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CONTENTS

MARCH/ARIL 2020 >> Vol. 17 Issue 2

FEATURES

21 | **Ode to the Garden Gate**
By Gary Young

22 | **Power to the people**
By Jeffrey Carter Microhydro is just one of many forms of traditional production at this unique Huron County property.

30 | **A different kind of bovine**
By Julie Stauffer and Josh Martin Three producers weigh in on what it takes to raise water buffalo.

36 | **Keeping bugs away**
By Janet Wallace What works and what doesn't.

COLUMNS AND DEPARTMENTS

4 **Editorial**

5 **News & Notes** Peer advisory groups, understanding “black swan” events, good beef, book review: *Farming on the Wild Side*; Research Notes: is carrot juice murder?, feeding clay to cattle, pig pleasures.

12 **At Pasture** *By Ray Ford* Keeping track of your hay inventory.

14 **Poultry** *By Amy Hogue* Poultry fencing 101.

18 **Equipment** *By Dan Kerr* How to put an edge on cutting tools.

34 **Recipes** *By Helen Lammers-Helps* Too busy to cook? Microwave mug meals may be the answer.

42 **Notes from the Larkspur Supper Club**
By Dan Needles An apology for milk.



Get social with Small Farm Canada



Field Notes

TOM HENRY

A Six-Pack of Chicken

Why don't consumers like small-farm meats and vegetables as much as they like craft beer and artisanal cheese?

Depending on where you live in Canada, between 1995 and 2010 you probably noticed the emergence of three trends related to food and drink consumption: increased interest in, and production of, small-farm produced meats and vegetables; the emergence of microbreweries; and the growth in number of small-scale cheeseries.

Though each of these sectors is dynamic, and have not yet grown to their full extent, enough time has passed since their emergence to warrant a few observations.

First, for our younger readers, a bit of background. As far as beer, food and cheese was concerned, the 1970s, 80s and even 90s were truly the Dark Ages. Bad enough that beer was dogwater dull—worse still was that different brands were dull in the same way. Interesting options were confined to a small shelf of German/Czech products.

Cheese was the same. Variations on bland. In fact, remarkably, extraordinarily bland. What I consumed when I ate cheese for the first two decades of life was mostly water, a fair bit of orange colouring, and a little bit of something cheese-like. I still resent the dairy-processing industry for robbing me of Interesting Cheese Experiences during my youth.

And if you lived in the countryside during the 1980s, you may have had access to some local, free-range type beef, pork and chicken. But there was none of the infrastructure that has emerged recently, where farms (like ours, and those of many *SFC* readers) are wholesaling or direct marketing meaningful quantities of food to butchers, small chain stores and restaurants.

So, young people: be thankful to be alive in what a friend calls the Great Pleasure Renaissance—abundant choices in beer, cheese and meats and veggies!

But back to my sector observations. Of the three, microbreweries are the most successful. The number of breweries in Canada has risen from 10 in 1985 to over 640 in 2015. I know of at least two Chinese-made, DIY microbreweries sitting in Sea Cans nearby, just waiting for the owners to get them set up. While many operate in the \$4-\$10 million/year gross revenue range, some are doing upwards of \$60 million/year and are selling internationally. In the U.S., artisanal breweries are credited with revitalizing small towns by making them destinations for Beer Tourism.

There are fewer small-scale cheese makers but their growth and expansion have also been remarkable, with producers selling to chains like Costco.

Of course, small farms outnumber microbreweries and cheeseries, and not all small farms want to sell into the local food market. But those that do have largely failed to achieve similar growth.

Why? A few possible explanations come to mind. While microbreweries and cheeseries can't compete with large outfits on the scale of production, they are still highly mechanized and automated. Scaling up means capital, not so much labour. Small farm producers, needing or wanting to satisfy the demand for animal friendly/organic production, are often headed in the other direction—less efficient production. More production demands more labour, with fewer benefits to scaling up.

Beer and cheese fit into existing marketing channels more readily than local meat and vegetables. Bottles and cans and wrapped packages are easier to ship, track, warehouse and retail than totes of spinach. If I was a retailer looking to keep abreast of local food, it would be easier to feature a few varieties of cheese from a small producer than the seasonally on-and-off (usually) production of a small farm.

Beer and cheese are fun; meat and vegetables not so much. Who doesn't look forward to trying a new IPA or brie? Sure, they cost more than the conventional beer and cheese, but consumption (depending on your level of addiction) is limited to a bit of Friday shopping excess. Or, if you are like me, you buy both—a couple of bottles of interesting craft beer, then a conventional beer to drink when watching the Oilers take on the Flames.

On the other hand, we need meat and/or vegetables regularly. Not only is the price spread between small-scale production and big-box store food large, but if you want to eat from small farms consistently the expenditure is ongoing, day after day.

One solution is to make small-farm products more fun, or at least more celebratory, to counter price-point exhaustion. Perhaps a better model is to encourage more buyers to splurge and buy a unique chicken, or ham, or box of veggies. It's a rainbow box of heirloom carrots! It's a creative new cut from the butcher! It's the small farm Sunday night!

We small farmers might do better selling a little to a lot of people, rather than, as is the case now, a lot to fewer buyers.

INSIGHT

Should you form a peer advisory group?

Farmers often pride themselves on their independence but there can be benefits to overcoming that instinct and learning from, and teaching others. One option is a peer advisory group. Peer advisory groups are small groups that meet regularly to share insights on their experiences and performance. The recent Agricultural Excellence Conference in Fredericton, New Brunswick, saw a presentation on building peer advisory groups by Terry Betker, president and CEO of Backswath Management Inc., a farm-focused business management firm.

A peer group can provide critical insight into important and potentially sensitive issues and opportunities from people who know what they're talking about. The form and exact focus of the group could vary wildly. It could be a group for farmers who grow the same crops, or who have farms of similar sizes. The group could be short-term, focused on a specific finite issue, or it could be more open-ended and intended to continue in perpetuity. The group may reinvent or repurpose itself over time or the members of the group may cycle in and out over time. Smaller and larger farms can both benefit from peer groups, but it may not make sense to have groups with huge size disparities between members as their experiences may not be relevant to each other.

"It doesn't make sense to have a very small, like 30-acre farm, and a 20,000 acre farm in the same peer group," says Betker. "You can't 100 percent discount size, but you can have quite a variation in size in a peer group. And you can absolutely have a peer group of farms that don't have anything more than 10 or 15 acres of vegetables and they can benefit from it."

Dustin and Kristi Burns, co-owners of Saskatchewan's Windy Poplars Farm, spoke at the presentation, emphasizing the comradery and kinship that they felt with the members of their peer group. Another farmer quoted in Betker's presentation, Ryan Galbraith of Manitoba's RNR Farms, said, "We keep each other accountable on our updates, goals and target issues . . . As farmers, we tend to always complain about the same things that we cannot control, but what I like about our group is we try to look past that and really focus on what we can control i.e. financials, efficiency ratio of equipment, HR, the list goes on."

Betker recommends groups of no less than six and no more than 10, and forming a charter that clearly outlines the purpose of the group, a confidentiality agreement and what is expected of members. One example would be a requirement that everyone share information on their farms. "No freeloaders!" That said, he is happy to freely share some of the concepts and benefits of peer groups to anyone who is interested.

"We organize them, we facilitate them, and that's part of our business but I'm absolutely open to sharing," says Betker. "If you want to be a group of small farmers in some part of Canada and want to get some resources or some ideas from someone, I'd be happy to talk to them. I don't even mean as a consultant, I literally mean if someone wants to learn more about it or get some resources or some insight as to how this would work, I'm happy to just talk to them!"

~Matt Jones



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FARM MANAGEMENT

Understanding “black swan events”

Unexpected and shocking events can disrupt and damage existing systems — and they’re happening more frequently

“Black swans” are events that can shock, damage and disrupt existing systems, sometimes completely destroying the pervious system and forcing the establishment of a new paradigm. As Don Buckingham, president and CEO of the Canadian Agri-Food Policy Institute (CAPI), told attendees at the 2019 Agricultural Excellence Conference, these events repeatedly redefined agriculture over the past 10,000 years and are occurring more and more frequently. While these events can cause challenges for farms of any size, smaller farms may be able to more easily position themselves to be resilient and adaptive to change.

The term “black swan events” was used by author Nassim Nicholas Taleb in his 2007 book *The Black Swan: The Impact of the Highly Improbable*. The term comes from how in the 15th century and before, common understanding in the western world was that all swans were white. However, in 1697, a Dutch explorer discovered black swans in Australia, which forever changed the definition of “swan” and led to a revolution in thinking about inductive and deductive reasoning. Taleb uses the term then to refer to large scale, unpredictable or random events that have significant consequences and transformative impacts.

As Buckingham notes, agriculture (and food itself) has been subject to black swans many times in history: the advent of fire and cooking, animal domestication, selective breeding of plants, longterm shipping, improved food storage methods, synthetic inputs and, more recently, artificial intelligence and the application of genetically modified organisms.

Black Swans are not-necessarily driven by technological advances though. The Great Grain Robbery (the 1972 purchase of 10 million tons of grain by the Soviet Union at subsidized prices), caused grain prices to reach 125-year highs, a 50 per cent increase in overall food costs and soybean prices rising from \$3.31 to \$12.90 a bushel.

The key to weathering a black swan is resilience, being able to manage risks and create new opportunities from adversity, to innovate and adapt in the

Buckingham identifies three levels of resilience to system shocks: absorption (being strong enough to take the hit from a shock), adaptation (being able to incorporate new dynamics into your business plan) and transformation (outright changing your approach in the face of the new reality).

fact of a system shock. And while larger farms may have more resources at hand to use, small farms are well positioned for resilience.

“I grew up on a small farm,” says Buckingham. “I hope my presentation didn’t come across that we need to ‘do resilience.’ We’ve been doing resilience the whole time. I think resilience is more about using the resources you have in a very capable way as opposed to having a lot of resources. From that perspective, I would say that the smaller farmer is not disadvantaged, though there are some options for resilience that are available for a bigger ticket price. I don’t deny that.”

Buckingham identifies three levels of resilience to system shocks: absorption (being strong enough to take the hit from a shock), adaptation (being able to incorporate new dynamics into your business plan) and transformation (outright changing your approach in the face of the new reality). As such, a larger farm may be able to absorb the impact from an unexpected \$100,000 expense, while a smaller farm may not.

“So it becomes a question of ‘how do you have an attitude of resilience?’” says Buckingham. “What do I need to have in place to absorb some risks and what do I have in place to think about transforming my business so it’s more resilient? For instance, one

thing might be developing a community that will help you absorb those things, coming to conferences, having education, renewing your business plan, not having over-exposure. I think from that point of view, the small farmer and large farmer are in the same position.”

Increases in technology have caused the intervals between black swans to shorten. An animal health issue on the other side of world may not have impacted other areas at one time, but when product and information spread quicker than ever before, those issues can spread quickly as well.

“An expression I use is, ‘the problem with instant gratification is it’s just not fast enough anymore,’” says Buckingham with a laugh. “I think what’s happening is there will be a saturation point. Why they’re happening more frequently, in my own personal opinion, is that we have instantaneous information transfer and we have a contiguity of population unlike ever before. We have products and people that cross the world every single minute. And there’s a lot more people living a lot closer together. Today, it would only be a matter of hours, weeks or months before a pathogen, or even a technological change, [spread to other areas.]

Climate change is the potential future black swan that is most talked about currently. A climate catastro-

phe could certainly cause dramatic and rapid changes in the status quo of how humans live and produce food. Buckingham notes that one of the most destructive black swans in history was the Black Death, a bacterium which caused several forms of plague that resulted in the deaths of 30-60 per cent of the population of Europe between 1347 and 1351.

Agriculture was changed because they did not have the people necessary to continue the previous production methods.

Buckingham believes, however, that smaller farms have an important role to play in the new dynamics to come as there is still a vast percentage of Canadian farming that comes from smaller, family-run farms.

“They’re really the bedrock of agriculture and they provide what I would call ‘a blanket of resilience,’ and then it becomes a question of ‘are they equipped to take the next step, either in adaptation or in transformation, to having a system that’s going to be more resilient?’ They have a critical role. They have a lot of standing with the urban public and also they have their own families to feed, so they have their interests in being healthy and sustainable.”

~Matt Jones

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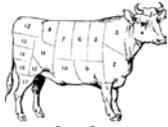
Smart Farming with Data

The advertisement features a background image of a large green field with a center pivot irrigation system. In the foreground, two green sensor boxes are mounted on poles. A circular inset on the left shows a close-up of a white sensor box. A hand in the bottom right corner holds a smartphone displaying a data dashboard with various charts and graphs. The dashboard is titled 'Tevaltronic' and shows data for 'Agores 01401 0100', 'Cone 0101 0100', and 'Tosonics 0101 0100'. The AgIoT logo, which includes a stylized leaf and the text 'Ag IoT Technology', is positioned in the center. Below the logo is the website address <https://www.agiotec.com>.

FOOD SAFETY

What consumers value about their beef

Should Canada import international standards for labelling and assurance?



Canada's food safety standards are respected around the world, but is Canada in danger of falling behind? And can an examination of international standards, consumer assurances and values benefit Canadian producers trying to sell at home and abroad? Ellen Crane, who grew up on a cow-calf farm in Lorne Valley, Prince Edward Island, found this topic particularly interesting in the face of impending trade agreements such as the *United States, Mexico, Canada Agreement* and the *Comprehensive Economic Trade Agreement*. As part of her Nuffield Canada scholarship, Crane travelled around the world to compare labelling and transparency practices to see what producers back home could learn. Crane delivered a presentation on her findings to the 2019 Agricultural Excellence Conference in Fredericton, New Brunswick.

"If there's going to be a potential opportunity for Canadian beef to be sold in these countries, what are our opportunities and what are these consumers looking for when they purchase a Canadian beef product?" said Crane. "There's a little bit of psychology that goes into it, because when you're selling to consumers, you have to think about what is that consumer thinking about, what are their values, how do we attract that consumer to purchasing our product in another market."

Crane's travels took her to the Netherlands, Scotland, England, Denmark, Ireland, France, Italy, Hong Kong, Japan, the United States and to other areas of Canada. The most commonly valued attribute in all countries is food safety. Crane says that the importance of food safety standards didn't fully hit home until she found herself at a wet market in Hong Kong, with meat hanging on hooks in the open in 40 degree Celsius heat, with cats wandering around.

"In that wet market, I also found a premium shop that contained products from other countries. These products were all wrapped in disposable packaging, they were frozen, labelled with the country of origin and more expensive than the other products in the market. We could see the value right in front of us in that market."

Farmers Crane spoke with in the European Union are very proud of their advanced traceability system, which includes double ear tagging (in case one is lost), and a passport system which follows the animal and

indicates where they have travelled. An electronic system called BreedPlan is used to track data including births, movements and medical records. While the system costs the equivalent of \$1449 CDN per year, producers will not receive subsidies if the system is even a few days out of date. European consumers are also going to expect that protein is free of growth-promoting hormones, as they were banned in the EU in 1989.

"If you're going to sell products into Europe, we have different programs that you need to follow for that," said Crane. "But, as a commodity, I think we need to do a better job of tracking those animals that will receive growth hormones to prevent the possibility of an animal with growth hormones slipping into the system."

In Denmark, veterinarians play a huge role in protein production. Duties that are taken for granted in Canada, such as castration and dehorning, must be carried out by a veterinarian. "That would be a bit of a shock to the system here," admitted Crane. "But we were shocked when we had to get the vet to sign off on antibiotics too."

Overall, Crane's recommendations include that beef producers improve on-farm records and implement full traceability, enhanced producer education and enhanced product labelling to ensure consumers are aware of sustainably raised products. Crane later commented on how important a role smaller producers can play.

"For the smaller operations, depending on what their target market is, there is an opportunity to improve the practices that warrant a label such as high quality, traceable or sustainably raised," says Crane. "If the small producer is selling locally through customer orders, farm gate sales, farmers markets, etc. there is an opportunity to have conversations with the customer about what their values and concerns are."

Crane also noted that smaller producers may have an advantage with having a smaller number of animals to keep track of compared to many larger operations. She also emphasizes that record keeping needn't be an expensive endeavour, that it can be as simple as a daily farm journal to track activities such as movement, health treatments and expenses.

~Matt Jones

BOOK REVIEW

A book of lessons

Farming on the Wild Side: The Evolution of a Regenerative Organic Farm and Nursery.

By Nancy J Hayden and John P Hayden.
Chelsea Green. 2019.

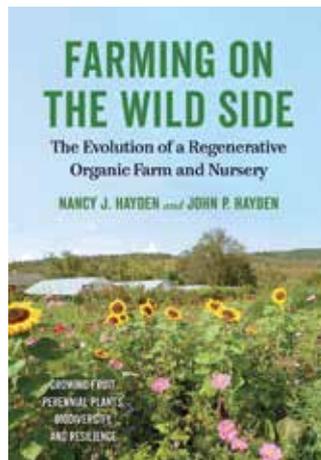
REVIEW BY JANET WALLACE

Farming on the Wild Side recounts a journey in organic farming and living, and the many lessons learned along the way. On 18 acres in Vermont, the Haydens raise fruit trees and berry bushes, including uncommon plants (e.g., clove currants, lingonberries). Their revenue comes from not just selling the fruit itself, but also saplings and seedlings from their fruit nursery and value-added products including cider and syrup.

The story of how the farm evolved is both interesting and educational. In the 1980s, the Haydens bought what had been a conventional dairy farm in Vermont. They rehabilitated the land using holistic resource management, and raised grass-fed livestock and organic vegetables using draft horses. Over the years, they became more interested in reducing tillage, increasing biodiversity and focusing on perennial crops. A major flood, in particular, made them question their practices and focus on building resilience in the face of climate change.

The Haydens' concept of resilience involves ecological, social and commercial aspects. Regenerative soil building is a large part of this. I like the idea of the "Close the Loop Chicken Coop" where the Haydens actually charge local schools and businesses to take away their food scraps to feed the farm's laying hens.

With this example, as with others throughout the book, they also explain the downside: rats, back strain and bureaucratic regulations. Another interesting soil building and landscaping technique is hügelkultur. They cover mounds of woody prunings with a layer



of compost. In the first year or two, they plant a green manure and vegetables on these, followed by perennials. They now call the piles "bumblekultur" due to the habitat they provide for bumblebees.

The focus of the book is how the couple raise fruit trees and bushes. They grow many dwarf fruit trees in hoop houses to protect them from early and late frosts, and also reduce disease pressure. Amazingly, they don't actually water the trees and bushes once the plants are established. The roots manage to pull water in. Another benefit from not watering is concentrated flavour in the berries.

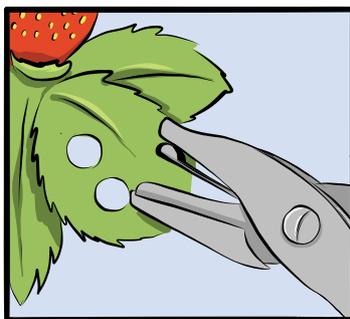
Outside of the hoop houses, the farm has a diverse mix of fruit and nut trees, berry bushes and plants for pollinators and other wildlife. The Haydens describe how and why they grow these. These details are the most valuable part of the book.

In addition to such practical information, the authors provide wisdom. For example, they describe the temptation of "biggering" — the constant pressure to expand their business. The Haydens now feel grateful they did *not* receive a grant to create a commercial kitchen on their property, which would have led them to create syrups to wholesale to restaurants. Instead, they found a scale they are comfortable with. I think that's the key lesson of the book — how the couple found a path that meets their values in terms of improving their environment and supporting their community, fits within the constraints (from the global issue of climate change to the personal issue of aging bodies), and is successful.



Hurt plants produce healthier fruit

Organic produce can contain more phytochemicals than non-organic produce. Many studies (but not all) have found organic produce contains significantly higher concentrations of antioxidants and other healthy compounds, such as anthocyanins, flavonoids, carotenoids and phenolic compounds. It turns out that we may have pests to thank for this difference.



When a leaf is injured, whether the cause is a rabbit, an aphid or a harvest knife, the plant's immune system is triggered. The chemicals that are released trigger a complex set of chemical reactions that end up producing healthier produce.

Scientists examined this phenomenon by creating 50 or 100 holes in strawberry leaves using a paper hole punch; this was considered to be enough damage to trigger a response but not reduce photosynthetic potential significantly. Fruit harvested from the injured plants two weeks later had higher rates of healthy phytochemicals than fruit from unharmed plants. The researchers hypothesize that the effect of leaf damage on phytochemicals may be greater in fruit than leafy produce (keep in mind, "fruit" includes tomatoes, peppers, squash, etc.).

Source: Ibanez, Facundo, WooYoung Bang, Leonardo Lombardini and Luis Cisneros-Zevallos. 2019. Solving the controversy of healthier organic fruit: Leaf wounding triggers distant gene expression response of polyphenol biosynthesis in strawberry fruit (Fragaria x ananassa). Nature Scientific Reports. Issue 9. 19239. www.nature.com/articles/s41598-019-55033-w.pdf

Feeding clay to cows

Aflatoxin is a carcinogenic toxin that can develop in plants affected by types of *Aspergillus* fungi. For humans, one source of aflatoxin-contaminated food is peanut butter. People can also consume aflatoxin from dairy products. Corn silage can contain mould, particularly if the corn grew in moist warm conditions. If cows consume low levels of aflatoxin, the effects may include a drop in milk yields, lower reproductive success and weakened immune systems. Higher rates can lead to liver damage and cancer. In addition, the aflatoxin consumed by the cows remains in their milk and can be consumed by people.

Contaminated silage should not be used but if there is a risk of a very low level of aflatoxin, farmers can reduce its

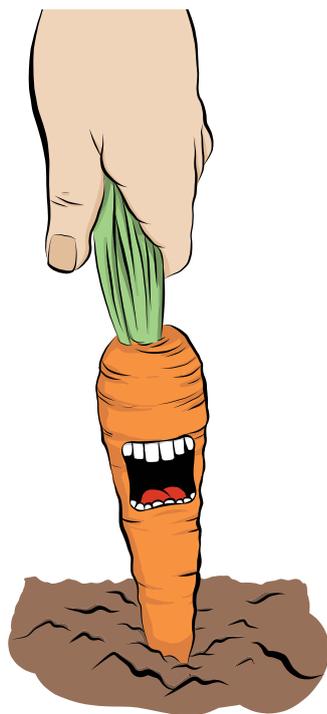
Screaming plants

The chorus of "Carrot Juice is Murder" begins with the lines "I've heard the screams of the vegetables, watching their skins being peeled, grated and steamed with no mercy . . ." Well, it turns out the Canadian band The Arrogant Worms was onto something. Plants do scream when suffering.

Researchers found that tomato and tobacco plants make a variety of high-pitched noises. There are different sounds depending on whether a plant is suffering from drought, being cut or unharmed. The actual mechanism behind the ultrasonic shrieks and screams is unclear but might be the sound of air bubbles forming and popping in the xylem (the tissue that allows water and nutrients to flow through the plant).

The noise is in the range that many animals and insects can hear. The scientists hypothesize that other organisms might respond to these sounds. For example, moths might avoid laying eggs on drought-stressed plants. Bats may be attracted to plants that are screaming after being injured by pests with the anticipation that there may be more insects (i.e., bat food) around those plants.

Source: I. Khait, O. Lewin-Epstein, R. Sharon et al. 2018. Plants emit informative airborne sounds under stress. bioRxiv preprint. Dec. 28.



impact by using clay as a feed supplement. Clay binds with aflatoxin (and other toxins) in the gut. The clay along with the toxin is then excreted and the toxin never enters the bloodstream.

Researchers found that adding bentonite clay at two per cent of dietary dry matter had other advantages. It buffered the pH of the rumen and also improved the digestibility of a variety of types of feedstuffs.

Source: M.E. Hollis, R.T. Pate, S. Sulzberger, A. Pineda, Y. Kbi-doyatov, M.R. Murphy, F.C. Cardoso. 2020. Improvements of in situ degradability of grass hay, wet brewer's grains, and soybean meal with addition of clay in the diet of Holstein cows. Animal Feed Science and Technology. Volume 259. Issue 1. 114331.

RESEARCH NOTES

Entertaining pigs

Tail biting can be a serious problem when pigs are raised inside. The industrial farming response to this issue is docking tails. A more humane approach is to change the behaviour of the pigs. After all, tail biting is not common in pigs raised outside with opportunities to forage and play.

“Environmental enrichment” can reduce the incidents of tail biting in confined pigs by reducing boredom and giving pigs other outlets for their chewing behaviour. With pigs, it seems that chewing is not just related to eating, but is also a way to explore their surroundings.

A simple form of enrichment is providing pigs with straw bedding, which allows the animals to root. However, many pork producers don't like using straw bedding. Buijs and Mun (2019) state that, “there are many alternatives to straw, however, some of which pigs actually prefer over straw (peat, compost, sand, sawdust, wood shavings, branches, bark, beets and silage).”

Other farmers want to adopt more measures to improve the lives of their pigs and have created various toys for their pigs. Machado et al (2017) shows pictures from a Brazilian farm with spinning structures of suspended 10 L water bottles that were empty except for a bit of popcorn. By spinning and manipulating the bottles, the pigs could get treats from the holes were drilled into the sides of the water bottles.

Buijs and Mun (2019) found that there are many ways to keep pigs entertained and less likely to bite each other's tails. For example, farmers can provide the pigs with burlap or hessian sacks attached to the wall or hanging from the ceiling. Thick rope also keeps pigs busy chewing. Various other toys could help reduce tail biting but are most effective when the toys are changed weekly. Toys, like plastic balls, can be put into the pen, whereas others, including ropes, can be suspended just above the heads of the pigs. Environmental enrichment is most effective at minimizing the incidence of tail biting when it is introduced before the behaviour has started.

Sources: Buijs, Stephanie and Ramon Muns. 2019. A Review of the Effects of Non-Straw Enrichment on Tail Biting in Pigs. Animals (Basel). Oct 18. Volume 9. Number 10. 23pp. Machado, Simone Pereira, Fabiana Ribeiro Caldara, Luciana Foppa et al. 2017. Behavior of Pigs Reared in Enriched Environment: Alternatives to Extend Pigs Attention. PLoS ONE, Volume 12. Number 1: e0168427. doi.org/10.1371/journal.pone.0168427

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At Pasture

RAY FORD

Counting hay bales will help you sleep at night (and not in the way you think.)

Spring is in the air. But if you're a livestock farmer, there's something else in the air too: the bawling and bellowing of late-gestation or early-lactation cows and ewes. These moms are near the peak of their nutritional needs. If your grass isn't ready, they'll demand your best hay — and plenty of it.

Can you dish it up? Or are you rummaging through the hay mow like John Cleese bashing through the kitchen in *Fawlty Towers*, screaming “Where is that good hay? Don't tell me I fed it already?”

Given the vagaries of farming, it's hard not to act like a member of the *Monty Python* troupe at least some of the time. But here's where a simple hay inventory and a map of stored feed will reduce stress, improve animal performance, boost your bottom line and improve your anger management.

“Forage inventory management is dollars in your pocket,” says Les Halliday, beef development officer with Prince Edward Island's Dept. of Agriculture and Land. Along with vaccinating, nutrition and good pasture management, managing your winter feed supply “is one of those little things that add up,” he says. Those little things “could mean 40 or 50 pounds extra weaning weight on your calves at the end of the year.”

Your farm is also a warehouse.

Receiving, storing and dishing out feed is a core part of any livestock operation. As Ontario shepherd, Vince Stutzki, said at a meeting I attended a few years ago, livestock farmers must manage “the stuff that comes in, and the stuff that's leaving.”

“I don't like getting to the end of March and finding I've only got 10 or 15 days of feed left,” added Stutzki, who was keeping an 850-ewe flock on about 200 acres. “I need to know well in advance of when I'm going to run out of a certain type of feed and make arrangements to deal with that.”

The key is to track your forage inventory as it's produced, stored and then fed, and to record it on paper, or in a com-

puter or phone, and not just in your head. Stutzki tracks his supplies with a spreadsheet and clipboard, using a tape measure to gauge the flock's daily silage consumption as it's drawn from silage bags.

“The big thing is to get in the habit of writing things down,” Halliday says. “When you write things down it seems to stick up in the grey matter longer. If you just try to keep it in your head, you think you'll remember, but as time goes by your memory will fade.”

Halliday sees this memory loss when he goes out to sample forage. Faced with rows and rows of identical white, wrapped bales, once-confident farmers lose their certainty.

“A lot of producers start off saying I know where everything is,” Halliday says. But out among the snow-covered expanse of bales, it's like “There's the clover row — no wait, it's timothy,”



Columnist Ray Ford records hay production—how much, and from what fields—on a simple calendar.

Step One: Know what you need

As Halliday says, it all starts with ensuring you have enough feed:

“Do you have a sufficient amount of hay to get through the next winter?

Ruminants need fibre. If you don't have enough, they can't survive on air alone.”

The key is to set a target for your hay pro-

duction, based either on what you typically need to get through a winter or by doing the math for your herd or flock's consumption. On-line feed calculators can help fine-tune your estimate by including bale weights, forage losses during feeding and storage, forage quality, herd or flock size and animal needs. I like the University of Wisconsin's “*Estimating Winter Hay Needs for Beef Cattle*,” or for more detail, Saskatchewan's *Beef Cow Rations and Winter Feeding Guidelines*.

Let's say you have 10 beef cows, and you're allocating 38 pounds of hay per head per day. (Even accounting for wastage

and storage losses and the moisture in the hay, this is a fairly generous amount, but I like to err on the high side.) To make the math easier, let's assume you're also feeding 400-pound bales produced by an ancient 4x4 round baler. If your typical winter feeding season stretches from November to the end of May, you'll need at least around 170 bales.

But to sleep sound, especially in an area where forage supplies are tight, you'll want additional bales to cope with an early winter, late spring or summer drought (or all three.) Halliday recommends padding your hay stocks by at least adding 20 percent. In my case, I like a six-week surplus. Either way, that's roughly 35-50 extra bales.

Step Two: Keep records by field.

Number or name each field, and build a spreadsheet or inventory that identifies each one. Include space to record mowing dates, hay bales produced, storage locations for those bales and notes on hay quality and field management.

In spring, scout each field for problems such as areas of severe winterkill. "If you have a 40-acre field, and the ten acres at the bottom have nothing but grass, note that," Halliday says. The goal is to head off forage shortfalls by keeping on top of fertility issues (and resolving them by renovating the field, frost-seeding legumes or fertilizing). With enough early warning, you can also deal with a forage squeeze by renting more hay ground or buying additional forage.

At harvest time, use a notebook or your smartphone to log key data. I like to jot daily observations (along with grazing records and notes about lambing and calving dates and breeding times) on the kitchen calendar. Here's an example from last July: "Baling No. 2 Field. 35 round bales. Rained on."

When I have down time, I transfer the calendar's entries onto a spreadsheet, and sketch a map or make notes describing my round bale storage.

By combining years of data, I get a handle on productivity. As Halliday says: "if you usually get seven (round) bales per acre and it's going down to six bales, and then five, maybe you've got a soil problem out there and it's time to get the soil probe out and find out what's lacking."

Step Three: Store bales by type and quality, so you know where to find them.

Whatever system you use, consider sorting bales by field, mowing date and quality as they're brought in. In my case, round bales from the best, earliest-cut fields are laid out on the west side of my storage area. As the harvest continues, the storage area is filled until I arrive at the eastern side of the yard. The best hay is tarped, the poorest hay is left un-tarped. As I look from west to east, I can scan most of my round bale



Everything looks different months after hay is made and stored, and even moreso when snow flies. All the more reason for tags or maps to help with identification.

inventory and know the good stuff is on the west, under tarps, and the mediocre stuff towards the east, un-tarped. Rained-on hay is segregated in its own row, to feed to dry ewes.

Meanwhile, small square bales go in the barn. Most are first-cut, but about 150 of the very best second-cut squares are tagged with a loop of orange flagging tape, knotted on the twine. It takes a second for the person loading the elevator to slap on the tape, but if that stops this primo clover from being accidentally dumped out to the pony, the rams, or — shudder — dry ewes, it's worth it.

Halliday is a proponent of identifying rows and lots of forage while you can still remember what's in them. Go for cheap and easy labels — a note tucked into a sandwich bag and stuffed into the bale twine of the round bale at the end of the row, for example. For wrapped silage bales, a permanent marker "is worth its weight in gold," he says. As the forage is wrapped, you can whip out the Sharpie and scribble "oats and peas" or "alfalfa/orchard grass" on the plastic.

As a bonus, segregating hay by type and quality makes it easier to test these "lots" of forage, generating reliable assessments of forage nutritional value. As for finding the hay afterwards, "keep it simple," Halliday advises. "Just draw a map and show where things are. Stick it on the fridge so other people get used to seeing it. Include local landmarks — the fence here, or the barn there—so if the map gets turned upside down, it doesn't reverse your system."

In the midst of a frantic and exhausting haying season it's tough to spare the neurons (and energy) to keep notes. But in an era where quality forage supplies seem tight and weather increasingly unpredictable, good forage inventory management means better animal performance, more efficient feeding and a farm that's more Royal York Hotel, less *Fawly Towers*.





Poultry

AMY HOGUE

Fencing 101

Step up your fencing game

There's nothing worse than going out to the run or coop only to discover something has gotten past your security, and your farm is now the scene of a feathered mass murder. Poultry cost a lot to raise, and all that hard work can be wiped out in just a few minutes overnight, while you slumber peacefully nearby, oblivious to the danger.

Good fencing is one of those necessary farm staples that serve a dual purpose; they not only keep your livestock in, they also keep predators out, and there are few decisions that can have a bigger impact on your farm's bottom line.

For farmers who pasture their birds, there is even more riding on their fencing. Pastured birds may be considered healthier, but there is increased risk for losses to predators. And those predators are many; skunks, weasels, raccoons, foxes, hawks and even neighbourhood dogs will all love the chance to dive into your coop and feast while you slumber, blissfully unaware.

You may think your coop or run is as secure as Fort Knox, but just in case, here's a rundown of your fencing options, and how you can step up your fencing game.

Chicken Wire (1" mesh, 18-gauge)

When you read the title of this article, it's likely the first type of fencing you thought of was chicken wire, the thin, flexible hexagonal mesh commonly used to fence in poultry. No one knows why this type of fencing is called "chicken wire" because in reality it offers very little protection for poultry.



Fencing is no laughing matter when raising poultry. Birds are highly vulnerable and a prime target for predators of all kinds.

In fact, the only thing chicken wire is really good for is keeping poultry contained, and even then it has its issues. This type of fencing bends easily, and it's easy for young chicks to get caught in it. It also has large enough gaps for predators to stick hands through, and if they're really determined they can stretch the holes wide enough to grab a chicken or gain entry into your coop.

If you must use chicken wire, try to source a minimum size of 1/2 to 1-inch, use staples to secure it to your coop or fence posts, and ensure it's pulled tight enough to keep it from sagging. Fold over cut links to prevent them from getting caught on clothing (or birds). Consider using this fencing only as a secondary level of protection.

Ideal for: Temporary fencing or overhead cover.

Pros: Easy to source, inexpensive.

Cons: Weak, sharp when broken, tends to sag without a strong framework.

Chain Link

Chain link may be challenging to install, but it makes for an extremely strong fence, even if the holes are too large to keep out many of the crafty predators that stalk poultry. This fencing's strength lies in how tough it is, and its ability to withstand even large predators. Use chain link along with a secondary layer of less expensive fencing with smaller holes.

Don't forget:

Bury your fencing a minimum of 12 inches vertically below grade to dissuade burrowing predators like skunks and weasels.

Fencing isn't just for large spans or runs, it's also needed to cover any openings in your coop. Cover the floor as an extra layer of protection.

Foxes, coyotes, and even neighbourhood dogs have been known to climb wire fences like chain link to access a coop. Ensure the holes in your wire fencing are small enough to prevent that from happening.

Your coop security doesn't only depend on fencing. Remember that raccoons are smart and dextrous enough to open latches and doors (scary, but true).

Ideal for: Perimeter fencing for coop or run.

Pros: Strong enough to withstand larger predators, virtually maintenance free.

Cons: Holes are large, installation is challenging.

Electric Poultry Netting

Electric netting is not the end-all and be-all for poultry fencing, but it's pretty close. If you are free ranging your poultry, it will offer the flexibility to allow you to easily change locations to access fresh grazing ground. Its real strength lies in its maneuverability for pastured poultry.

There are a couple of downsides to electric netting: First, just as with larger livestock, relying solely on electric fencing has its issues. It's expensive, and dependant on access to electricity and can fail if that access is restricted. If you're willing to take that risk, then it can be a good choice for your run or pasture.

Another electric fencing option is electric wire; you can run a single strand



Its maneuverability and flexibility makes electric fencing the perfect choice for pastured poultry.



This coop's fencing looks like nothing will be able to get through it, but it does not extend down below grade. This leaves this coop vulnerable to burrowing predators like skunks or weasels.

of electric wire near the base of any fence to deter predators looking for easy access. A second wire run parallel and a few inches above the first will add an extra layer of protection. Be sure the electric wire doesn't come into contact with your metal permanent fence or you may run into short situations.

Ideal for: Pastured poultry or poultry runs as secondary protection.

Pros: Portable, easily set up, flexible, a strong deterrent for predators.

Cons: Subject to power failures, expensive.

continued on page 16

Poultry

Hardware Cloth (1/4" or 1/2")

Hardware cloth is strong, welded galvanized steel mesh that is sold in rolls and can be cut to length. This type of fencing is one of the best types of fencing for poultry. The smaller gaps and strength of the wire prevent it from being broken or stretched by predators, but that can also work against you when it comes to installation as its rigidity can be difficult to work with.

This type of fencing is sold in rolls at hardware or building stores, and needs to be cut if you need a shorter length for your fence. Cutting it can be a challenge, especially if you are using the 1/4" size, and you will need to use tin snips or heavy shears.

Ideal for: Outdoor runs, pastured areas

Pros: Easy to move when you move pastures

Cons: Expensive, difficult to cut



The smaller the hole the better. This hardware cloth fencing has holes small enough that it's virtually impenetrable.



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Bird Netting

So many poultry owners spend a lot of money and time fencing in their birds only to overlook a major predator that is difficult to defend against — birds of prey. The mistake is easy to understand. Most of today's domesticated poultry can't fly, so at first thought it may seem like it isn't a cause for concern.

There are a couple of ways to eliminate this risk. First, you can ensure that if your birds have an outdoor run, the length and shape of the run is not attractive for a bird of prey, who must have enough space to swoop in and then lift off again. Second, you can cover your run with any kind of netting. This is probably the simplest method of protecting your birds from overhead predators.

Ideal for: Overhead protection.

Pros: Easy to stretch over fenced areas.

Cons: Not strong enough for anything other than overhead use.



Poultry fencing can be found in most hardware or feed stores and is often suitable for other purposes, like garden fencing.



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Equipment

DAN KERR

Sharpen up

How to put an edge on cutting tools

My dad was a stickler when it came to maintenance. A favourite saying he had was, “A dull cutting tool is dangerous.” On one of my more adventurous days I asked him to explain this. He answered with, “Get serious!” which translates as; “a dull tool takes extra effort to make it cut which can get out of control. With a sharp tool the work is accomplished with minimal force, better control and reduced risk of injury.”

Years ago the carbide tip circular saw blade was born — expensive but I had to have one. Before I could use it I loaned my saw to a friend. Once returned I put it to work only to have smoke billow out with no cutting. When I examined it I found five teeth missing. When questioned, he advised how well it cut nails!

Maintenance

Cold chisel, axe, hoe and trimmers: all should be kept sharp and are sharpened in different ways and can be done by different means. We’ve covered most mechanical cutters previously so to get ready for the summer’s work load, I’ll do these.

Tools for sharpening

There are several ways of sharpening garden tools, a garden and tool file, palm sander, pad sander, hand held belt sander, floor belt sander, rotary sander, hand grinder and bench grinder. With the proper grit of paper, the sander is a formidable one for dressing metal, my favourite being the rotary tool. Box stores sell the rotary tool sanding drums at about \$8 for six! Ouch. I got mine on eBay by the bag for about \$2.

Cold chisel

Not a garden tool but the only tool in the wrench box with an edge so I thought I’d throw it in. An abused tool if any, this one gets put to the test regularly. This is a handy tool to have, and a good selection of well maintained ones, help the jobs get done safely.

For this tool I start my maintenance at the blunt end (BE) and begin by grinding the chisel back to its original shape as the constant strikes by a hammer not only compresses the BE but also willpeen or roll the end over the shank. This rolling causes the metal to split and it can eventually separate, becoming airborne shrapnel and a health hazard.



The edge(s) are dressed on the side of the grinder wheel

On the bench grinder with ear, eye and hand protection, I lightly grind off the ‘rolling’ not causing too much heat to the steel in any one spot (doing so will change the metallurgy and exacerbate the issue). A cup of water to cool the tool while grinding will help maintain a constant temperature. Once the BE is re shaped the sharp end can be dressed on the edge of the grinding wheel for both sides. A good edge for cold chisels should be at about a total angle (30/side)

Axe

Here’s a tool that can find its way into trouble. I start my maintenance by checking the handle for splits, if it’s split that’s where the maintenance begins, changing the handle. If the handle is intact and tight to the head I go at the handle using an 80 grit piece of sand paper to just rough it a little. It cleans off debris, nicks off any slivers and opens the pores for a coat of neatsfoot oil preservative. I use a rag doused in the oil and wear my work gloves to apply it.

Next I clean any debris off the head and then, using my floor sander, I lightly grind both sides to an angle about 20 degrees (each side). Do not generate too much heat for the same reasons as the cold chisel. If it’s been used for hammering then I assess the (BE) for redressing the same as the cold chisel, keeping in mind the heat issue.

continued on page 20

Equipment



BE of the cold chisel shows a peeled portion. Note the light grey above and below; these are peeled portions that have broken away



Here the BE has been re-dressed along with the face squared (flattened)



The rotary tool at work: hold the garden tool in one hand and the rotary tool in the other, a couple of swipes and you're done. Too easy



Clockwise from the top, hedge trimmers, hand anvil, hand side shear, pruner and a hoe. The yellow line shows where they are to be sharpened



Dressing one side of the axe on the floor belt sander. These are the same belts that are used to 'square' an engine head

Equipment

Hoe

I own quite a selection of these and every year they get dressed at the end of the season so they're ready to go come spring. I start by cleaning off any debris then a light grinding on the bench grinder to get about a 30 degree angle edge. The boss has a habit of losing tools so I've got into the routine of painting part of them orange so I find them prior to the mower. For the wood handle I do the same routine as for the axe.

Pruners

With fruit trees and grapes on the farm these become the tools of the trade around here so sharp is foremost. I've got two different types of hand pruners (side sheer and anvil), I also have large and small size limb pruners (both side sheer). I prefer the anvil type especially for small cuttings, they are easier to maintain and far less apt to fail. When dull but especially if overloaded, side sheer can twist in your hands and bend the blade out of line with the hook.

Once out of line it is all but impossible to re-align so replacement is the only action. Using the rotary tool with a sanding drum, I hold the pruners in one hand and simply dress the knife's cutting edge, keeping it moving back and forth to an angle of between 10-20 degrees. The wood handles are checked and treated the same as the axe, the neatsfoot oil also acts as a lubricant for the mechanism.

Hedge trimmers

Handy to have for light overgrowth, they often nick rocks and soil, dulling them. After I clean off any debris, I dress the edge the same as the pruners with the rotary tool to a 10-20 degree angle. These things can hide in the grass better than a cat so the boss ties a piece of coloured plastic marking tape to the handle to make them stand out. Again, the wood handles are treated as the axe.

It sounds like a lot and kind of remedial and certainly not machinery, but the entire sharpening process with the rotary tool took me about 3 minutes, and will significantly reduce the effort needed to put them to use and prevent any damage to the tool.

A final note: I don't sharpen saw blades and I no longer loan my tools.



These pruners are done. Over stressed, it cut into itself and bent



Sitting on my floor belt sander are (L-R) hand grinder, rotary tool with extension, garden and tool file, palm sander

Ode To the Garden Gate

BY GARY YOUNG

At every fence line, in a field, on a farm, a graveyard, or simply surrounding a garden, we look for the gate. Perhaps from a childhood there is wonder what lies beyond. The gateway encourages curiosity yet also requires some obedience. In the vast reaches of grassland and meadow, you always leave the gate the way you find it, either open or closed.

Does a gate provoke ideas of a safe place, perhaps a “gated community”? Safety really is the same focus for your garden or farm. Keep out the unwanted browsers, protect stock, chickens if you like. But of all the perimeters and needed enclosures it is the gate that evokes the most imagery. Old gates, worn, rusted, eroded, all have whispers of the people and creatures that passed this way. While newer gates make a bold statement, gates from a previous time have a story.

Many gates can be simple and very durable. The width of the garden gateway must allow a wheelbarrow or maybe a lawn tractor. We can adapt the gate’s construction to our own creativity. Materials can be hand sawn or formed, shaped to give the gate an expression of its own. Each provides an entrance but also a welcome or warning.

Clasps or latches are as varied as imagination. Sculpted metal frames and unique metal scrolling make sounds of the worn gate swinging closed and locking.

There is something about a gate that goes beyond practical purpose and can make us wonder what is beyond the ground in front of us. A certain sense of entitlement is offered when passing through into a restricted area.

Gateways can be any size desired, delicate or robust, wide or narrow, painted to stand out. Gates can be shrouded with warning messages of beware and do not enter. These messages need to be on the fence, not on the gates. Every gateway makes us think and sometimes be faced with a decision. Even the gate you use every day has its significance and familiarity that we welcome.

“A gateway to” and see where it leads.
Are you in or are you out?



Lac La Hache, BC, resident Gary Young found many ways to celebrate gates, often making use of salvaged and native materials.





Bill Trick's passion for water power has taken him from his family's farm, where micro-generation began with his father in 1930, to various projects around the globe where he's worked as an engineer to develop the green source of energy. He stands behind one of the last set of stones to be used in the farm's water-powered mill.

Power to the people at Trick Farm

Microhydro is just one of many traditional forms of production at this Huron County property

BY JEFFREY CARTER

There's a special place, nestled in the heart of Ontario's Huron County, shaped over the millennia by ice and water and now by the people residing there. It's where nature, farming and agricultural heritage have come together.

Trick's Creek Farm lies within the Bayfield River Valley, along the waterway of the same name, the waters of both winding their way westward through the area's, glacially-shaped rolling terrain to Lake Huron.

About 250 acres in size, less than half is used for livestock and crop production. Much of the rest is wooded and above the historic mill and dam, there's a long, narrow pond dividing the property into roughly two equal sections.

Members of today's Trick family, Bill and Thea, along with their son, Tom, and his wife Cherilyn and their three school-aged children, have inherited an appreciation for their property and the sensitivity of its location. Huron County is known for its agricultural soils but at Trick's Creek Farm much has been deemed unfit for cultivation and so maintaining tree cover has long been a priority.

Bill points to a line of pines. "It was about 1930 that my granddad and my dad planted those," he says.

There's been additional tree planting over the years and some areas of the farm are maintained as permanent pasture, helping to keep areas of the farm dominated by blow sand — extremely sandy soil — in place. While there is some heavier ground suited to cropping, much of the rest is composed of drought-prone sections with relatively shallow topsoil over several feet of gravel.

While Bill and Thea have farmed the property, it's been their off-farm income that supported the family. Both hold degrees. Thea worked as a registered nurse and Bill worked as an engineer, both as a consultant and with a partner to develop and operate three hydroelectric projects, the largest



The grist mill at Trick's Creek Farm dates back to the mid-19th century and was once accompanied by a sawmill.

8,000 kilowatts in size, all of which have since been sold.

For Tom, who holds a commercial pilot's license, farming has become a passion, but not only in terms of producing food. He sees the farm as an ideal place to raise a family and for everyone living on the property to enjoy the natural areas and abundant wildlife.

Tom's wife works as a high-school teacher. Tom runs a mini-storage business, and ways have been found to generate a modest income from the property. Firewood sales have been an important component, the children care for a small group of laying hens — the Sussex breed from their appearance, there is grass-fed poultry production and grass-fed beef production, the latter of which is particularly well-suited to the farm.

continued on page 24



The Trick grist mill, now converted to generate electricity, is among the finest examples of the 19th century, water-power technology left in Ontario. Water collected behind the dam is funneled through a large diameter pipe to a small turbine to power the generation equipment pictured here on the first floor of the mill. A second larger-capacity turbine can be used to power equipment mechanically but is seldom operated.



Thea Trick is an advocate for the environment and enjoys her family's off-the-grid lifestyle at her family farm within the Bayfield River watershed in Southwestern Ontario. She and her family were among the hosts for a tour of area woodlots last summer.

Tom also grows a small acreage of organically-certified rows crops.

"I don't feed grain to the cattle at all. For the past three or four years the crops I've grown have been edible beans, black beans, white beans and soybeans," he said.

The beans are in rotation to pasture or hay but Tom doesn't feel the legumes are particularly well suited to the soils of the farm. In fact, from an environmental perspective, he feels cattle are the better option since they help maintain the soil's fertility and may even improve it.

"Whenever I hear someone talking about things like the Beyond Beef burger, I see the opposite. I've been growing organic beans and beef. If you're have a field of organic beans, you're going backwards for the soil," he said.

"I would say ruminants are one of the most ecological beneficial animal types for the land . . . We need educated consumers who realize price is not the sole-deciding factor."

Thea agrees. "I think if we want to help the planet, we need to eat a little less meat and waste a lot less of our food," she said.

The idea is counter to the support for veganism that's been popularized in many media circles. Tom says the people demonizing meat production may not understand the difference between the industrial model which is highly reliant on fossil fuel use and sustainable systems that rely on pasture and hay as a feed source.

That said, it's taken time to build Tom's market. That includes direct deliveries which deliver the highest margins but take more time and effort. He's also established a relationship with area abattoirs and small retailers.

There is a series of paddocks on the farm and Tom uses intensive grazing techniques, though to a lesser extent compared to what some other grass-fed beef producers employ.

"I keep them moving as much as is appropriate," he said.

That means shifting cattle well before a pasture resembles a closely mown lawn. By moving the animals sooner, pastures recover sooner and the overall amount of forage that is generated can be far greater.

Species include orchard grass, brome, timothy, red and white clover, trefoil and chicory. Tom said his cattle like the chicory and the deep-rooted species does relatively well under droughty conditions.

The herd began with the purchase of six Dexter cows in 2011. The Dexter is a pint-sized breed that originated in Ireland. Tom likes their hardiness, mothering capabilities, ease of handling and other attributes which, when taken together, have built the breed's easy-keeper reputation.

The smaller carcass size with Dexter and Dexter-crossed animals is a small disadvantage when it comes to processing costs but an advantage for marketing. Tom said portion sizes are smaller — smaller steaks, smaller roasts — making the higher



Pawpaw tree fruit must be either consumed or processed immediately upon ripening. According to Thea Trick, who cares for the plantation on her family's farm, they taste a bit like rich vanilla pudding.

per-pound price of the beef more palatable to buyers.

Angus and most recently, Waygu genetics, have been introduced to the herd.

Tom said his Waygu bull reminds him of a long-distance runner in terms of its composition. However, the breed, that originates in Japan, is known for delivering higher levels of marbling. He'll be evaluating that attribute next spring with his first crop of Waygu-crossed, finished cattle. Cattle produced on pasture alone take longer to finish, in the vicinity of 24 months at Trick's Creek Farm. Tom said that while it's been theorized that cattle should be taken to slaughter around the point at which forages have reached peak productivity, he's had good results at other times of the year, including late summer/early fall and in early spring.

This year fewer than 25 cattle were marketed. By the end of 2020, the plan is to market about 30 animals into the premium grass-fed, organic market.

"There are some people looking for specific things and there's definitely a market for grass-fed beef," Tom said.

The small flock of laying hens are housed in a coop and allowed to roam outdoors freely. Tom said predation hasn't been an issue, perhaps because of the tree and shrub cover in the vicinity of the coop.

The birds are highly curious and alert creatures. Any humans wandering into their territory are soon surrounded as the birds associate people with food.

The meat birds, both broilers and turkeys, are housed in pens that are skidded across a small pasture area with a 20-horsepower lawnmower – essentially a small tractor. The broilers, White Rocks, finish in about 10 weeks. This year the average dressed weight was close seven pounds per bird.

"The kids look after almost all of it. I pick them up and pay for them. They let me know if they need more feed," Tom said.

There were no turkeys in 2019 but they have sold well in the past. Tom expects he'll bring them back for the 2020 season.

The current approach to farming at Trick's Creek Farm is just the latest transformation of the property.

continued on page 26

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Tom Trick has been building up his herd since acquiring six Dexter cows in 2011. The pint-sized breed, which originated in Ireland, is known for hardiness and the ability to convert pasture and forages into high quality beef. Other genetics have since been introduced including, most recently, a wagyu bull, which will hopefully support marbling in the grass-finished beef.

European settlement of this part of Southern Ontario began in earnest in the first half of the 19th Century. While the self-draining aspect of some of the property's fields may have been an attraction — wheat was the number one crop in the region at that time — the site may have been most highly valued for its water-power potential.

The existing mill was built around 1850. It's located just a few hundred feet from where Trick's Creek flows in the Bayfield River. Bill said water power along the creek may date back to as early as 1830, five years after an act of parliament in Canada set up the Canada Company.

According to the family's historical records, "At the time when large trees were everywhere and considered an obstacle to production and a man's time was quite valuable, boards less than a foot wide were considered not worth the time to use. At least that's how the story is told and by looking at the lumber that the mill is made of, it's entirely believable."

A drawing in the 1879 *Historical Atlas of Huron County* shows two mills at the location, the existing grist mill and a smaller sawmill on the other side of the creek. There's even a small sailing vessel on the pond, though that may be the product of the artist's imagination rather than the reality of the day.

Bill's great grandfather, his wife and his unmarried sister purchased the property in 1873 from William Charlesworth, the property's second owner since it was in the hands of the Canada Company.

It was an important part of the community and not just for the milling operations. The mill dam doubled as a bridge, serving as an important transportation link to Bayfield for area residents living east of Trick's Creek. The area to the north of the farm was difficult to cross.

Bayfield, on Lake Huron, had been laid out as a town site in 1832 and by 1851 was a thriving hamlet, with mills, two blacksmith shops, a distillery, tannery, a wagon and plough-making works and other businesses, according to the Ontario Heritage Trust plaque in the community.

What is now Trick's Creek Farm also served as a gathering point for area residents who delivered both timber and grains for processing at the mills. Bill said sawing of logs most likely occurred in the spring when the power of the creek was at its height but with the dam in place and spring-fed headwaters, milling work could be carried out at any time of the year.

“My grandmother told me that during her time, a barber would set his chair on the mill porch in the spring and in the fall for a week and cut everyone’s hair. While many deals were negotiated on the steps of the local churches, many too were done at the mill while the clients waited for their grist,” he said.

“The mill pond was also a source of clear, clean ice for icehouses in earlier times, and we have relics picked out of the pond such as ice saws and tools that were used for the purposes but lost through the ice by a misstep.”

Trick’s Creek still flows on a year-round basis but the volume of water is less than in the old days, having been impacted by aggregate extraction in the vicinity of the creek’s headwaters, Bill said.

“There has also been a marked increase in intensive agriculture on the watershed, with deterioration of the quality of the water by erosion and silting during rainfall events.”

As Tom puts it, “After a heavy rain, you can watch the pond turn colour, like putting cream into coffee.”

Water power still serves the property. It generates electricity meeting the needs of the mill, outbuildings and the home where Bill and Thea reside; Tom and Cherilyn’s home is connected to the grid. A solar panel, recently installed, is to be used as a backup and there’s fuel-powered generation backup as well.

Thea hangs clothes to dry on the line at back of the house and firewood is used for heating. The wood-fired, kitchen stove is a McClary Pandora model that was reconditioned and re-nickled by members of a Mennonite family from the area. There’s a second stove in the basement and electric backup heating as well.

Bill’s grandfather, Robert and father, Elmer, demolished the sawmill around 1910. About 10 years earlier, the mill that still stands today was changed from producing flour to grinding feed for area farmers.

“Around 1900, they had seven hired men when things were busy,” Bill said.

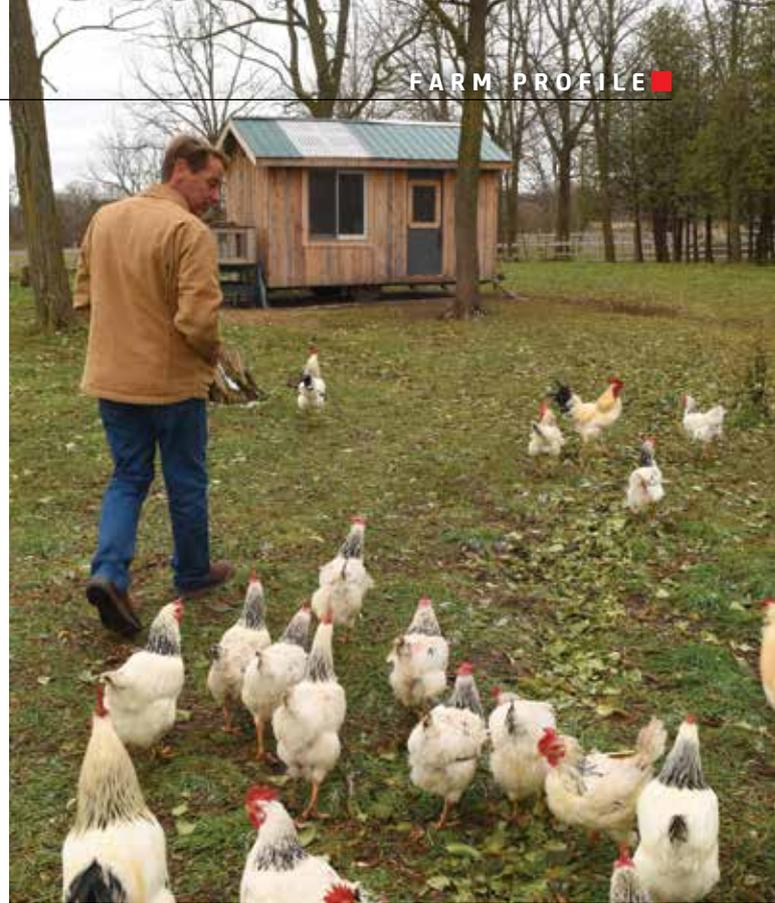
Elmer, a farmer and business man, first began generating electricity from the flow of the creek in the 1930s. It was a direct-current system pre-dating the establishment of the rural electrical grid in the area and was used to provide a bit of lighting and for refrigeration to store the meat that was used for the farm’s mink operation at that time.

An extraordinary flood breached the dam in 1943 and took the mill out of operation until 1969 when the dam was replaced. Bill and Thea, after assuming ownership of the property, installed the present alternating current system in the 1970s.

It uses an 18-inch turbine built by (Charles) Barber Turbine & Foundries Ltd. of Meaford, Ontario, which also supplied turbines and other equipment to many other water-powered mills in the province. It generates about 12 horsepower.

“This is an off-grid system, requiring control of both voltage and frequency. The voltage is controlled automatically by the generator voltage regulator and the 60 cps (cycles per second) frequency is maintained by a Woodward water-turbine governor that senses the speed of the generator and increases or reduces the waterflow through the turbine to match the load on the generator,” Bill said.

A second turbine with about double the horsepower serves as a mechanical drive for the farm’s shingle saw but with the low demand for cedar shingles and less costly ways to make the expensive roofing material, it hasn’t been used for a couple years.



The laying hens which are cared for by the youngest generation on the Trick Farm were operating at about 30 per cent efficiency at mid-November, not a bad number for an outdoor flock. There was zero predation, or close to it, in 2019. Tom Trick said the trees and shrubs where the birds are housed may have helped.

Connecting to the local utility would be certainly more convenient and Bill feels the system is too small to be truly financially viable. However, he and Thea have another motivation.

“We continue our operation here because we wish to preserve a family heritage, and the activity is consistent with our desire to live a conserving, non-polluting life, for ourselves and our families,” Bill said.

“There are a number of old mill sites with more capacity which have been connected to the grid and sell power viably.”

The farm’s wildlife serves as a reminder of the region’s natural heritage. A significant population of fox, deer, racoons and other wildlife native to Southern Ontario have all been seen on the farm.

“This spring, I ran across three different (snapping turtle) moms laying eggs in three different spots,” Tom said.

“There are lots of beaver and muskrat but this year was the first time in my life I saw a river otter. He was fooling around in the pond.”

The Trick family enjoy their privacy and so it was a rare opportunity in August 2019 when participants of a woodlot bus tour had an opportunity to view the mill, mill pond and other features of the farm, including the stand of pawpaw trees planted by Thea. The homes, mill, barn and other buildings from the property are not visible from the road.

To connect with the Trick family or to purchase organic beef and poultry, visit Tom’s website, www.trickscreekfarm.com or send an e-mail to info@trickscreekfarm.com.



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Fuel Capacity	12 gallons / 45.43 litres
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GVWR	3750 lbs / 1701 kgs
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Person Capacity	2

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Front Suspension	Rigid Leaf Spring w/Stabilizer Bar
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Shock Absorbers	Double Acting Hydraulic

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1. See Operator's Guide for complete details.
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A DIFFERENT K

Jason Fuoco caresses a two-day old water buffalo calf while her mother stands guard on July 22, 2017 in Saint-Lin Laurentides, Quebec.



IND OF BOVINE

Three experienced producers weigh in on what it takes to raise water buffalo. Spoiler: this isn't a job for entry-level farmers.

BY JULIE STAUFFER & JOSH MARTIN

When the transport trailer door swung open and the first water buffalo appeared, three feet wide and weighing 2,000 pounds, Jason Fuoco admits he felt a sudden jolt of fear. Then came another . . . and another . . . and another. Was he seriously going to get down on his knees beside these massive beasts to milk them? "I was really scared," he says.

When the aspiring cheesemaker decided to make mozzarella the authentic way, with water buffalo milk, the first step was acquiring a herd. He started by buying six heifers from a farm on Vancouver Island, figuring he would ease into buffalo production.

However, a few months after the first animals arrived, another producer called Fuoco to say he had 21 pregnant water buffalos available for purchase. Was he interested?

Fuoco found himself diving in. With the last of the animals unloaded, the Quebec farmer had more than quadrupled the size of his herd overnight. He wondered what he'd gotten himself into. As it turned out, he'd have plenty of late nights in the barn to mull that question over as he tried to coax milk from the stubborn animals.

The lure of water buffalo

In many ways, water buffalo offer an attractive alternative to a traditional dairy operation. You don't need to buy quota. You can charge a premium for the milk. And with few producers currently raising water buffalo in Canada, there's little in the way of competition.

In other parts of the world, water buffalos are big business. The rich, mild milk is used to make everything from



"There's only two things that will slow buffalo down, and that's cement and steel," says Martin Littkemann, an Ontario producer who has been raising the animals for more than a decade.

Italian mozzarella to Indian paneer cheese and deliciously creamy yogurt and gelato. Meanwhile, the meat is rich in iron but contains less fat and cholesterol than beef.

According to the United Nations' Food and Agriculture Organization, there are nearly 175,000 water buffalo raised worldwide.

Big animals, big challenges

The theory, says Fuoco, seemed beautifully simple: put the milkers on the buffalos, collect the milk, make cheese. Reality proved a little different. As he quickly discovered, water buffalos are very skittish around strangers, and if they don't feel comfortable, they won't let down their milk.

Of the 15 buffalos that gave birth, Fuoco was only able to milk five. Even so, he was regularly up until two in the morning, because it took him an hour to calm down a single buffalo enough to put the milkers on, and more often than not, the precious liquid he collected ended up on the floor. "It was just hell," he recalls. "I was ready to sell the buffalos the first week." Every new-

bie water buffalo producer has similar stories to share.

Eventually, Fuoco learned the key was creating a calm, unrushed environment and following a predictable routine, where the buffalos are milked at the same time each day, by the same people, in the same order. Some like a little head scratching. Others need some sweet talking before you get down to business. "Each buffalo has its own character," he says.

Once you've mastered that, you can expect roughly 10 litres a day per animal. That's far less than dairy cows, which typically produce about 30 litres a day, but water buffalo milk has some unique qualities. For example, it contains more protein and calcium than cow's milk. Meanwhile, because water buffalo milk naturally contains enzymes that break down lactose, many people who are sensitive to cow's milk find they can digest it.

Part dog, part bulldozer

Another big difference between water buffalos and cows is brute strength. "There's only two things that will slow



No matter where they are raised in Canada, water buffalo require extraordinary fencing to keep them contained.

buffalo down, and that's cement and steel," says Martin Littkemmann, an Ontario producer who has been raising the animals for more than a decade.

A visitor to Littkemmann's farm told him they used to plow the fields in Greece with horses. If the horses had a hard time, they'd switch to oxen. And if the oxen struggled, they'd bring in the water buffalo. "I call them bulldozers on four legs," says Fuoco. Add intelligence and plenty of curiosity to the mix, and you've got a recipe for headaches.

Fuoco was inspired to reinforce his fence after finding it demolished by his buffalo. Apparently, the animals had used their horns to lever the wire from the fenceposts one night, pulling off 2,500 feet of it. — Then they rolled it all into a giant ball and were happily playing with it in the pasture when Fuoco discovered them the next morning.

Today, a heavy-duty fence encloses that pasture and 12 feet beyond that, Fuoco has installed another fence just to be sure. "I built a fortress," he says.

On Vancouver Island, Sandra McClintock has covered every accessible wood surface in her converted cow-milking parlour with tin or protected it with electric fencing. "They're able to do things like pry boards off of gates or

buildings. They enjoy poking holes in plywood. They can undo gate clips," says McClintock, who has been in the water buffalo business for nearly 10 years.

At the same time, water buffalo can be extremely docile and affectionate, following you around the field and rolling over so you can scratch their tummy. "I like to say I have a herd of pets," says McClintock.

She recalls coming into the barn one morning to discover that one buffalo had managed to get her leg firmly entangled in the curled horn of a companion while they slept in a communal pile. Unable to separate them, McClintock summoned the vet. While he sawed off the offending horn, the two buffaloes just sat there, completely unconcerned. Once they were freed, they ambled off for breakfast. "I couldn't believe it," says McClintock. "If it was a cow or something, they'd go absolutely bananas."

Getting started or going bigger

Whether you're establishing your herd or adding to it, source your animals carefully. "Ranched" buffaloes can be a bit wild, says Littkemmann — and when you're talking about 2,000-pound animals, that's a problem.

Finding a supplier in Canada will avoid a lot of hassle, since importing female buffaloes isn't a simple undertaking. Meanwhile, bulls can't be imported at all, due to the risk of BSE, so you're limited to importing semen. Keep in mind that artificial insemination can be tricky, because it's often hard to judge when females go into heat.

Handling the herd

From an operational point of view, a dairy buffalo farm runs essentially like a Holstein farm: graze the buffaloes in the summer, provide feed in the winter and milk them twice a day. Surplus males can be sold for meat.

Water buffaloes eat less than a cow, says McClintock, but still put on weight easily. They're also very hardy. Since she established her herd in 2010, vet visits have been rare: her buffaloes have had no foot issues, no calving issues and very few health issues.

However, they do need protection from temperature extremes. In most parts of the country, insulated barns are a must to avoid frostbite. In the summer, buffaloes need shade. They also love to wallow — and if you don't provide the venue, they'll do their best to create one.



Sandra McClintock, pictured here on her Vancouver Island farm with her parents and her baby, has been in the water buffalo business for nearly 10 years. “I like to say I have a herd of pets,” she says.

Unfortunately, what’s fun for the buffalo isn’t nearly as much fun for the farmer. “They will literally be covered in mud from head to toe, and it’s really hard to clean them when it’s milking time,” McClintock explains.

Keep in mind that buffalo move differently, kick differently and behave differently than cows do. “Everything that you know about dairy cattle, you kind of want to forget,” says Littkemann. If possible, he suggests spending time learning from another producer before you acquire your own animals.

When it comes to herding water buffaloes, arm yourself with plenty of patience. “They’ll go anywhere you want them to, as long as they kind of think it’s their idea. So you can’t force them,” says Littkemann. “You kind of just coax them and point them in the right direction and just wait.”

And be aware that buffaloes won’t hesitate to attack anything that threatens them or their calves. “I’ve seen them squash a raccoon trying to get across the yard,” says Littkemann. “If they’re staring you down, you’re in trouble.”

Sales and marketing

Although operating outside the quota system offers several advantages, it also

comes with many challenges. A big one is not having any marketing support. There’s no tanker truck pulling up to your farm every other morning and no marketing board ensuring you receive a predictable income each month. On top of that, you have to look after all the logistics of delivery, invoicing and payment collection.

Some producers, like Fuoco, process their own milk. Others, like McClintock and Littkemann, sell their milk to cheesemakers. In fact, Littkemann started getting calls from would-be buyers even before his water buffaloes arrived. Until that point, Ontario cheesemakers had no local source of fresh

water buffalo milk, so they jumped on the opportunity when it arose.

Littkemann intended to focus on farming, but ten years back, he made a mistake. “I sold somebody a piece of cheese,” he explains. “Then it just kind of went from there. They just kept coming to our door.” So he opened an on-farm store that currently sells buffalo brie, milk, butter tarts and gelato, as well as meat.

According to McClintock, the big challenge is trying to build a market at the same pace you’re building your herd — especially given that water buffalo can continue calving and producing

continued on page 34

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Erin Wilkinson shows off milk from Martin Littkemann's herd.

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milk until the age of 20. "You reach that point where you're calving 40 or so a year and your herd starts to build really, really quickly," she says.

Because buffalo milk and meat are niche products, any shortages or surpluses can seriously impact prices, and it's easy to exhaust local markets. When a third buffalo milk provider started up in the area, McClintock ended up with a surplus of milk, so she added yogurt production.

However, because most Canadians aren't familiar with water buffalo milk, expanding your market requires educating consumers and building awareness. "My dad has spent a lot of time handing out samples," she says.

Not a job for newbies

Littkemann, Fuoco and McClintock have all proved that water buffalo farming can be profitable in Canada. McClintock now has 100 animals and distributes her yogurt across B.C. through Whole Foods. Meanwhile, Littkemann's operation boasts more than 500 buffalos and employs 11 people to help run the farm and the store. And Fuoco doesn't have enough milk to keep up with demand for his delicate "bufarella" and his eponymously named "Fuoco cheese," a creamy, ripened cheese with a soft rind that has won national and international awards.

But when they tell you raising water buffalos isn't easy, it's not because they're trying to protect their own turf.

Quite simply, Littkemann says, water buffalos aren't a starter animal. He regularly gets calls from naive hobby farmers who think they'd like to raise one or two. "You can't really dabble in this," he says. "If you want to be in it, you've got to be in seriously."

His advice for less experienced producers? "If you want to milk something, get a goat," he suggests.



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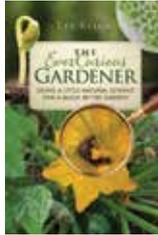


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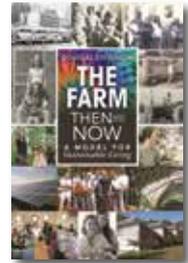


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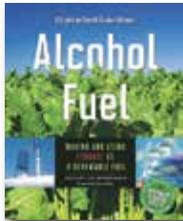


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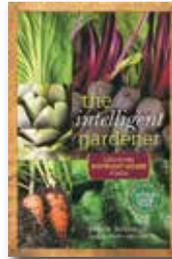


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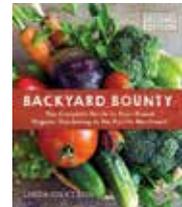


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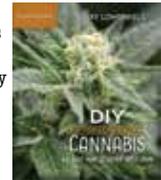


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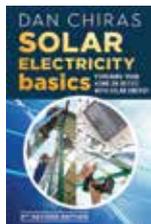


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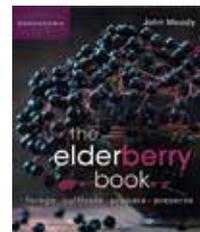


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Keeping bugs away

What works and what doesn't

BY JANET WALLACE



As a gardener, I've always searched for ways to control pests. Besides slugs, aphids and Colorado potato beetles, I've constantly battled biting bugs, including mosquitoes, blackflies, deerflies, horseflies and ticks. These can turn enjoyable times into miserable experiences and make it harder to garden well. When, for example, I'm transplanting within a cloud of blackflies, it's challenging to give each seedling the attention it deserves. My focus is divided between tending plants, swatting bugs and trying to get the job done as fast as possible.

I've been leery of conventional bug sprays ever since I've witnessed them melting part of my binoculars. I don't think sprays with such a high DEET content are now sold in Canada but I still avoid DEET. I use the "natural" bug sprays, both commercial and home-made, that feature essential oils. These smell nice and are safe to use but aren't very effective. For years I have turned to clothing and netting to protect my body. Last year, I learned about two new types of products and thought it would be worthwhile to compare the options.

Cotton clothing

My annual spring shopping tradition takes place in a used clothing store. I buy several long-sleeved, extra-large cotton dress shirts. I wear these over t-shirts tucked into cargo pants or jeans. My pant legs are tucked into socks. This way, any ticks that get on my boots or socks won't reach my skin until they have walked all the way up to my neck or underarms.

To keep bugs away from my head, I wear a big sun hat with a headscarf over it and around my neck. If I'm still getting bugs in my face, I pull the scarf forward on the sides (losing my peripheral vision) and apply a natural bug repellent on my face.

Blackflies and mosquitoes are attracted to dark colours so I choose white or light colours. Also, it's easier to see ticks on light-coloured clothing with no patterns.

Pros: The outfit is comfortable and protects me from light to moderate pressure from biting bugs and UV rays. It is cheap enough that I can have several work outfits and I reduce my environmental impact by re-using clothes.

Cons: It can be hot wearing so many layers. Certain insects, particularly the tiny, vicious mosquitoes that emerge in August, can bite through clothing, even denim!

Nets

For decades, I have used bug netting in addition to the clothes described above. The cheapest option is a simple mesh hood. A large brimmed hat works best underneath (rather than a ball cap) because the hat's brim helps keep the mesh away from my face. There are hooded jackets made entirely of mesh and "deluxe" ones made of solid fabric except for the face, underarms and sides. Net pants are also available.

Pros: Very effective against flying biting bugs. Lightweight and cool. The hoods and



full-mesh jackets are inexpensive and available at most stores that sell outdoor clothing or camping supplies.

Cons: The mesh obscures your vision and leads to eye strain and headaches. I find black mesh is easier to see through when in bright sunlight, but in shade or around dawn or dusk, the light green or grey netting is better. The mesh is fragile and that limits what I can do while wearing the clothing. I've never bothered with the pants because I'm sure I'll rip them within minutes. Even with the deluxe jacket, I won't wear it while dealing with brambles, working with fencing or any chore that could snag the mesh.

Rynoskin Total

Rynoskin Total creates an impermeable layer beneath your regular clothing. The skin-tight clothing is made of extremely thin but tightly woven nylon that protects you from ticks, mosquitoes, blackflies, deerflies and horseflies. The line includes a long-sleeved shirt, pants/leggings, socks, gloves and a hood that can almost serve as a balaclava. To improve durability, there are double layers of fabric in the hood, socks and gloves, as well as elbow and knee patches.

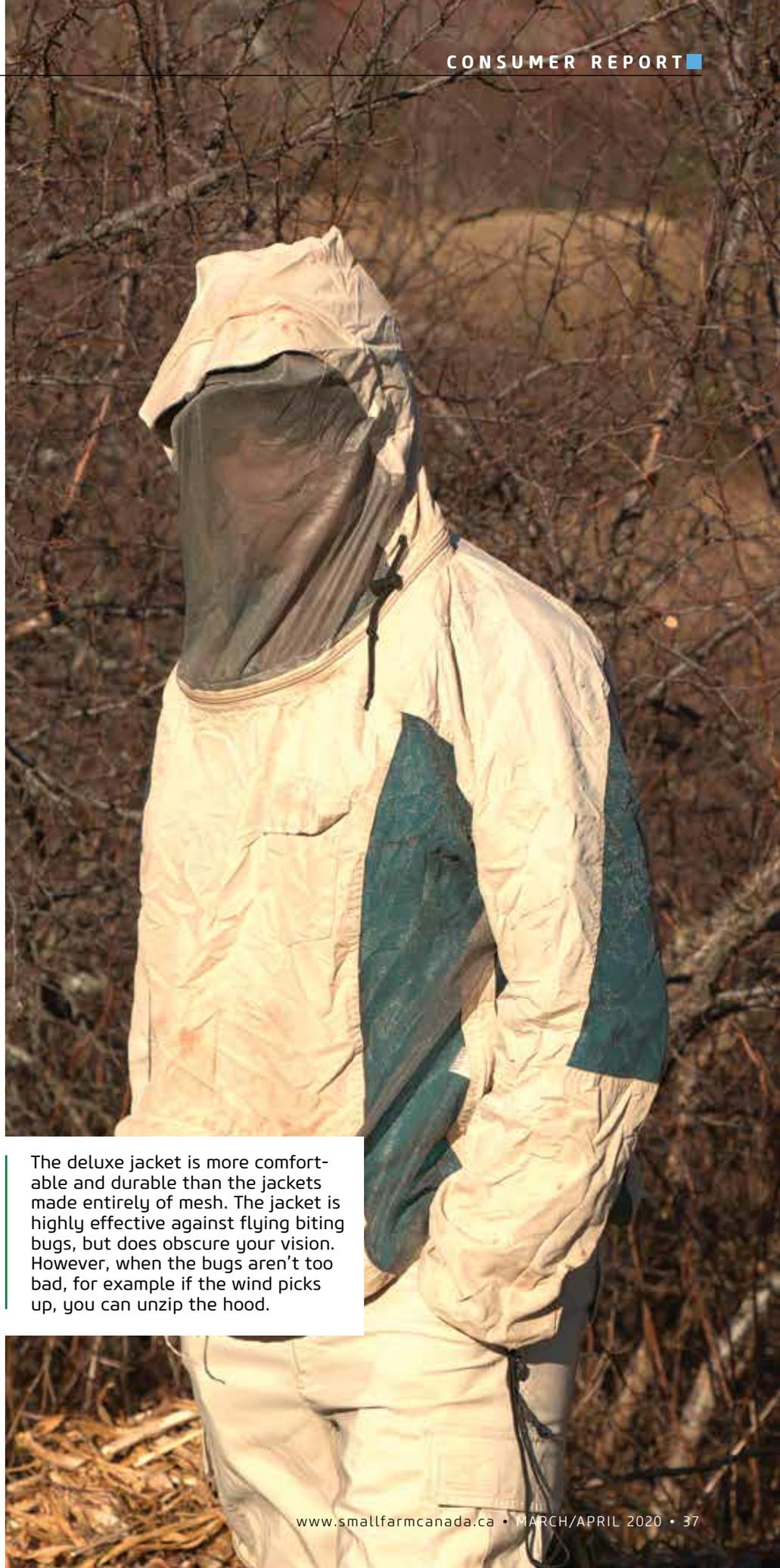
Pros: Completely effective against bites including from ticks. Surprisingly comfortable unless it was hot out.

Cons: Fairly expensive (from the point of view of someone who usually buys used clothes) and I wanted to wash it every day after wearing it. (In contrast, when I wear large work shirts over a t-shirt, I just change the t-shirt daily.) Could get warm.

Permethrin-treated clothing

The game changer in insect gear is permethrin-treated clothing. The technology is supposed to work by confusing an insect or tick when it touches the clothing, causing the insect to fly or fall away. The clothing is said to last for 70 washes, considered to be the regular lifespan of clothing.

Permethrin is a synthetic version of pyrethrum, which is derived from *chrysanthemums*. Whereas pyre-



The deluxe jacket is more comfortable and durable than the jackets made entirely of mesh. The jacket is highly effective against flying biting bugs, but does obscure your vision. However, when the bugs aren't too bad, for example if the wind picks up, you can unzip the hood.

thrum is allowed in organic crop production, permethrin is not. The clothing itself has no chemical smell and I feel it's safer to wear the permethrin-treated clothing than apply a conventional insect repellent to my skin. The US EPA doesn't require any caution labels for the permethrin-treated clothing, which are considered as having "very low toxicity." In contrast, sunscreen and insect repellents are rated as "low" (rather than "very low") toxicity and require caution labels. The Center for Disease Control and Prevention (CDC) recommends wearing such clothing when travelling to areas where insects carry diseases, including Lyme disease, West Nile virus and the Zika virus.



Permethrin-treated clothing in general

Pros: works well against mosquitoes and blackflies. When my partner found it was buggy outside, he would put on his permethrin-treated hat, and often that alone solved the problem. In worse cases, he would wear the hat, shirt and pants and then wasn't bothered at all. I tend to attract bugs more than him and found I usually needed more than just the hat.

There are a range of products available to cover all parts of your body. Some are fancy enough (for my rural dress code) to wear to an outdoor party or concert — places where the mesh bug hood just wouldn't fit in.

It's also comfortable to wear clothes that aren't covering my face and I don't need to cover every inch of exposed skin.

	Description	Items
Used cotton clothing	Cover as much skin as possible with clothing	Shirts, pants, headscarf and sunhat
"Full" bug clothing	Nylon screen-like clothing	Head net, jacket, pants
Deluxe bug jackets	Thin cotton jacket with netting over face, under arms and along side of torso	Jacket
Rynoskin	Thin, skin-tight clothing	Hood (covers head and neck), long-sleeved shirt, leggings, socks and gloves
Marks Work Wearhouse	Normal outdoor clothing made from permethrin-treated fabric (mostly polyester)	Hat, shirts, jackets, pants, shorts, neck kerchief
LL Bean		Hat, shirts, pants, shorts, socks
NoBu.gs	Normal outdoor clothing made from permethrin-treated fabric (mostly cotton)	Hoodies, shirts, pants, socks, sleeves

Cons: Expensive.

The clothes work by confusing bugs and that has its downside. Although I had hardly any bites, the confused bugs were irritating as they tended to fly behind my glasses and into my mouth – but that was a small cost to pay for not being bitten.

It’s not a magic bullet. Horseflies and deerflies weren’t deterred as much as blackflies. The vicious tiny August mosquitoes were only moderately repelled. As for ticks, I tried the clothes in a tick-infested area. The tick pressure was lower when I wore the clothes, but a couple of ticks marched straight up the legs of my brand new pants in less than a minute.

I tried three brands of permethrin-treated clothing. The clothing is branded in two ways; the actual fabric has a brand

name, such as No Fly Zone or Insect Shield, but the garments are made by clothing companies, including WindRiver, LL Bean and NoBu.gs. I didn’t notice any difference in the bug repellency but there were other significant differences.

Mark’s Work Wearhouse (marks.com) sells a range of WindRiver/No Fly Zone clothing.

Pros: Available in Canada from stores and online. A variety of products are available. I found the jacket, long-sleeved shirt and hat to be the most valuable.

Cons: All of the clothing was polyester, and consequently hot and uncomfortable in summer weather.

continued on page 40

Effectiveness	Cost (approximate)	Comfort	Durability
Fairly effective but your face is exposed and certain mosquitoes can penetrate cotton. Can reduce chance of tick bites on the body if pants are tucked into socks, shirt tucked into pants, etc., but the ticks can climb up to your head.	Cheap 	Can be warm	Good
Keeps bugs away from face but bugs can land on the jacket and bite through the holes.	\$20CAN and up per item	Cool and comfortable	Poor
Effective	\$45CAN and up	Fairly cool	Good
Highly effective against all biting insects, including ticks, with the exception of the exposed parts of your face.	In US\$. Shirt and pants each: \$46; socks, hood and gloves each \$23	Tight, warm but still fairly comfortable	Good
 Highly effective against most mosquitoes and blackflies. Somewhat effective against ticks, deerflies, horseflies and tiny August mosquitoes.		Hot and stuffy in hot weather (didn’t breathe); otherwise good	Good
	In US\$. Shirts: \$30-100; pants: \$100; hats: \$30-40; hoodie/jacket: \$50-90; socks: \$30/2-pack	Comfortable except for the polyester items and thick socks in hot weather	Good
	In US\$. Shirts: \$30; pants: \$35-50; hoodie: \$30; hats: \$15; sleeves \$13; socks: \$10	Very comfortable	Good



Insect Shield

LL Bean (llbean.com) sells a variety of items of No Fly Zone and clothing.

Pros: Great variety of clothing. High quality products.

Cons: At the time of printing, LL Bean could not ship these products to Canada but this might change soon (and meanwhile can be shipped to a U.S. address). Expensive.

NoBu.gs (www.nobugsclothing.com) produces clothes using the Insect Shield fabric and sells these online.

Pros: The NoBu.gs pants, socks and hoodie were very comfortable. The lightweight clothing is made with cotton and rayon. Even though the material is thin, it seems as durable as the thicker polyester clothing from the other two sources. The hoodie has “thumbholes,” reinforced slits in the extra-long sleeves. These create a bug-proof seal when you hook your thumb through the hole and put on gloves. NoBu.gs “sleeves” are another ingenious product. The nylon-spandex sleeves are snug but not uncomfortably tight and have thumbholes. They are marketed as keeping you cool due to the moisture-wicking properties of the fabric but I find the main advantage is that I could get away with wearing a short-sleeved shirt (rather than a long-sleeved one) when I had the sleeves on.

Cons: Expensive, available only through mail-order, and fabric is thin and lightweight.

continued on page 41



Columnist Janet Wallace tries on products from Mark’s Work Wearhouse.



Conclusion:

The pyrethrin-treated clothing is now part of my gardening gear, particularly the hats. I only wore my bug netting once last year, compared to wearing the net hood or jacket most days in the spring and frequently in the summer and fall. I was far more comfortable in the garden.

Still, I don't want to spend a fortune on gardening clothes so will continue with my layers of used clothing along with the treated hat on cool days with moderate bug pressure. When there are more bugs, I'll wear the long-sleeved shirt, jacket or a short-sleeved shirt with the sleeves, and maybe use a natural repellent on exposed skin.

When I go into the woods or in areas with many ticks, I'll wear the socks and pants or the whole Rynoskin outfit under my clothes.

Overall, I was pleased with the new products and look forward to gardening while protected from bugs but without having to see the world through bug netting.

Disclaimer. I bought some items of clothing and others were given to me for the trial. This did not influence my opinions. The trial was conducted from May to October on two farms in New Brunswick, as well as visits to other farms in the Maritimes.



NoBu.gs hoodie with Mark's Work Wearhouse cargo pants. The hoodie includes a handy thumbhole





Recipes

HELEN LAMMERS-HELPS

Too busy to cook?

Microwave mug meals may be the answer

Microwave mug recipes first became popular about a decade ago as a way to make single servings of treats such as brownies or cake quickly and easily on-demand.

In recent years, mug meals have taken on a life of their own and expanded to include savoury meals such as soups, egg dishes, even meatloaf. Googling “meal in a mug” recipes’ gave me 275,000 hits. Their popularity shouldn’t really be a surprise given the convenience of preparing food from scratch in minutes using only a mug and a microwave.

Camilla V. Saulsbury, author of the cookbook, *250 Best Meals in a Mug*, says the “hot, tasty, fast, easy, mini meals” appeal to workers on their lunch breaks, college students in their dorm rooms, RV enthusiasts, kids and teens for an after-school snack, single adults including young adults and seniors, and busy moms and dads on-the-go. That includes just about everyone who is short on time and has access to a microwave.

“But most of all, meals and treats made in a mug are delicious fun,” writes Saulsbury. “No cooking prowess is required, nor any fancy equipment.” However, it is important to choose the right mug.

Choosing a mug

First and foremost, check the mug to be sure it is microwave-safe, says Saulsbury. Avoid using hand-thrown ceramic mugs, as they are unlikely to be microwave safe and may contain trace amounts of metal.

Mugs with straight sides will cook more evenly which is particularly important for cakes, muffins, breads, egg dishes and cookies.

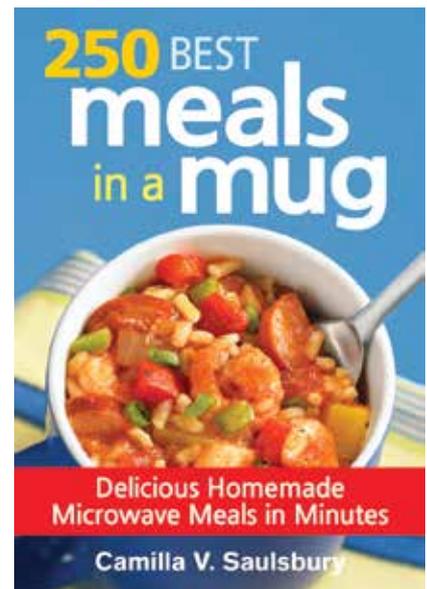
The thickness of the mug will impact cooking time. It takes longer for microwaves to pass through thick mugs, resulting in longer cooking times.

Do not use a mug with gold or silver decoration in it in the microwave. Metals can cause arcing and damage the microwave.

No mug? No problem.

Microwave-safe bowls or ramekins that match the volume capacity specified in the recipe can be used with equal success. Be sure to keep a pot holder or oven mitt nearby for removing the vessel from the oven, to make up for the absence of a handle,” writes Saulsbury.

Here are two of the recipes from Saulsbury’s *250 Best Meals in a Mug* cookbook. I have made each of them several times and both have proven to be reliably good.



Black Bean Soup

This easy soup gets its Southwestern kick from green chiles and smoky cumin. Adjust the heat by choosing a spicier or milder can of tomatoes with chiles (they are available in mild, medium and hot). (Courtesy of *250 Best Meals in a Mug* by Camilla V. Saulsbury © 2018 www.robertrose.ca Reprinted with permission. Available where books are sold.)

Ingredients

16-oz (500 mL) mug
½ can (14 oz/398 mL) black beans,
drained and rinsed
½ can (10 oz/284 mL) diced tomatoes with green chiles,
with juice
½ cup ready-to-use chicken or vegetable broth or water
¼ tsp ground cumin or chili powder
1 mL Ground black pepper

Suggested accompaniments

Sour cream or plain Greek yogurt; chopped fresh cilantro; chopped green onions; seasoned croutons or crumbled tortilla chips

Method

In the mug, coarsely mash beans with a fork. Stir in tomatoes, broth and cumin.

Microwave on High for two to three minutes or until hot but not boiling. Let stand for 1 minute, then season to taste with pepper. Serve with any of the suggested accompaniments, as desired.

Variations

Pumpkin Black Bean Soup: Add 2 tbsp (30 mL) canned pumpkin purée (not pie filling) with the tomatoes. Increase the broth to ½ cup (150 mL).

Italian White Bean and Tomato Soup: Replace the black beans with white beans (such as cannellini or great Northern). Instead of the tomatoes with chiles, use canned diced tomatoes with Italian seasoning. Replace the cumin with 1 tbsp (15 mL) grated Parmesan cheese. Serve with additional Parmesan cheese and chopped fresh parsley, if desired.

Tips

For a smooth soup, purée all of the ingredients in a blender before heating in the microwave.

If you prefer, you can use ½ cup (125 mL) salsa in place of the canned tomatoes with chiles.

Freeze the remaining beans and tomatoes separately in small sealable freezer bags. Be sure to label the bags with the contents. Store for up to 3 months. Defrost in the refrigerator or microwave before using.

Prep Ahead Option

Prepare through step 1; cover and refrigerate until ready to heat.

Fruit and Fibre Breakfast Cookie

Meet your new favorite portable breakfast. Vary the fruit, nuts and seeds to your heart's content, or spice things up with a bit of ground cinnamon, ginger or allspice.

Tip

The corn syrup (or brown rice syrup) does more than sweeten this cookie; it helps bind it. Other liquid sweeteners, such as honey and maple syrup, will not hold the cookie together.

Ingredients

16-oz (500 mL) mug, sprayed with non-stick cooking spray

Square of waxed paper, parchment paper,
plastic wrap or foil

1½ tbsp	corn syrup or brown rice syrup	22 mL
1 tbsp	peanut butter	15 mL
½ cup	crispy rice cereal	75 mL
2 tbsp	chopped roasted or raw nuts or seeds	30 mL
2 tbsp	chopped dried fruit	30 mL
1 tbsp	ground flax seeds (flaxseed meal)	15 mL

Method

In the mug, combine corn syrup and peanut butter. Microwave on High for 25 to 35 seconds or until very hot and bubbly.

Stir in cereal, nuts, dried fruit and flax seeds until well coated. Turn mixture out onto waxed paper. Fold paper over the mixture and gently mould into a mound. Refrigerate for at least 30 minutes or until firm.

Storage Tip

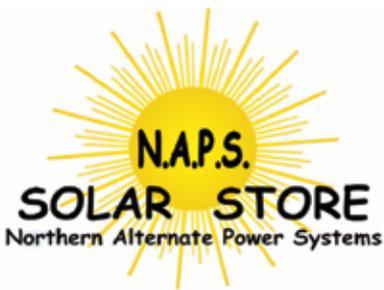
The cookie can be made in advance. Place in an airtight container and store in the refrigerator for up to one week or in the freezer for up to one month.

Prep Ahead Option

Combine the corn syrup and peanut butter in the mug; cover and store at room temperature. Measure the cereal, nuts, dried fruit and flax seeds into a small airtight container; cover and store at room temperature until ready to use.



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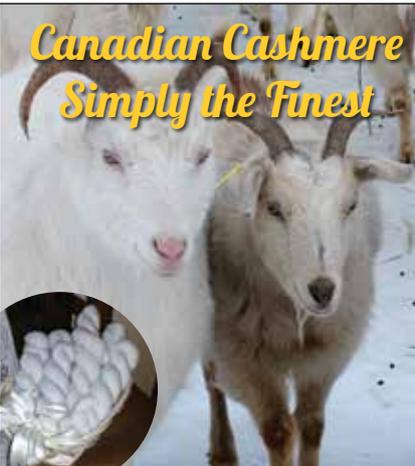
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DAN NEEDLES

An apology for milk

Thirty-five years ago when my wife and I started out on this little farm, I milked a dear old nanny goat named Mrs. Trotter twice a day. All four kids were weaned from their mother onto Mrs. T. and they all grew up stronger, healthier and better-looking than their father. I became a walking commercial for the health-giving qualities of goat milk and preached the gospel from every platform.

But Mrs. Trotter gave up the ghost after training my youngest off the bottle and by that time the older children had decided goat milk was yucky. I tried a Jersey cow but she was bad-tempered and the kids preferred the stuff that came in bags from the store. Then they all went off to public school and fell into the hands of the prophets of doom. My eldest daughter became a vegetarian, then a vegan. Her brother followed. The younger two stuck to hamburgers stubbornly just to be different but they eventually found almond milk, whole foods and hot yoga. I gave the milking machine back to the retired dairy farmer who lent it to me and my dairying came to an end.

I have no idea what kind of milk is guilt-free anymore. On the rare occasions my family sits down together at supper, I try to discourage any discussion of food. We now have two vegetarians, a dairy-free duck hunter, a gluten free food forager and a shellfish allergy (my wife.) The only common ground they share is the certainty we are living in the Age of Extinction. That puts me off food altogether.

This past week I learned that almond milk has now fallen out of favour because the almond industry kills a lot of bees. Coconut milk exploits third world workers and destroys rainforests, so we can't have that. Rice milk is a water hog and has few nutritional benefits. Hazelnut milk scores high on the environment charts but it is also high in sugar and price and can cause a rapid shrinking of the wallet. A lot of people have gone back to soy milk because those old worries about excess hormones turn out to have been overblown. But you still have to be careful to buy from Canadian sources or you may be helping to burn a rainforest. Oat milk has a lot going

for it nutritionally and no rainforests will fall because oats only grows in cool climates. But wait . . . just when I thought it would be the new superhero milk I find it gets sprayed with Round-up before harvest so oat milk comes off the list, too. I forget what they said about hemp, cashew and flax milk because my head was starting to hurt.

The only thing the chattering class on social media can agree on is that dairy is a disaster. But is it? I was at a soil and crop meeting last week where everyone was talking about new research from Britain that suggests grazing by livestock may be essential for soil health. This comes as the British government, egged on by the milk and meat police, is proposing an 18.5 per cent carbon tax on beef and dairy that threatens to put livestock farmers right out of business. But we often forget that plant-based diets have a dark side, too. Most cash crops like corn, soy and wheat release carbon to the atmosphere and mine nutrients from the soil. Livestock grazing and manure management sequesters carbon, adds water-holding capacity and improves soil structure.

A sustainable soil scientist told me that forage plants react to being stepped on by a cow the same way a Manitoba maple reacts to being cut. It sends up a bunch of suckers and you get more vigorous growth. Two thirds of the world's agricultural land is marginal and only good for pasture. Giving up animals means we give up a huge source of food production. And animals are the only source of organic fertilizer . . . But we knew all this, didn't we? Why would any of this come as a surprise?

What I love best about mixed farming on a small acreage is the orderly chaos of it. The pig follows the cow, the chicken follows the pig and the earthworm follows everybody. Kitchen scraps go to the henhouse, cracked eggs get broken over cattle feed. The steer comes from the barnyard and goes to the freezer, passes through us and the dog and then back out to the garden again. Everyone minds his own business and every single one of them is glad to see me in the morning.

I think it's time to get a nanny goat again.



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