus and other nutrients to our rivers, lakes and streams, inducing algae and weed growth. A big rain after spreading can dump enough manure to be fatal to fish. In some areas of the state, people routinely experience brown, stinking water flowing from their kitchen taps from manure leaking to groundwater. Managing manure is a challenge for all dairy producers, big or small, and while regulations provide the direction, it's the commitment of the farmer that makes the difference.

Karl Klessig and **Kenn Buelow** have taken very different approaches to managing their dairy farms, but they share an environmental ethic that serves as a model for the industry.

Outdoor cows

The Klessig family, of **Saxon Homestead Farms** near Cleveland in Manitowoc County, chose to return to the old way of dairy farming, but with a few twists. After years of following the now conventional model of feeding cows solely with processed feed, the barn doors were thrown open in 1989. Karl's brother Robert, working on a degree in wildlife ecology, came home one day and said the only way he'd farm with the family is if they went back to pasturing. Karl, with a degree in dairy science and a Masters in ruminant nutrition, thought his brother was crazy. He agreed to try it with 25 cows, and the rest is history.

Saxon Homestead Farms grazes 450 milk cows on 850 acres of pasture. Using a method known as rotational grazing, the farm is fenced into multiple paddocks, and the cows are moved from one to another regularly. The cows remain in a paddock just long enough to have the first bite – the most nutritious top several inches of the grasses and clover – and are then moved to the next paddock before they can crop to the ground. This leaves enough of the pasture plants to regrow, sink deep roots and out-compete weeds, providing healthy pasture for the next rotation. With a little help from people getting from one paddock to another, the cows harvest their own food and spread their own manure. Healthy pastures have dramatically less soil erosion, and the lightly dispersed manure is much less likely to runoff the pastures and pollute a nearby stream (which in the case of Saxon Homestead Farms, is a short two-mile trip to Lake Michigan).

In winter the cows have access to a warm barn and hay and silage grown on the farm. Manure collected from the milking parlor and from the winter barn must still be dealt with, but there is far less than if the same number of cows were confined year round. Manure from the winter barn fertilizes the pasture during growing season, and manure from the milking parlor is applied in fall to rebuild phosphorus-depleted soil on the 150 acres used to grow corn or other silage for winter feeding.

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... *Cows Cause Concern* continued from page 5

Trade-off: less milk, but everything else better

Annual milk production per cow is somewhat less than for conventional herds, but by experimenting with cross-bred cows instead of just the standard black and white Holsteins, the milk produced at Saxon Homestead Farms has a higher butterfat and protein content. Karl admits: "Grazing probably limits maximum production, but the cows live and produce longer, increasing overall production per cow over its lifetime. And the reductions in costs for feed increase the value of each unit of milk."

Karl, his brother Robert and their wives Liz and Kathleen manage the grazing and milking operation. In 2007, Saxon Homestead Farms opened a cheese factory – the third in the 170-year history of this family farm. Sister Elise and her husband Jerry Heimerl manage the creamery, using 25% of the milk produced at the farm. Their goal is to use 50% of their milk at the creamery in coming years.

"Our grazing operation is not the lowest-cost operation, but our emphasis is to add value through pasturing and our creamery, to our family and farming heritage, and to the sustenance of the land resource base. Sacrifice a river? That's insidious, it's crazy. We need to protect our most basic resources – our land, our waters – that's what makes Wisconsin work."

Buelow's way

Kenn Buelow of **Holsum Dairies** took a very different tack than the Klessigs, establishing two dairy operations near Hilbert, in Calumet County, with a combined total of 7,000 cows and 65 employees. Kenn grew up on a family farm in Calumet County, and after school, more school and then a little more, jumped back into farming in a big way.

With schooling in physics and math, geology and geophysics, veterinary medicine and science, and after working as a vet and consultant, Kenn felt it was time to try his own hand at running a dairy. He decided to start big because of the economies of scale – the milking parlor size drives the herd size, and the price per unit of milk drops significantly as herd size increases.

The cows at Holsum Irish Dairy and Holsum Elm Dairy are housed in enormous, well-ventilated freestall barns with plenty of room to move around and lie down. Kenn purchases feed from 40 neighboring farms, which in turn use manure produced on his dairies for fertilizer. Kenn spreads on 11,000 acres, and maintains the soil testing and nutrient management plans for the 11,000 acres of his neighbors' land.

Cows lighting up houses

The dairies also operate manure digesters on site, removing pathogens and reducing available phosphorus while producing energy. After digestion, the solids are separated from liquids resulting in an odor free sawdust-like product that is used for bedding in the barns. The liquids, with less than a quarter the amount of phosphorus of raw manure, are stored and applied in summer and fall. The energy produced through digestion heats the farm, and the rest is sold to the local energy utility. The farms produce three to four times the energy needed on-site and the energy sales make back what it takes to run the equipment.

Running an operation like Holsum Dairies takes as much business acumen as dairy experience, and Kenn will tell you he's a businessman first. Holsum Dairies was the first in the state to develop an Environmental Management System, a process to constantly evaluate and improve every aspect of how a business operates, with the goal of increased efficiency and improved environmental performance. While the EMS is very complicated and requires commitment at every level of a business operation, the basic premise is that operating efficiently reduces or eliminates waste, saves money, and goes easier on the environment.

Kenn incorporates environmental protection into every decision. He selected his farm sites to locate over a base of 70% clay to shield the groundwater from pollution. With his geology background, he is always aware of the impacts of his operations on ground and surface waters. He even experiments with lower-phosphorus feeds by reducing what a cow gets on the front end to reduce the phosphorus she puts out on the back end.

"We want our dairies to be an example of agriculture contributing positively to the community. We have developed strong links in our community, economically, environmentally and socially. If we take too much of the resource, none of us will be farming." ■

... *Cranberry* continued from page 4

protection for the cranberry industry: the 1867 law exempting cranberry production from most regulations. This law – the envy of anyone who'd want free reign to move water around -- allows growers to "build and erect, keep up and maintain such dam or dams upon and across any stream, ditch, sluice, slough or any body of water, as shall be necessary for the purpose of flooding said marshland."

It also allows cranberry growers the right to utilize public waters for their own needs (irrigation and harvest), and exempts them from the state regulatory processes pertaining to navigable waters. However, growers are required to complete nutrient management plans and permits are required if they want to expand or create new cranberry beds in existing wetlands.

Cranberry consciousness rising

Conservation practices that would use less water, energy, or chemicals are all voluntarily implemented: no one makes them put them in. Some growers have found that implementing these practices saves money and builds goodwill with their communities and customers. The Natural Resource Conservation Service (NRCS) provides guidance, and federal subsidies, for plans that manage irrigation water, pests and nutrients, and for creating reservoirs on-farm that hold water and help reduce the amount of contaminated water discharged to rivers and lakes.

According to **Pat Murphy**, state resource conservationist for NRCS, approximately 50% of Wisconsin's cranberry acreage uses some conservation practice. **Kay Finch**, second generation cranberry grower of Perry Creek Cranberries near Black River Falls believes these NRCS programs have been "instrumental to growers to be even more environmentally conscious than we have been. The programs have been an eye opener." Perry Creek Cranberries uses the federal programs to help manage nutrients and pests, and upgrade the irrigation system on 38 of their 200 acres.

No "good" cranberry without balance

So for people like me that enjoy eating cranberries, can we find a "good cranberry?" As Juneau County conservationist **Greg Lowe** observes, "Cranberries are good for our local economy, but there needs to be a balance. It is time we start turning things around, or the water quality will only continue to get worse." Grower Kay Finch acknowledged, "Good water quality equals good fruit."

With increasing consumer awareness of how food is produced, we hope more growers will take advantage of the new NRCS programs and voluntarily improve their production of cranberries for the sake of all of our waters. Meanwhile, the chances of reforming the 1867 law, and bringing the cranberry industry under more regulatory scrutiny, are nearly nil.

If you or your group is interested in this issue, we encourage you to start by talking with a local grower. Ask about their conservation practices and look for ways to encourage additional steps they can take to reduce their impact on our rivers. It's good to signal to them that you are paying attention. ■

Food, Water, Farming: Some Numbers

- Wisconsin cows generate enough manure each year to fill a tank the size of a football field nearly four miles high¹
- The typical dairy cow² generates 150 pounds of manure a day, and as much organic pollution in a day as 18 people.
- About 333 million gallons of water per day was used for agricultural purposes (irrigation, washing barns, etc.) during 2000.³ By contrast, nearly 290 million gallons per day were used for domestic purposes, and 6 BILLION gallons per day were used for generating electricity.
- As of 2007, only 4.3%, (654,500 out of 15 million acres) of Wisconsin farmland participates in conservation programs⁴
- Nearly 38% of private drinking water wells in Wisconsin contain a detectable level of herbicides or herbicide metabolite. 11.6% of private wells exceed health based drinking water limits.⁵
- 30% of Wisconsin's water use is for agriculture: Of that amount, 83% is irrigation, 3% is for dairy cows, 6% goes to cranberries.⁶

1. UW-Madison Program on Agricultural Studies <http://www.pats.wisc.edu>

2. Wisconsin DNR http://dnr.wi.gov/news/mediakits/mk_manure_runoff.asp

3. USGS, Water Use in Wisconsin, 2000 <http://wi.water.usgs.gov/pubs/ofr-02-356/ofr-02-356.pdf>

4. USDA <http://www.ers.usda.gov/statefacts/WI.htm>

5. USGS, Community Supported Agriculture of Wisconsin <http://wi.water.usgs.gov/gwcomp/integrate/CSA.pdf>

6. Per John Panuska, University of Wisconsin Extension biological systems engineer

Food, Farms, Rivers, and BEER!

By Matt Krueger



Paul Graham peruses the microbrewing industry and its potential for conserving water from atop a barrel in his Amherst brewery, not far from the Tomorrow River. (Photo courtesy Paul Graham)

Though the connection between beer-making and food, farms, and rivers may not be apparent, in Wisconsin they are inextricably linked. In many cultures, beer IS food; it is not only a byproduct of water, but of crops too: feed grains (rice, barley, corn) and a flower (hops).

Wisconsin's abundant land and water explains much about why there is a beer-making tradition here. (So does its Germanic heritage.) But how heavily does beer production draw upon these resources? What is beer's relationship to our Wisconsin land and waters?

Though estimates vary widely, beer production is very water intensive. The industry standard seems to be anywhere from five to ten gallons of water used per gallon of beer brewed. In Wisconsin, this water is drawn from the same supply as our drinking water—either groundwater or surface water, both of which supply water to our rivers. The finished beer product contains over 90% water, but water is used in other parts of the brewing process, as well. It is used in large quantities

in heat exchangers to immediately cool the wort—the sugar-rich water that is separated from the malted barley mash and eventually ends up in your beer—after it's been brought to a boil. Water is also used to clean the brewing works. Think about how much water you use to wash dishes, and then think about how much water it would take to clean a thousand gallon fermenting tank...

Eco-brewers

Fortunately for us aquaphiles, it's not difficult to find Wisconsin brewers conscious of their water usage and overall ecological footprint. **Lake Louie Brewing**, located near Arena (Iowa County), is less than one mile from the Wisconsin River. Lake Louie uses groundwater from a private well to brew their beer. Owner **Tom Porter**, who was raised a stone's throw from the river, realizes the importance of clean and abundant water to his business.

"You have to do the right thing for the environment," Porter states. "The secret to our great beer is our great water—we don't want to do anything bad to it."

As such, one of the efficiency measures Porter has implemented to reduce water usage at Lake Louie is an "ozonation" purification system, a chemical-free process by which ozone gas is used to sterilize and purify water. Through this technology, water that was previously used in the brewing process to cool boiling wort can be reused as clean brewing water, cutting down on overall water consumption.

"We're the only brewery in the country using this technology" says Porter.

Another Wisconsin brewer keenly aware of his water usage is **Paul Graham**, owner of **Central Waters Brewing Co.**, of Amherst (Portage County). Through rigorous water conservation measures (water recycling and use of gray water for cleaning), in 2008 Central Waters used an astoundingly low 1.4 gallons of water for every gallon of beer produced. In addition to water efficiency, Graham has utilized other green technology measures to reduce the environmental impact of the brewery, including a solar-powered hot water heater, efficient radiant-heat flooring, and using recycled materials in the brewery's Tap Room.

Looking to tomorrow from the banks of the Tomorrow

Graham, like Porter, strives to be a steward of the river on whose banks his brewery is located.

"We're only a quarter mile from the Tomorrow River, a Class I trout stream," Graham says. Central Waters' water conservation practices are notable, especially in central Wisconsin, where depleted groundwater in recent years have dried up lakes and rivers. "I think we're doing something seriously wrong if the byproduct of us living our lives kills a river," he says.

Though hops and brewing barley aren't conventionally grown in our state, both brewers have done their part to demonstrate to local farmers that there is a Wisconsin market for the product. Porter obtains hops used in some Lake Louie brews from the Gorst Valley Hops farm near Mazomanie. Hop Harvest Ale, one of Central Waters' newest brews, is slated to be brewed with 100% Wisconsin-grown hops and barley by 2010. Shine On, another of Graham's newer brews, will be brewed with Wisconsin barley by next year.

Both brewers also currently provide local farmers with spent grain (a byproduct of the brewing process) to be used for compost or livestock feed. "Sustainability goes way beyond organic—it's gotta be local," Graham says. "It's not sustainable if a farmer can't make a decent living."

Though this motto belongs to Central Waters and Graham, it could be said about Porter's approach to brewing at Lake Louie as well: "Making the world a better place, one beer at a time." ■

Put Your Money Where Your Mouth Is – It's Really Easy



A Saxon Homestead Farms calf awaits the day it can make its contribution to the fine cheeses produced by the Klessig and Heimerl families. (River Alliance photo)

The best way to support farming systems that go easy on the rivers is to buy food from those farmers whose practices do just that. This is very easy to do in Wisconsin, thankfully. We have featured a few of those farmers in this issue of The FLOW, and here's how to buy directly from them:

The **Klessig family's** milk is rendered into fabulous cheeses, available directly from the farm at www.saxoncreamery.com. Their cheese is sold at Fromagination, in Madison.

Dick and Kim Cates' grass-fed beef is available from many retail outlets, and is served up at several fine restaurants in central Wisconsin, listed on their web site at www.catesfamilyfarm.com.

Tony and Sue Renger's Willow Creek Farm sells their Animal Welfare Institute-certified pork from their Loganville farm, but also to restaurants in Sheboygan, Milwaukee and Madison. Find them at www.willowcreekpork.com

One organization – the River Alliance's good neighbors here on Wilson St., the **REAP Food Group** – has made it really easy to find land-, animal- and river-friendly farmers. Their publication, **Farm Fresh Atlas**, lists hundreds of farms in southern Wisconsin, what they sell, and how to reach them. www.reapfoodgroup.org There are similar such atlases for the entire state, found at www.farmfreshatlas.org

Healthy Grown Potatoes – See Justin Isherwood "out standing in his field" on the web site www.healthygrown.com, a grower consortium promoting eco-friendly potatoes.

And don't forget to enhance your good eating from these farms with a zymurgic delight (aka beer). We have found through intensive longitudinal research that the fine products of the two breweries we featured in this issue are easily found in taverns and retail outlets across the state. More about the breweries at www.lakelouie.com and www.centralwaters.com. ■

Third Annual Citizen Stream Monitoring Symposium

Saturday, January 23, 2010

UW-Stevens Point
University Center
9 AM – 3:30 PM

Fee: \$10 per person,
pre-registration is required

To register:

www.wisconsinrivers.org
or call 608.257.2424 ext. 113

Don't miss your chance to win one of several TidBit thermistors donated by the Onset Corporation (valued at over \$100 each)!

Any current water quality monitor should attend the Symposium to network with volunteer stream monitors and local coordinators, DNR and county staff, and others interested in and involved with the program.

- Hear examples of how your data are being used by DNR and universities
- Learn about the natural resource data counties need and how to make the right connections in your county to help protect and restore streams and rivers
- Learn about fish of Wisconsin sloughs from retired DNR biologist Dave Marshall
- Learn how to obtain data reports and site maps online
- Share your program with others through a poster session



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The FLOW

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Online at www.wisconsinrivers.org

Voyageur Profile: Gail Schroeter



Gail Schroeter is a member of the board of directors of the River Alliance, and a Voyageur—a donor who's committed to at least a \$1,000 annual gift.

How did you get involved with the River Alliance?

I have been involved with the River Alliance as a member of the finance committee, utilizing my skills in banking and my passion for rivers.

What made you decide to become a Voyageur?

I have witnessed first-hand the difference that the River Alliance has made. I believe in donating my time and money to non-profit groups who make a difference with people and our environment.

What issue facing rivers is of the biggest concern to you?

My biggest issue is that if we all don't begin to make big changes in many ways, that my grandchildren may never know the beauty of what our rivers once were.

What draws you to rivers?

I developed a passion for rivers when I lived on the banks of a river for 18 years with my husband and daughters and we experienced the destruction that a dam can cause to the beauty and the wildlife that at one time flourished in the river.

Do you have a favorite Wisconsin river?

The Yahara River is the river that I lived on, fished in, canoed down and my dog swam in for 18 years. (Editor's note: Wow...that's a pretty old dog...)

Describe your perfect day on a river.

My perfect day on a river is actually sitting on the bank doing nothing but listening and watching wildlife either at dusk or at dawn before mosquito season.



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In this issue...

Special Edition: Food, Farms and Rivers

Meat Meets Rivers

Such a Small Berry, Such a Big Impact

Beer is Water, Beer is Food

