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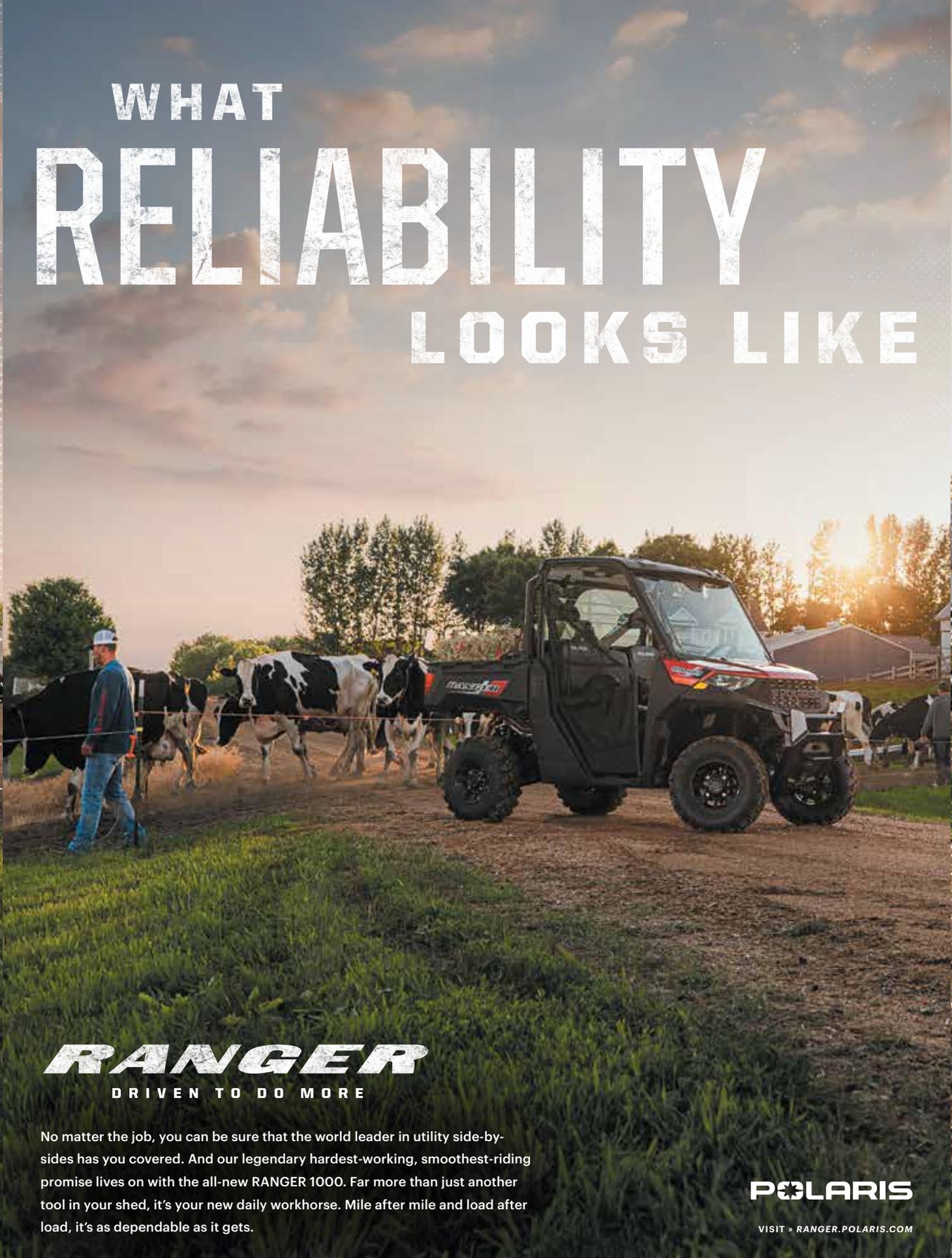
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# Field Notes

TOM HENRY

## Publishing and farming in times of Covid 19

What will be happening across the country by the time this issue gets into your hands I can't know, but while we were preparing the issue to go to press, in early April, Covid 19-related problems were making the usual process of assembling, designing and printing *Small Farm Canada* difficult indeed. Writers had trouble contacting sources, newsstand orders were uncertain; even some presses were shutting down. There was some question whether this issue might be printed or, worse yet, printed and stranded in a warehouse. So, out of an abundance of caution about what the weeks and months ahead may bring, we decided to combine the May/June and July/August issues and get the blasted thing out the door!

Hopefully it makes it to your door.

We know this single issue—despite having a couple of extra features in it—isn't the same as getting two full issues of *SFC*, (publishing rule: two Dan Needles are always better than one Dan Needles!) but we think it better to get it out to the readers rather than have an issue go undelivered because of unforeseen problems with a press or Canada Post etc.

One way we hope to make good to our readers is via the Small Farmer Reader e-newsletter and website. We know many readers already receive the e-newsletter; those who haven't can email us and we'll put you on the list, or easier yet, sign-up at the Small Farm Canada website ([www.smallfarmcanada.ca](http://www.smallfarmcanada.ca)) It's free.

Normally, we feather in content to the e-newsletter that has already appeared in print, plus a few other bits of news. But in the months ahead we're going to be updating the newsletter and website more frequently, and supplying more material that won't be found in print. This is a whole new game for us, so please be patient as we find our way. But rest assured, it is our intent to keep providing you with interesting, useful and entertaining stories!

\* \* \*

Farms and farmers are in a unique situation in this pandemic. On one hand, it seems like nothing has changed. The uncertainty that is causing many people anxiety is nothing new for farmers; in fact, uncertainty is the only thing certain about farming! Farmers live with uncertainty all the time—be it over soil moisture, disease, frost, equipment breakdowns, market fluctuations, etc.

One the other hand, there are Covid-related scenarios—usually evident to me at 3 a.m.—that are beyond unsettling. What is a farmer to do if he/she is incapacitated, yet has fields to seed, livestock to tend to? Some animals, like sheep and cattle, and in some situations, may be able to tend for themselves. But a barn full of hogs, or chickens? They need feeding and tending every day. And many farms operate at a scale—with feeding systems and equipment that precludes just anyone stepping in to do the chores. It is enough to make you feel sick.

Good friend and farmer Jane Hutchins sent me a timely bit of advice on this front, in the form of a note from Jim Weber, a University of Maine Associate Professor of Animal and Veterinary Sciences. Weber's piece 'How Should Livestock Farmers and Horse Owners Prepare for Farm Disruptions from the COVID-19 Outbreak' includes the following bits of advice. Though intended for livestock producers, many of his suggestions are applicable to other farms as well.

I know they helped me better prepare the farm. I hope they help you too.

- **Identify Routine Activities** that are critical to the operation of the farm, and that cannot be postponed.
- **Record Standing Operating Procedures** for all routine procedures, safety practices and sources of goods.
- **Establish Remote Means of Communication.** These may be used to document that critical work has been completed, to identify animals that need additional monitoring, or to respond to an urgent situation (fence down, equipment doesn't work).
- **Restrict visitors to your farm.** Make a list of who typically visits your farm or home, and decide which ones are essential.

In addition, Weber suggests asking yourself the following questions:

- what aspects of your operation could be placed on hold?
- are you prepared to provide accurate descriptions of important procedures on your farm?
- how will you keep track of activities and communicate with your workers if you are off-farm for an extended period?

Answer some or all of these questions and you'll be better prepared for Covid-related problems, or for that matter other crisis' as well.

Jim Weber's full article can be found at [www.smallfarmcanada.ca](http://www.smallfarmcanada.ca)

## BOOK REVIEW

### Strong on antics, weak on advice

#### Hen and the art of chicken maintenance: Reflections on a life of raising chickens

Martin Gurdon. 2018. Fox Chapel Publishing. 190 pages.

Reviewed by Janet Wallace

A light hearted look at raising a small flock of chickens. There is a bit of useful information in the book, billed as “The real chick lit,” but most of the book is about the antics and characters of individual chickens raised more like pets than livestock.

The author wrote a column about chickens for a Sunday newspaper and maybe that gives a hint about

how to best appreciate the book. Read a couple pages each week and refer to the index when you have a specific question, such as how to treat bumble foot. Spoiler alert: a mix of Vaseline and honey can be used but the author didn’t find this out until after two trips to the vet; one for antibiotics and the second to put the hen down. That anecdote alone gives a good sense of the book.

I think this book would be most appreciated by people who dream of having chickens or those with nostalgic memories of visiting farms as a child. If you’re raising chickens, you might want to look elsewhere for informative books and look to your own flock for the entertainment value. (But the book’s puns are fun!)

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<sup>1</sup> Grogan K.B. (2008) Darkling beetles and their economic impact. Poultry Times. 55(18):1.

## REGULATIONS

### Animal welfare activists raise concern over Ontario Bill 156

Ontario's Bill 156, the Security from Trespass and Protecting Food Safety Act, is scheduled for a third reading debate as of press time. The bill, inspired by farmer concerns about demonstrators and activists, would increase fines for trespassing, would prohibit interference with vehicles transporting farm animals and would prohibit interaction with farm animals that are being transported.

"We were hearing from farmers and processing facilities where protesters are coming to protest on private property and when they called law enforcement, there didn't seem to be any way of actually curtailing it through the courts," says Ontario Minister of Agriculture, Food and Rural Affairs Ernie Hardeman.

Animal welfare activists have criticized the bill, claiming that it will make it much harder to expose animal abuse. Jenny McQueen, co-founder of Animal Rights Toronto, has been referenced in some of the debate on the bill due to her previous trespass onto farms. McQueen says that during those actions she observed animals existing under extremely disturbing conditions.

"I've been inside a pig breeding operation, it's just like a factory," says McQueen. "It's really hard to describe it as a farm. The abuse of animals, perhaps it's not deliberate, but it's inescapable. Piglets dead and dying everywhere, never enough staff to look after the animals, the buildings are not maintained. Corrosion, dust and cobwebs are everywhere."

McQueen feels the aspects of the bill related to animal transport stem from a 2017 case where activist Anita Krajnc was eventually found not guilty on a mischief charge after giving water to pigs being transported to a slaughterhouse.

"They want to try and hide how the animals are being transported and how they're suffering in the extremes of the Canadian winter and the extremes of the Canadian summer."

Hardeman dismisses the notion, saying that nei-

ther the government nor the province's farmers have any tolerance for animal abuse. In his view, the protesters are a much more direct threat to biosecurity.

"It's very important to have people recognize that when they go in uninvited and unexpected, the harm that they are supposedly looking for in the facility, that they're actually the ones that create it," says Hardeman.

"Our farmers have strict protocols for biosecurity. If they have two barns, a lot of them would have two different coveralls and two different sets of boots to change into. The activist doesn't have knowledge of the protocols that's required to keep the animals safe."

Hardeman also asserts that any gaps where Bill 156 might make it harder to expose animal abuses will be covered by last year's Provincial Animal Welfare Services (PAWS) Act, which added roughly 40 new inspectors and enforcement officers and increased penalties for offenses.

Mike Zimmerman, a coordinator with Animal Welfare Watch Ontario, says that he understands Bill 156 and the importance of biosecurity, even if much of what the bill targets is already illegal. However, he says there are still outstanding questions about the PAWS Act.

"We're waiting for the Ministry of the Solicitor General, who administers the PAWS Act, to communicate how they're going to implement the act in the agriculture sector," says Zimmerman. "But at this point we've heard nothing about how they're going to be operationalizing that. We haven't heard a thing about how they're going to be moving forward with it."

A spokesperson for Solicitor General Sylvia Jones says that government has filed transitional regulations to ensure protection of animals while long-term regulations are being developed, and that further consultations will take place in 2020.

*~Matt Jones*

## MENTAL HEALTH

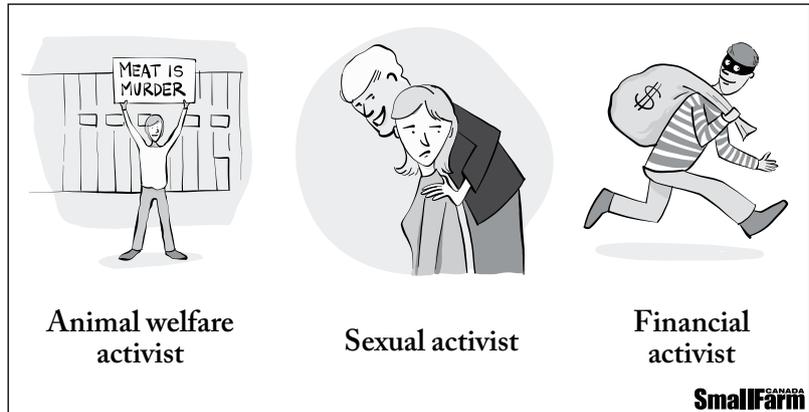
### PEI program address mental health issues in agriculture industry

Last year, the PEI Federation of Agriculture, Farm Credit Canada and other partners introduced the Farming Assistance Program, which provides confidential, professional counselling services to farmers, farm employees and family members. A new part of the program, a website called Farmers Talk, was introduced this year to give another resource for farmers to help deal with mental health issues. This latest measure was introduced after a friend of Agriculture Minister, Bloyce Thompson committed suicide.

“He milked his cows and fed his cows and then he committed suicide,” Thompson told the *Chronicle Herald*. “He cared about the animals and didn’t want to burden anyone else ... Maybe we can avoid that happening again.”

PEI Federation of Agriculture Executive Director Robert Godfrey says that the program covers not only stress and depression related to the farm itself but also a variety of personal struggles that could all impact people who work and live on farms of any size.

“You name an issue that may affect you personally, these people are qualified to speak with you,” says Godfrey. “They’re certified to talk to you about a host of different issues.”



Animal welfare activist

Sexual activist

Financial activist

SmallFarm CANADA

Godfrey says that in 2019, the program saw 54 new clients with a total of 140 clients and 281 total interviews conducted. Major issues raised included family relations, parent-child conflicts, child behaviour, adolescent behaviour, PTSD, farm management issues, succession planning, grief, learning difficulties, chronic or terminal illness, financial stress, schizophrenia, marital relationships and injuries, among others.

“Well beyond just anxiety, depression and stress,” says Godfrey. “What I listed there can strike pretty well any family.”

Godfrey speculates that smaller farmers may have some unique struggles as well, possibly being more affected by financial stress due to having tighter profit margins, or possibly having a second job off the farm that could cause additional stresses.

Godfrey says the new website’s aims are similar to Bell’s Let’s Talk promotion, which is designed to get people to talk more openly about mental health issues and remove the stigma around such issues in society as a whole.

“But I think in the farmer community, there’s a feeling that ‘we’re tough, we’ll just deal with it and internalize it,’” says Godfrey. “We can’t be doing that.”

PEI Social Worker Frank Bulger notes that famously independent and self-sufficient farmers are often reluctant to acknowledge mental health issues. “I also think the majority of the farming population is going to be men and a lot of men have the value system that it’s not manly to seek help,” says Bulger. “So I think that’s sort of the double whammy that goes on as well, when you have the gender thing combined with the independent attitude of the farmer.”

In Bulger’s experience, there isn’t any one issue that affects farmers more than others – it depends on the person and what their individual threshold for stress may be. But the stigma around mental health issues must be cast aside, so that farmers will be more likely to give themselves permission to reach out for help.

“I always think it’s important to give people permission to reach out,” Bulger says. “I think that’s a big part of what is missing here.”

~Matt Jones

## BOOK REVIEW

### One man's meat

#### The Ethical Meat Handbook

By Meredith Leigh. 2nd Edition. New Society Publishers. 2020. 307 pp.

Reviewed by Janet Wallace

Every once in a while, I discover a book that I think could help make the world a better place.

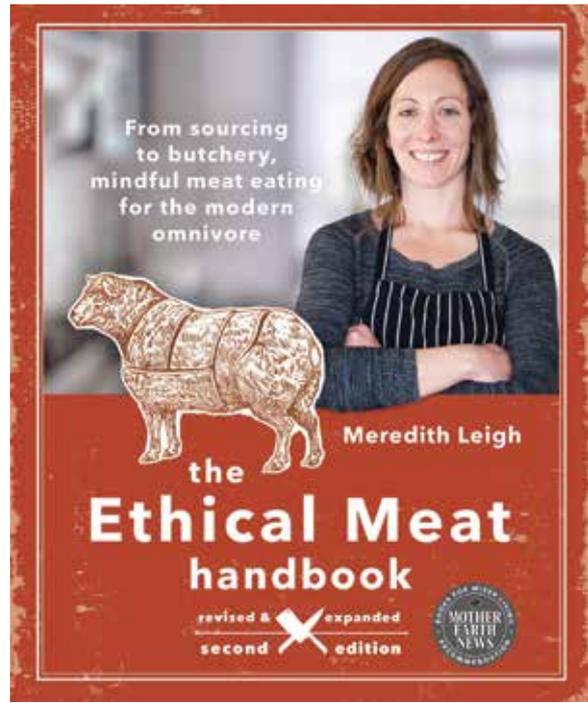
This is one of those books.

Meredith Leigh makes a passionate yet well-reasoned argument for “mindful meat eating.” If more people adopted her views, I believe humans would be healthier, animals would have better lives, and our environment would be improved (including lower emissions of greenhouse gases). Beyond that, *The Ethical Meat Handbook* is an interesting book full of valuable information for small-scale farmers and their customers.

Leigh laments that the goal of low-cost production of a few select cuts (e.g., poultry breasts, steaks) drives the mainstream meat industry. Flavour, animal welfare and environmental concerns fall to the wayside. She offers solutions: use hardy breeds, raise them well and use all parts of an animal. She advocates for changes to what happens on the farm, in the butchery and in the kitchen. With poultry, for example, she recommends using breeds that are active foragers and “worlds different from the fat, white birds that lie beside feeders and bloat like feathered balloons.”

Leigh describes ethical farming practices in chapters on poultry, beef, pork and lamb. She mentions the advantages of hogget (young mutton) over lamb. When I raised sheep, I sold lamb and ate mutton – at first because all my customers wanted lamb. Soon I realized hogget was more flavourful than lamb with better sized cuts.

When buying meat, Leigh suggests you buy whole carcasses or large pieces and butcher it yourself. This leads to less waste, a greater variety of cuts and lower costs. Detailed descriptions on how to cut up carcasses of various animals are well illustrated with colour



photos, although Leigh does make the job seem easier than it is for a beginner (in my experience).

Even if you're not going to butcher, the book is still worthwhile for its recipes and information on cuts. It also has tips on how to make your own sausage and charcuterie (including wiring a fridge into a “charcuterie chamber” for aging).

More significantly, I hope that readers will better understand and appreciate the work of small-scale farmers. They can learn how to support farmers (and a better food system) by asking for underutilized parts of animals, including older animals. They might find they save money (and help the farmer financially) and end up with more flavourful meat.

As for the people who are awkward about the concept of death, I love Leigh's reflection on eating pork while recalling images of the pigs lying in the sun: “If we're really eating, we muse on whether the body is enough homage to the land. Whether we can taste the fog, and the seeds, and the fruit. For the better it tastes, and the better it feels, the better we know it lived.”



## Agri-voltaics

### Harvesting power, veggies and meat

As the drive for renewable power ramps up, more and more land is being covered with solar panels. However, this is not necessarily taking away land from agriculture. Instead, an increasing number of ranchers and farmers are developing symbiotic relationships with energy providers. The land under and around solar panels can be used to grow food.

Crops and livestock can benefit from growing or grazing around solar panels. An array of panels creates its own microclimate. The structures produce shade and reduce wind flow, and at night, the panels radiate heat. The result: greater retention of moisture, partial shade during the day, warmer nights and calmer air. Researchers have looked at various models of agri-voltaics including the following.

- **Grassland:** On a droughty pasture, Hassanpour, Selker and Higgins (2018) found that the soil under panels held moisture better than similar ground without panels. The soil under the solar array was 328% more efficient in terms of water use (plant biomass produced per unit of water used). Late season plant growth was 90 percent greater under the panels.
- **Vegetables:** Vegetables can thrive under panels due to warmer nights, less wind and greater soil moisture. The key is choosing crops that grow well under shade. In Arizona, hot peppers and cherry tomatoes benefited from the cooler temperatures (Barron-Gafford, et al, 2019). In much of Canada, salad greens and brassicas might be a better choice.
- **Grazing animals:** Perhaps the best mix of agriculture and photovoltaics is al-

lowing sheep to graze under solar panels. The sheep perform the necessary job of controlling vegetation, which would otherwise shade the panels. Sheep even do a more thorough job than lawnmowers as they can reach around the legs of the structures. In return, they receive forage and a shady place to rest. Goats can be as effective in the job of grazing but, not surprisingly, they also have been known to damage equipment by climbing on and chewing structures. Beef can work well if the panels are raised higher from the ground.

The arrangements between the power company and farmer vary. Sometimes farmers use land that is already owned or rented by the utility. Other times, the utility may pay rent to the farmers to erect structures on existing farmland.

For a Canadian example of sheep grazing under panels, see the CBC link cited below. Also, see Fletcher and Lewis (2014): a report based on the experience of four Ontario farmers who visited several examples of photovoltaic grazing in the U.K. and described how they might adapt the lessons they learned to the Ontario farming context.

Sources & resources:

- Barron-Gafford, Greg, Mitchell Pavao-Zuckerman, Rebecca Minor et al. 2019. *Agri-voltaics provide mutual benefits across the food-energy-water nexus in drylands.* *Nature Sustainability.* 2. 10.1038/s41893-019-0364-5.
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~Janet Wallace



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## Smelly plants repel pests

Many specialist plant-eating insects use visual and volatile cues, essentially their senses of sight and smell, to find host plants. The practice of companion planting by mixing non-host plants among hosts can repel these pests. Non-host odours can also repel the insects.

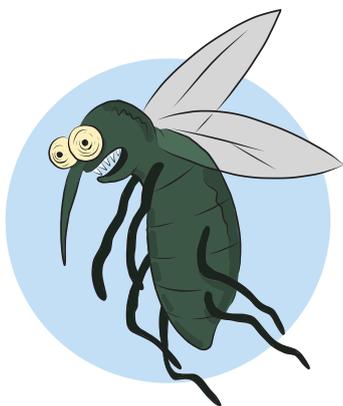
Researchers looked at the effect of various essential oils on the Swede midge (*Contarinia nasturtii*), a serious pest on brassica crops, particularly broccoli and cauliflower, in Ontario and Quebec.

Stratton et al (2019) found that applications of certain essential oils, such as lemongrass, cinnamon, and oregano, had repellent properties. Adult midges were less likely to land on plants sprayed with these oils, and consequently the plants had fewer larvae than plants sprayed with water (the control) or the essential oils of caraway, coriander or niaouli. The smell of certain oils appeared to stress the midges (apparently stress is indicated when “adults rolled on their backs and shook their legs”).

A potential complication is that the essential oils of thyme, star anise and oregano caused severe damage to the plant (caraway, coriander, and cinnamon bark had only a mild effect).

The effect of essential oils on pests appears to vary between pests. The scientists conclude “Plant essential oils are an important tool to consider for sustainable pest management, for which we have barely scratched (and sniffed) the potential.”

Source: Chase A. Stratton, Elisabeth Hodgdon, Cesar Rodriguez-Saona, Anthony M. Shelton, Yolanda H. Chen. *Odors from phylogenetically-distant plants to Brassicaceae repel an herbivorous Brassica specialist. Scientific Reports, 2019; 9 (1) DOI: 10.1038/s41598-019-47094-8*



## Cover crops and soil life

How do cover crops affect soil life? A team of scientists conducted a meta-analysis by starting with 985 studies that examined the effect of cover crops on soil microorganisms. They pared down the studies to sixty that could easily be compared (i.e., had similar controls, similar tests and reasonably large sample sizes).

The researchers found that using green manures and other cover crops led to an increase in soil microbial abundance, diversity and activity compared to bare fallow.

The benefits of cover crops on soil life were reduced (but still significant) when herbicides were used to terminate (kill) the plants. Also, the benefits were less pronounced in no-till and reduced tillage systems. This might be due to the fact that these forms of conservation tillage protect soil life. Also, during the control fallow period, the ground was actually covered with weeds rather than being bare soil. Keeping soil covered with a diversity of plants, be it weeds or cover crops, creates a better environment for soil microorganisms.

Source: Nakian, Kim, María C. Zabaloy, Kaiyu Guan and María B. Villamil. 2020. *Do cover crops benefit soil microbiome? A meta-analysis of current research. Soil Biology and Biochemistry. Volume 142. March issue. 107701.*

## Neonics and slow bumblebees

When assessing the ecological impact of chemicals such as pesticides, mortality of wild organisms is often measured. The effects can, however, be less direct but still serious.

British scientists fed bumblebees a nectar substitute that contained a low level of neonicotinoid insecticides (often called neonics). The levels were similar to what the bumblebees would consume when foraging on flowers grown from seed treated with the insecticide. (This might be lower than actual exposure in the wild because bumblebee broods depend more on pollen than nectar for growth and pollen generally contains higher concentrations of neonic residues than nectar.)

The adult bumblebees brought the contaminated nectar into the colony where it was consumed by brood and immature bumblebees. Ingestion of neonics led to neurological damage in the developing bees. Even after these bumblebees matured, they had lower learning performance than their peers that didn't consume neonics. This demonstrates that even just one early exposure to the insecticide can affect a colony in the long term.

Source: Smith, Dylan B., Andres N. Arce, Ana Ramos Rodrigues, Philipp H. Bischoff, Daisy Burris, Farah Ahmed, Richard J. Gill. 2020. *Insecticide exposure during brood or early-adult development reduces brain growth and impairs adult learning in bumblebees. Proceedings of the Royal Society B: Biological Sciences. Volume 287. (1922): 20192442 DOI*

## Selection for symbiosis

For thousands of years, humans have influenced the genetics of plants. Selection of certain traits is intentional, such as choosing to save seed from the most flavourful or largest fruit. In the process of seed saving, however, there is an unconscious selection for other traits. For example, there is selection for seeds that do not “shatter” easily or early. Shattering is the process in which pods burst open or seed fall off stalks. If peas burst out of their pods as soon as they mature or grain falls off the stem easily, it’s difficult to save the seed. Millennia of saving seed has led to crops that are generally larger, more uniform, tastier to the human palate (sweeter, less bitter, etc.), and easy to grow, harvest and propagate.

Modern plant breeding has accelerated the change in plants. Selection is often done in field plots where weeds are controlled by herbicides and nutrients supplied by synthetic fertilizers. More recently, plant breeding is conducted in laboratories where strains are grown in pots containing sterile media. Field trials remain a component of plant breeding but this is almost always done on non-organic fields.

One valuable trait that has been largely lost during plant breeding is the function for symbiosis, the development of mutually beneficial relationships with other species. Porter and Sachs (2020) investigated the relationships between crops and beneficial microbes, particularly arbuscular mycorrhizal fungi (AMF) and nitrogen-fixing bacteria (rhizobia). They found that modern plant breeding has often selected crops with less potential to form symbiotic relationships. Sometimes this happens because there is a slight cost to symbiosis—the plant provides carbohydrates to the microorganisms, which then help the plant access more nutrients. In the

wild, stressed systems and on organic farms, this slight cost (which may reduce growth or yield) is more than compensated for the nutrient advantage. But in systems where high levels of soluble nutrients are applied, the plants are well irrigated and pests are controlled by pesticides, the symbiotic relationship has little or no advantage. When plant strains lose the ability to develop these relationships, applications of mycorrhizal fungi and nitrogen-fixing bacteria have no effect on the crop.

In future plant breeding, the researchers suggest that breeders consider the genes that lead to symbiosis. Older varieties of crops, as well as wild ancestors of crops and “feral crop populations,” often contain the genes that

allow them to form mutually beneficial relationships with soil microorganisms.

“Resolving the impact of domestication processes on symbiosis function in crops, and maximizing the benefits of symbiotic function in elite cultivars, has the potential to have a pivotal role in meeting the challenges to food security we face in the coming century,” conclude Porter and Sachs (2020).

*Source: Porter, Stephanie S. and Joel L. Sachs. 2020. Agriculture and the Disruption of Plant–Microbial Symbiosis. Trends in Ecology & Evolution. March issue. 14 pages.*



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The advertisement features a smartphone in the foreground displaying the Tevatronic app interface, which shows three line graphs for different crops: 'Avalon 0245A 20cm', 'Dent 0246C 30cm', and 'Tomato 027F 16cm'. Each graph shows a blue line representing data over time, with a green checkmark indicating a positive status. In the background, there is a field of ripe red tomatoes on a trellis system. A green sensor box is visible in the field. To the right, a tall silver sensor tower with a white antenna and a white cloud icon is shown against a blue sky. The overall theme is precision agriculture and IoT technology.



# Poultry

AMY HOGUE

## Mistral Gris

### Is this a miracle bird?

If there was ever a poultry breed that could be called a miracle of modern genetics, it would be the Mistral Gris. The Mistral Gris is a slow-growing, hardy, resilient, pasture raised bird that is particularly well suited for broiler production.

It isn't a coincidence that this broiler was originally developed in collaboration with the legendary Canadian poultry breeder, Donald Shaver, the creator of the Red Shaver, a sex-linked, dual purpose breed which continues to thrive to this day.

The Mistral Gris is a breed unto its own, and many would say, significantly improved upon the Red Shaver.

Small farmer, Emily Robertson, is among those convinced of the merits of the Mistral Gris. Robertson is the owner of True North Hatchery in Armstrong, B.C., and has been selling Mistral Gris chicks for seven years, producing roughly 40,000 chicks annually.

As a wildlife biologist Robertson is no stranger to the concepts of breeding and genetics, but before she began raising chickens she had limited experience with poultry. Looking for knowledge, Robertson did what any good academic would do — she sought out the authorities on the subject, one of which was Donald Shaver.

### Why choose Mistral Gris?

To hear Robertson describe the breed, the Mistral Gris takes off its cape every



This breed does exceptionally well on pasture, and is bred to withstand harsher conditions like a Canadian winter.

evening and wipes its brow from a day well spent, but the truth is while they may not have superpowers these birds are uniquely suited for pastured growth.

While there are a few existing breeds with similarities to the Mistral Gris, Robertson stressed the Mistral is a far different bird than the Label Rouge or Freedom Ranger breeds. Appearance-wise, the Mistral Gris looks like a Barred Rock with all the same superficial features like comb type and feather pattern, but that's where the two breeds diverge.

"Most of the grazers and grangers will gain the same weight at about the same time, but the Mistral Gris stores fat a little differently," Robertson

explained. "If you took two young birds, one a barred rock and one a Mistral Gris that are about the same height, and picked them up, the Mistral Gris would weigh twice as much as the Barred Rock. They are very dense, they put on a lot of muscle."

According to Robertson, a Mistral Gris should reach optimal slaughter weight at roughly 12 weeks, with males dressing out between 5.5 and 7 lbs, and females averaging about one-pound lighter. Although you can slaughter earlier, Robertson said you get a better meat to bone ratio if you wait until they're 12 weeks old, and the older bird will have a better flavour as well.



The Mistral Gris delivers on all counts when it comes to raising a good broiler – hardiness, growth rates, reliability and weight. They also have an excellent feed conversion ratio.

## The Mating Game

The story of how Robertson came to begin breeding the Mistral Gris has a few twists and turns. Originally developed in Pennsylvania by an Amish farmer, Henry Noll, in collaboration with Shaver, the Mistral Gris is a throwback to the days when birds were bred for productivity, not appearance.

Robertson takes the story back to when the British Poultry Club was established, in the mid-1800s, explaining that from the beginning it was clear the club was interested in a bird's appearance, not its behaviour, productivity or health. And therein lay the problem.

"It's thinking from a different era," Robertson said. "There were new ideas in breeding, and everybody liked the idea of competing by being able to work with the genetics of a bird to make them more pure. If you translate that concept to genetics you would say you are making them more homozygous, which means you are making them inbred, which they didn't realize in the 1800s."

In order to preserve breed characteristics at that time it was thought you would breed the best male to the best female in order to produce the best offspring. Robertson explained that in commercial breeding you are instead trying to preserve the genetic diversity of all the pairs of genes. While the parent lines may be inbred, when crossed, the offspring are not, particularly when four-way crossing was used (using grandparent lines instead of parent lines).

Shaver understood perfectly well the intricacies of homozygous breeding and worked to establish his own method of creating strong and diverse genetics. The result was a "melting pot" barn, which was where Shaver put the chicks he brought back with him from his travels around the world. Shaver would add chicks to the barn and let them do their thing when it came to mate selection.

"It was this kind of master mix of chicken genes from which Shaver would select the individuals that he felt would be useful for a breeding project," Robertson said.

*continued on page 14*

# Poultry

Naturally, Robertson wanted to know everything about this method, and arranged to meet up with Shaver himself. She said she arrived with calipers in hand, ready to learn from the master how to select which birds to breed.

“Don looked at me like I was crazy,” Robertson remembered. “He said, well, I pick them up, and the first thing I do is look them in the eye, and a chicken who won’t look you back isn’t a good breeder.”

Shaver used his own methods to decide which birds should be bred, ranging from holding a chicken and watching how it moved to how it interacted with other chickens. His last word of advice to Robertson was to “learn how to know a good chicken.”

## The biggest chicken business you never heard of

In the late 1980s when Shaver sold Shaver Poultry, Penn State Agricultural Department talked him into teaching Amish farmers ways to update the birds that they have been producing, so Don Shaver started teaching a group of farmers how to establish a 12-week breed using birds from the Amish farmers, combined with birds from Shaver’s own melting pot.

The resulting breed was raised by Amish farmers across Pennsylvania,



The carcass of the Mistral Gris



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While they may look similar to a Barred Rock, if you pick up a Mistral Gris you will feel for yourself the difference between the two breeds.

and at one point these small farmers were supplying all of the chicken meat for Whole Foods on the eastern seaboard. One of these farmers was Henry Noll, an Amish farmer with no telephone, no answering machine, no fax machine and no computer.

In spite of the lack of technology, Noll's business was so prolific Robertson said he hired most of a senior class to work at his hatcheries once a week because he needed so much manpower.

"At the peak of his production he (Noll) was hatching 100,000 chicks a week," Robertson said. "This was the biggest chicken business you never heard of."

When Robertson finally convinced Noll to send her chicks to sell in Canada, he asked she not call them by the same name as his breed, Silver Crosses, because he didn't want people calling and asking him to buy them directly.

The Mistral Gris was named by Robertson herself, on recommendation from Noll that she choose a French name. '*Mistral*' is a named wind in France, like the Chinook, only Mistrals are cold. And *Gris*, which translates to 'grey', is the French name for the barring pattern in chicken feathers.

"Ultimately he (Noll) sold me some of the mother and father line birds," Robertson said. "He gave his breeding flock to a big hatchery in Pennsylvania and unfortunately this resulted in the loss of his breeder flocks."

Robertson ended up with the remaining birds from the father line and has been working ever since to tweak the Mistral Gris line to keep it robust and sustainable.

And the rest, as they say, is history.



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# Equipment

DAN KERR

## All seized up

### Putting penetrating oils to the test

There are times when the aggravation of trying to unseize a nut isn't worth the time, or the inevitable is about to happen, so I simply glove up and grab the breaker bar and twist it apart. Other times I want to reuse the bolts and/or I would prefer that it didn't break off inside a component. That's when penetrating oil will be brought into action.

Just like everything else, there are a multitude of penetrating oils and similar products to choose from, all claiming that theirs is better than someone else's and I have accumulated a small collection, so a year ago I decided to put all of them head to head in a test.

#### Preparation

To start off I needed a common denominator to work from so I purchased a selection of 3/8 inch nuts, bolts and washers. Each unit would be the same and included: bolt, two flat washers and a nut, all plain metal (no coating) and all torqued to the same value of 35 lbs. Before assembly all the pieces were doused in a container of acetone and let dry.

As I was going to test four products the line up went like this:

**Batch 1:** four bolts were assembled, torqued and set in one cup;

**Batch 2:** four more bolts were sprayed with their product and then assembled, torqued and given their own cup marked with the product;

**Batch 3:** one was assembled, torqued then painted with Tremclad gloss yellow spray paint and placed with batch 1

**Batch 4:** one was assembled, torqued and also placed with batch 1

All four cups were now filled with a salt solution and allowed to dry out before refilling over and over again while sitting on the window ledge through a full season. The batches pre-coated were in separate cups to prevent cross product contamination; I figured the painted one (once dry) would not do this. For a variation, the fluid refill also used snow and that vehicle killer, brown salt sand slush combo scooped fresh from the bottom of my truck.

#### The test

After a year of babysitting these bolts it was time to clear off the window sill:



All of the hardware was washed in acetone and let dry to strip off all oil.



Each was torqued with a torque wrench to pre set 35 lbs.

# Equipment



These four were pre sprayed with their individual product, assembled, torqued to 35 lbs, and then set individually in salt water that would evaporate and be refilled for one year.

**Batch 1:** each unit of batch one was sprayed with its own product and let stand for 30 minutes then clamped in the vise and using a gauge torque wrench force was applied to see what pressure the nut would release or break.

**Batch 2:** each unit of batch two was placed in the vise for the same torque test (these were sprayed prior to assembly to see if the penetrating oil would help prevent rusting so no additional coating was given).

**Batch 3:** the lone painted one was only painted, not treated and was also placed in the vise for the same torque test.

**Batch 4:** a bolt that was exposed to the elements but not sprayed with anything (control test)

Some may recall me writing in a prior column, that threads should not be lubricated prior to torque as they will over tighten to the point of breaking. Well, that's what happened here. When I was setting this experiment up, the first bolt that I treated and attempted to torque tore itself in half, the lubricant allowed the nut to be tightened onto the bolt to the point of destruction. I had to torque very slowly to a maximum of 35 lbs. which is not very high, but above that the bolt threads stripped. This was using a slow movement with a torque wrench; you can imagine what would happen with an air gun.

## The results

Torqued to 35 lbs. the removal lbs. were:

**Batch 1:** bolts sprayed and sit 30 minutes with product before disassembly:

- bolt1-WD40: 50 lbs
- bolt2-Stuff: 52 lbs
- bolt3-Krown Penetrating: 45 lbs
- bolt4-Mother Earth: 30 lbs

**Batch 2** (pre sprayed with product prior to assembly)

- bolt1-WD40: 28 lbs
- bolt2-Stuff: 40 lbs
- bolt3-Krown Penetrating: 20 lbs
- bolt4-Mother Earth: 25 lbs

**Batch 3** painted

- bolt 1-painted Tremclad: 30 lbs

**Batch 4** (lone untreated bolt): 50 lbs

*continued on page 18*



These were all cleaned, torqued to 35 lbs and then let sit together in the salt water for a year.

# Equipment



One year later the test begins after being submerged in the salt water, sand slush mix and snow.

These are some interesting numbers and I thought they'd be closer all having the same environmental treatment. From the beginning I suspected that the painted bolt would do the best as it only stands to reason that if you keep the oxygen away from the metal, oxidation cannot occur so the resistance should not exceed the tightened torque. Slightly lower (30 lbs.) places it the same as using Mother Earth on a seized bolt.

As for pre-spraying I still don't recommend it, if not only for the over torque situation but it allowed all but one to loosen off well under the 35 lbs. of tightened torque.

Of course there are other ways to loosen bolts, such as with heat. Sourced from a flame (torch) it can be very effective, not always an option (working around flammable products) and not always 100 per cent.

Another heating source is the mini inductor (electric) which creates a magnetic pulse causing the iron molecules to super-heat which can assist to release steel bolts, not 100 per cent, real expensive and they don't work on aluminum hardware that is used in transmissions, transfer cases and aluminum/aluminum engine components to prevent dissimilar oxidation.

As for my test, the list is quite compatible. Some are better for the environment than others and prices are all close so once again, the choice is yours. When given the choice I prefer to paint my equipment and not wait until it's so rusted that extremes have to be reached in order to disassemble.

A final note of caution: one should eat first when working with 'stuff' which is made from recycled restaurant fat fryer oils. After spraying the bolts I got so hungry I almost chewed my left arm off.



Your assignment should you choose to accept.



Here is the bolt that was pre-sprayed then over torqued, which resulted in the nut over tightening and destroying the threads.



Unscrewing the painted bolt shows the threads as clean as when they went in, no rust at all.

# The ancient art of goat walking

Health promoting, economical, but don't plan on reading poetry!

BY JANET WALLACE

It's a timeless scene — a person walking with a flock of goats. Homer writes about a goatherd in Ancient Greece and the von Trapps sing about the “Lonely Goatherd” in the *Sound of Music* . . . goat walking has been practiced for millennia and remains a valuable farming exercise. We also know about the history of shepherds guarding their flocks. If you have sheep, read on. (Spoiler alert: in my experience, walking with sheep is not nearly as easy as walking with goats.)

## ***Why walk your goats***

With modern fences and access to feed, we no longer need to wander the hills and woods with our goats. However, the practice has many potential benefits for the goats, the goatherd and the farm overall, including the following advantages.

## ***Expand your pasture without fencing***

Although we tend to feed and pasture goats much like sheep and cows, goats are really browsing, not grazing, animals. In their dietary preferences, goats are more like deer. They will eat hay and graze grass and legumes, but they thrive on woody plants.

Whether you are walking in the winter or summer, the goats can get

*continued on page 20*



Author Janet Wallace demonstrates how it is done!

free woodland food. This reduces their consumption of hay, saves you money, and minimizes grazing pressure.

### ***Allow goats to self-medicate***

Many woodland plants have medicinal benefits. For example, willow branches can stimulate rumen function. Yarrow and elderberry can soothe gastrointestinal problems and conifer needles can help repel internal parasites. Opinions are mixed on how well animals can identify what plants will treat their ailments, but after watching the consumption patterns of a number of goats, I feel that the animals can sense the connection between plants and their health. Also, goats tend to avoid toxic or unhealthy plants when they have the option to choose healthier alternatives. Laurel (*Kalmia* spp.) is an exception; goats will eat this and then vomit.

### ***Prune, thin and weed***

Use your goats as silviculture technicians. By choosing where to go and how long to stay in any one spot, you can control (somewhat) the amount of pruning and thinning that takes place.

### ***Exercise the animals***

If your goats are in a small paddock, a walk allows them to get more exercise. This is always valuable. Giving pregnant does exercise may lead to easier kiddings.

### ***Take a break***

If you want to escape farm chores, you can enjoy a slow-paced stroll in the woods, something many farmers might feel too busy to do otherwise. Invite a friend to join you and you can talk and walk while the goats browse.

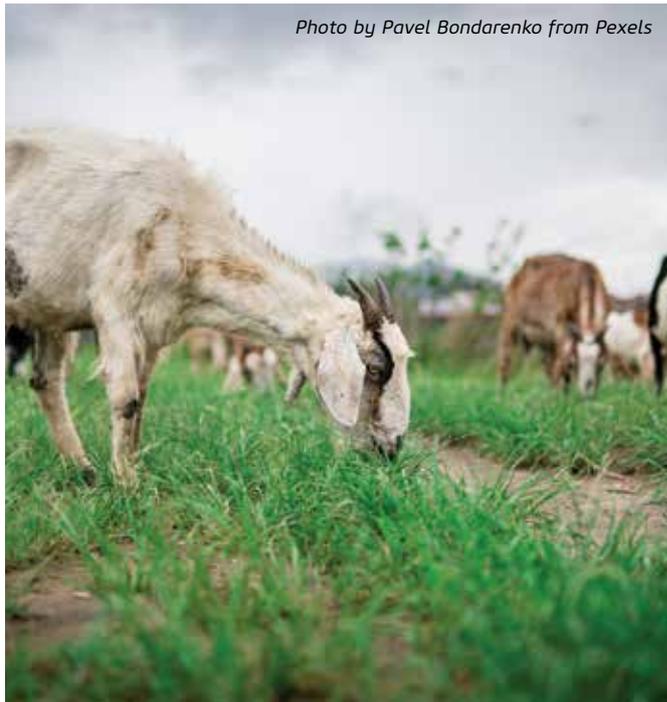
### ***Learn more about your woodlot***

Have you ever noticed how differently people can perceive a forest? One person might just describe it as having lots of trees. When pressed for details, he might say some had needles and others leaves. Meanwhile someone else can, off the top of his head, describe the most common species and a few unusual ones, and note the age classes of each.

Walking with goats is a bit like being with a botanist who silently points out subtle changes in the plants. For example, the goats might ignore alders all winter long. Then one day in early spring, they will devour the tips of the bushes on the south side of the path. I'll look closely and notice the buds are just a tiny bit plumper than the rest. The following week, these will have opened more and are rejected while the goats indulge in the now-plump buds of the shrubs on the north side of the path.

If you stop, look and listen whenever the goats pause, you will see more wildlife and notice seasonal changes in the plants. You may also find new plants. Goats have an amazing ability to sniff out wild apple trees and sugar maple trees. The only downside is they will bring you to the plants they want

Photo by Pavel Bondarenko from Pexels



## **Sheepish strolls**

I tried walking with sheep and it worked to a certain degree. The flock would go a short distance then graze uneasily. As soon as I went a little bit further, they would get upset, turn around and run all the way back home. I could use the methods described above to move them on my woods road between pastures, but they never enjoyed hikes in the woods.

to eat rather than where you want to take them unless you actively lead them (see steps below).

### ***Steps to a successful goat walk***

A goat walk can be as simple as taking an hour a day to stroll through the woods with your flock. No leashes, harnesses or collars are needed. Goats are social creatures and will want to be around you if they feel safe. As you walk, they will follow, albeit in their own way. The lead goat may want to walk ahead of you while the others form a group around you. They will want to stop at their favourite plants. Give them a chance to browse and then move on.

### ***Location***

Unless you have very obedient goats (and is that even possible?), choose a safe place for the goat walks, away from traffic, dogs and other threats. If you want to maintain a good relationship with your neighbours, stay on your own land. (I knew of a feud that involved someone taking more than 200 goats into a neighbouring sugar maple stand. The result wasn't pretty. Imagine a flock of 125-lb locusts and you get the idea.)

Find a path that avoids your most cherished saplings. Even a small number of goats can defoliate a stand in minutes. The adults stand on their hind legs and put their front legs on the top of a tree. A sapling will bend under the weight, thereby allowing the other goats to eat the leaves and small branches and then strip the bark of the trunk. It can be remarkable or devastating to watch depending on the value of the tree.

### **Training**

While goats may choose to disobey or ignore you, the goat walk will go much better if you teach your goats to come to you when called. I started this early in my goats' lives by giving each kid a bit of grain when it came when called. I sometimes started a walk with a bucket with a tiny bit of grain. I gave that to the first goats who came to me. Once the others realized the grain was gone, they lost interest in the bucket. I kept a backup stash of dried kelp in a bag in my pocket. If I needed to gather the goats, I put the kelp in the bucket and shook it. It sounded like grain and, even though the goats had free access to it in the barn, kelp was a treat. For me, it had the advantage of taking more time to chew than grain so it gave me more time to move the flock where I wanted them to go. As a last resort, I took a few rocks and shook them in the bucket. This ruse can't be done too often (although it can be done many times with sheep before they catch on).

### **Keep 'em moving**

Goats seem to love the movement of a flock. You can pause when they're in a good browsing patch but if you keep moving, even slowly, the flock will stay together. If you want to move the goats past a tasty but valuable stand of plants (e.g., saplings of sugar maple and apples were prized by both the goats and me), try running. I would start running before the goats noticed these plants and the goats would get excited, trying to outrun each other and play-butt. By the time I stopped running, we were back amongst the alders and brambles, where the goats could eat to their hearts' content.

### **Avoid multitasking**

I tried to do many other things while goat walking—like reading a book or writing in a notebook when we stopped for a break. When the goats realized we had actually stopped moving forward, they would try to eat my book. Once I ate an apple while the goats were eating fruit from the same tree. My lead goat, however, dropped her apple, put her hoof on my chest and grabbed mine from my hand.

A goat walk is a time to focus on your goats. You can learn about the relationships between individuals — something that can come in handy when deciding who to milk first — and notice changes in health, such as a slight limp. And it's a time to enjoy your woodlot while improving the health of your goats and saving money.



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Marcus Wiebe with his ciders at a local farmer's market.

*Photo courtesy Dead Horse Cider Co.*



# Craft cider makes a splash

## Business success requires long term approach

BY VANESSA FARNSWORTH

When Marcus Wiebe first started producing hard ciders in Manitoba just over a year ago, not only was he new to the industry, he pretty much was the industry.

“There have really been no craft ciders in Manitoba until now,” he says. “These apples were basically a waste product. Until I came along pressing them, people weren’t even picking them. They were just falling to the ground.”

And that got Wiebe to thinking.

“My dad was a vegetable farmer. He grew sweet peas, green and yellow beans and sweet corn. He sold his vegetable farm in 2001 and someone else ran it until around 2012 or 2013. Then I started growing peas and beans again and bought the farm back and was looking to expand into other things.”

Soon Wiebe was growing pumpkins for a pureeing operation that had big plans. He built a food-safe building complete with a walk-in cooler. Then he grew, harvested, washed and delivered 500,000 lbs. of pumpkins only to have his buyer go bankrupt before Wiebe had been paid. Stuck with a new building that was being used solely to store produce from July through to the end of August, Wiebe was on the lookout for something he could do to help cover costs. So when the opportunity to buy an apple press came along, he jumped.

“We thought we’d start pressing apples locally for people who had apples they wanted pressed or maybe we would sell juice at farmer’s markets. Stuff like that.”



Bottle of Sea Cider cider.

Then one day, when Wiebe was trying to sell his apple juice, he ran into a craft cider producer from Saskatchewan and they struck a deal: Wiebe would give the man a good price on juice and in return that man would teach him how to make hard cider. With that, Wiebe founded the Dead Horse Cider Co. on his farm in Winkler, Manitoba and immediately made the commitment to use 100 per cent Manitoba grown apples in his beverages.

“There are more apples in this province than you’d think even though there are no really huge apple farms,” says Wiebe, who gets his apples from many sources. “We have some Hutterite colonies who have large orchards. There are also a couple of farmers who have some apples. And we

buy from regular people who have a few trees in their backyard. Anyone who has an apple tree and wants to drop off some apples can do that.”

To determine payment, Wiebe calculated how much it cost to bring in apples from Ontario and offered any Manitoba grower willing to bring their apples to his location roughly the equivalent amount. Even so, Wiebe soon found he was unable to source the volume of apples he needed for his enterprise.

“Although there are apples in the province, there just aren’t enough to keep up with the demand. I didn’t know that when I started. I had hoped to use all Manitoba apples, but I ran out of juice really fast. So I blend Manitoba apples with Ontario apples to make the cider.”

While his flagship cider, Looking on the Bright Cide(r), may use a blend of apples from the two provinces, Dead Horse Cider Co. recently started producing what Wiebe calls a “rosé” cider made solely from Manitoba-grown Kerr apples that were originally developed in Morden, Man. in the 1950s.

“It’s a dark red apple that has a floral tropical aroma. It’s a really cool apple and we make a varietal cider with that one,” Wiebe says, adding, “I’m hoping to do more varietal stuff so I can focus on different local apple varieties.”

Making varietal cider is something Kristen Needham knows well. As the founder of Sea Cider Farm & Ciderhouse in Saanichton, BC, she decided early on that if she was going to get into the craft cider business, she was going to do it right. And doing it right meant planting her orchards with apple varieties that were known for producing the best hard ciders.

“Certainly you can make cider from any old apple but you can’t necessarily make great cider from any old apple. We were aiming to produce award-winning cider. That’s when we started to investigate what experts think are the best cider varieties,” she says. In doing so, she made a significant discovery. “A lot of those varieties just aren’t grown commercially in Canada.

However, we had a friend in Langley, BC with a small hobby orchard where he’d grafted his trees a decade or two earlier and so from his orchard we chose the varieties we thought would be best suited to what we were trying to do.”

Needham soon found herself planting her fields with apples whose names will likely be unfamiliar to most orchardists in this country, including Kingston Black, Dabinett, Chisel Jersey, Brown Snout and Yarlington Mill. All have proven track records for producing top quality ciders.

“Most of our varieties are of English or French origin and have been propagated for centuries in Europe just for cider. They’re not good for anything else,” she says. “We also grow some of what I call a dual-purpose heritage varieties. They’re heirloom apples that come from North America. They are good for cooking and, if you like a sharp apple, you can eat them. But like all of the apples we grow, they’re really just good for making cider.”

It would take roughly five years from the day Needham committed herself to producing world-class craft ciders to the day she sold her first bottle and during that time, she’s had her fair share of challenges.

“Some of the best cider apples are unfortunately really difficult to grow. They only fruit every other year or they’re susceptible to disease. The Kingston Blacks, for example, are really finicky about weather. This year they decided to bud out in November,” she says. “If you get them to produce apples, you’re lucky. So those orchards aren’t nearly as productive as regular apple orchards. But, on the other hand, they make absolutely fabulous cider.”

For Brent Klassen of Heartwood Farm & Cidery in Erin, Ontario, making absolutely fabulous cider has grown to become an important part of his business plan. But back in 2010 when Klassen was planting a wide variety of fruit and nut trees on his 42-acre diversified farm, producing craft cider was far from his mind. So he selected cold hardy, disease-resistant eating apples like Liberty, Novaspy and Novamac that would thrive in his hardiness zone.

“Then we started to think about what we would do with the fruit once we were actually producing it,” Klassen says. “And I became interested in making cider. I did a bunch recreationally in carboys in the basement and those early experiments went well so we thought why not see if we can make a business from it?”

With that in mind, Klassen enrolled in a weeklong intensive course on commercial cider production through the extension program at Cornell University. He credits that course with laying the foundation for his cider business.

“But I would say, more than anything, it’s the collegial relationships in the cider industry and everyone’s willingness to help new entrants into the market by providing coaching and support, lending equipment and all that kind of stuff; that was the biggest help.”

Experimentation has also played a key role. At Heartwood Farm, there’s a willingness to try different approaches, tinker with steeping times and answer questions on the fly until they feel they’ve perfected a recipe and all that’s left to do is to bring their production up to scale.

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Photo credit: Nakita Krucker

Heartwood's cidery.

"Our apple recipe for our base cider consists of Golden Russet, Northern Spy, Ida Red, Jonagold and Red Prince. Some of those you'll find in stores, others you won't typically," says Klassen. "We've whittled things down over the years to get the amount of sugar we're after, the right amount of acid and a nice, smooth profile when it's fermented out."

They've also experimented with an intriguing array of ingredients and techniques designed to add distinctive flavours to Heartwood's ciders. Gangster's Mistress, for instance, is aged in oak wine barrels while one of their most popular ciders, Eve Goes Baddass, is flavoured with hot peppers and honey.

"When it comes to adding fruit, botanicals, any of those other adjuncts, we're motivated by what grows around us. We've got a farm that grows an abundance of things and we're often curious about what it would taste like if we were to, for example, throw a bunch of currants into apple cider," Klassen says.

Heartwood Farm & Cidery mostly sells its cider direct to consumers at farmers markets and through on-farm sales although they also sell to licensees located close to the farm in the hopes that someone discovering their cider will one day find their way down the farm lane.

*"I became interested in making cider. I did a bunch recreationally in carboys in the basement and those early experiments went well so we thought why not see if we can make a business from it?" - Brent Klassen*



Brent Klassen of Heartwood Farm & Cidery in Erin, Ontario. Photo credit: Nakita Krucker.

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Kristen Needham, of Sea Cider Farm & Ciderhouse, in her orchard.

Two and a half years into the project, Klassen admits it's not yet sustaining itself, but he is hopeful it soon will be.

"We will increase our sales by probably 50 per cent this year over last and last year was a 50 per cent increase year-over-year from the previous cycle. So it's going in the right direction, but we still have a little ways to go before it's paying for itself let alone generating profits."

And while Klassen has been approached by several small farmers who wonder if craft cider could be the magic bullet that will help them turn a profit, he urges caution.

"I think a lot of small farmers are feeling like value-add is the only way to make a go of it because the margins on raw food — fruit, vegetables, even meat — are so slender. For us, that's what cider has been," he says. "But the cost of entry is fairly steep in comparison to other farming initiatives. You need a room to do your fermentation. You're going to need some tanks. You're going to need a source of juice or, if you have a supply of apples, you have to think about a press. You don't necessarily have to buy all of the equipment because there are people out there who will rent stuff or do custom work, but there's still some fairly significant costs in getting up and running."

Wiebe can attest to that first hand.

"The apple press itself was pretty expensive and we bought some fermenters and things like that," he says. "It has been a significant investment. The only reason I can make it work is because we're thoroughly integrated. We

crush, we ferment, we mix, we blend, we bottle. We do everything right in the building. I control the costs right from the apple to the bottle.”

Needham’s advice to any farmer looking to enter the craft cider industry is for them to make sure they understand the realities of both the market and their own situation.

“One consideration for us was that we’re on an island, so transportation costs were a big factor. We can’t compete on volume when imported cider is so cheap and it’s more cost effective to produce cider in the Okanagan Valley than it is on Vancouver Island. In order to make it work financially we had to focus on a niche premium type of cider as supposed to, say, a six-pack cider,” she says. “I would say, just as a general rule of thumb, if your operation is focused on just making cider, you should expect to be producing 20,000 cases a year before you’re profitable. That’s a lot of cider. And at nine litres a case, that’s a lot of litres.”

Still, Needham understands the lure.

“I think there’s a lot of interest in the idea of doing value-added production on a farm but you have to really talk to your accountant and get some business advice to make sure it’s really viable because there is certainly a huge capital investment. Not only are you having to worry about growing your own apples but then there’s the whole cider making side of things as well as the sales and distribution side. So it becomes a rather complicated process.”



Photo credit: Central Counties Tourism



Brent Klassen in his orchard.

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# Predator-be-gone

## Installing a permanent electric bear fence

BY MEREDITH WINKELAAR

This past summer, a large grizzly bear smashed a small window on our chicken coop and squeezed his bulk through to gain access to our roosting laying hens. He ate seven laying hens and decided to take one for the road. We woke up to heavy footsteps and the muffled sound of a poor hen clucking in the maw of the grizzly as he sauntered by our open bedroom window.

Our outdoor chicken run was electrified but we did not have an electric fence around our enclosed coop. We also had chicken wire in the window but he easily ripped that out. The bear got into our coop because of lacking electric fence and because he'd recently acquired a taste for chicken from neighbouring coops. He enjoyed chickens.

We knew that bear would be back the next night so we acted fast. A conservation officer came and gave us specific bear fence guidelines and showed us how to set up a bear fence. The bear came back the next night as predicted and tried very hard to get through the new electric fence but failed. It was a spectacle to watch him test the new fence over and over and then leave, frustrated and defeated.

Reduce conflict with bears by installing an electric bear fence around your coop and runs. It keeps the chickens and the bears safe. It's a non-lethal deterrent and its unpleasant shocks teach bears to avoid the area.

There are many manuals on how to install electric fences; most apply to keeping livestock *in*. All the same rules apply but this is specific to bears and keeping them *out*. Bears aren't good jumpers so at least it doesn't have to be that high.

*continued on page 32*



**Gates**

Gates are extra work and are the weakest part of the electric fence system. They should be electrified and mirror the design of the fence you're building. We have a small, robust wooden gate for people entering and exiting. The wire is run under the gate (but can also be run over an archway) to connect the fencing interrupted by the gate. We also have a simple large gate that we can open for cleaning out the coop with a wheelbarrow (right). It is opened and closed by insulated gate handles and doesn't have a separate frame.



**Wire and Spacing**

A total of six strands of 5/64 inch 14 gauge galvanized steel wire are needed. Bottom wire is a ground (-) wire and placed five cm off the ground. 2nd wire is hot (+) and spaced 10 cm above the first. Third wire is ground (-) and placed 15 cm above the second. The next three wires (+, -, +) are placed 25 cm apart to a total height of 107 cm. The wire must be tight enough to part the bear's heavy hair and deliver a shock to the skin.



**Energizer**

Our system has a plug-in fencer with grounding rods close by. It easily sends a current through our 40 ft x 60 ft fenced area with six strands of wire. The important thing is that the energizer can deliver 7000 volts to deliver a painful shock to a bear. This can be measured with your fence tester.



**Corners and Posts**

We have a combination of wooden posts and T-posts. It is important that the corners are reinforced so they can withstand the tensions when wires are pulled tight. Posts are spaced 12 feet apart. Insulators keep the hot (+) wires from touching the posts so the wire doesn't ground out. It also keeps the wire in place.



**Warning Sign**

Important to put a warning sign in a visible spot to warn innocent wanderers of potential shock.



**Space between bear fence and building**

Our bear fence is about five feet away from our coops and runs. This provides room to manoeuvre wheelbarrows, straw bales and feed.



**Clawing Evidence**

A reminder of the importance of a well-designed, permanent electric bear fence. This is evidence of clawing.

Any electric fence consists of the following five components:

- 1) Energizer and a supply of electricity (AC or DC).
- 2) Grounding system
- 3) Posts and insulators
- 4) Wire, rope or mesh with a conductive material (i.e. steel)
- 5) Fence tester (allows for monitoring and making sure enough voltage is traveling through wires)

There are two different types of electric fences: a “ground-return” fence, consisting of alternating hot (+) and ground (-) wires,

or an “all-hot” fence, where all wires are hot (+) and grounding is provided by grounding rods or equivalent. We set up a ground-return fence as opposed to an all-hot fence as we have very dry soil that doesn't provide adequate grounding.

A ground-return fence provides two chances for animals to receive shock:

- 1) When animals touch both (+) and (-) wires at the same time.
- 2) When animals only touch a (+) wire (grounding is provided through the ground).

The top wire is always (+) and is connected to the (+) terminal on the energizer. Every *other* wire going down is linked to this wire in series (i.e. wires 1, 3, 5). The second wire from the top is the (-) wire and is directly connected to the ground (-) terminal on the energizer. Every *other* wire going down is linked to this wire in series (i.e. wires 2, 4, 6). You may attach your grounding rod to the bottom (-) wire or directly to the (-) terminal on the energizer.

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We are happy that we've installed this bear fence. Living in the Yukon, big predators are a reality and we wish to live with them peacefully and reduce the attractants as much as possible.

We've learned from our helpful conservation officers and used the following sources:

--*Reducing Wildlife Conflict with Electric Fencing: A Beginner's Guide* (2018 Government of Yukon booklet)

--Margo Supplies: [margosupplies.com](http://margosupplies.com)

## Common bear fence design failures

Aaron Koss-Young, a conservation officer with the Yukon Government says that when building a bear fence the "biggest challenge seems to be ensuring that the fence is capable of delivering a strong enough voltage to deter bears."

**1) Failure:** Setting up frail systems using poly braid and temporary posts won't deliver sufficient electric shock to a bear. The braid can't be tightened enough to have enough tension to get to the bear's skin.

**Solution:** A powerful enough energizer (at least 7000 volts) combined with strong, tight and properly spaced wire.

**2) Failure:** Running an all-hot fence and not getting enough conductivity through dry soil despite the number of ground rods used.

**Solution:** A ground-return system (alternation (+) and (-) wires) is ideal for our dry soils in the Yukon. This design isn't reliant on completing the circuit back through the ground and grounding rod.



A bear, or bears, tried to get to these hives but were deterred by electric fence.



An example of a properly installed electric fence around a chicken run.

# Run, Rabadash, run!

## A pig-headed farmer pursues a pigheaded pig

BY ARLIN WEAVER

Joel Salatin gave us the nice line on “the marvelous pigness of pigs.”

His point is well taken, yet as any pig farmer knows, the one thing more marvelous than the pigness of pigs is the pigheadedness of pig farmers.

For 10 years, we’ve wrestled a side income from our six-acre farm and its weak bottomland loam, located along the Moira River south of Tweed, Ontario. With intensive management, vegetables grow alongside pasture-raised heritage pork, Dexter beef and foraging hens.

Each has its unique place in our farm ecosystem, while our customers keep coming back for delicious sausages and bacon.

But no matter how principled you are with pig farming, there are moments where the pigness of pigs and the pig-headedness of pig farmers collide, and anyone with a capacity for sober second thought questions the whole enterprise.

For me, yesterday was one of those times.

We picked up four weaner pigs for a second batch of pork this year. They were handsome, Tamworth red and as adorable as pigs can be. While we loaded them, my children named them with four well-planned monikers: Piglet, Cleopatra, Hamish and Rabadash the Ridiculous, of Narnian fame.

With the enthusiasm that accompanies every new set of pigs, especially pigs this cute, we brought them home. Since it was raining, I stopped by the house to throw on my dirty chore jacket and a very ragged straw hat for a hands-free umbrella. Thus equipped, we were ready for the ultimate red-carpet ceremony — feed, a well-working fence, straw in the shed and an eager family of welcoming, pig-headed pig farmers with the usual set of assumptions about the pigs’ future and our ability to dictate that.

The pigs, in all their pigness, had other plans, developed without mutual consultation with all parties. While I was unloading the pig crate, the last one slipped by me, as well as by the secondary line of defense behind me. After a momentary struggle, piggy made a flying leap out of the trailer and onto the ground.

In the chaos of the moment, there were four screaming pigs loose on pasture.

Now, to be clear, I *am* an advocate for pasturing pigs. Pastured pigs are happier than pigs raised in conventional factory farms, and pork eaters get to enjoy better flavour and incredibly improved levels of Vitamin D and E and other micronutrients. Imagine putting *healthy* back into *your* breakfast bacon!

But the problem was, these pigs on pasture were outside the pig fence, not inside. Which, obviously, is a dilemma that is preferably approached with lots of time and deliberation.

The pigs, however, weren’t interested in time or deliberation. They were moving fast in four directions.

Cleopatra, surprisingly enough, cooperated nicely for a quick rodeo roundup and settled down in the pig shed, leaving us with one down and three to go. Hamish and Piglet were last seen heading across the cow pasture at a high rate of speed. Only Rabadash remained in play. And play he did.

After circling the house he headed for the Moira River, where my children managed to corner him on shore. Rab barely hesitated and hit the river like an Olympic swimmer.

I didn’t pause either and raced, as well as one can in heavy barn boots, across the nearby road bridge to the other side, attempting to intercept him on the brushy far bank. Seeing me, he turned back into the river and headed to the far shore, this time under the bridge where two fishermen were contemplating the scene with incredulity. (They told me later they thought it was a deer in the water. *Dear* Rabadash.) This time, my son, fishing net in hand, attempted a capture.

But yet again, piggy thought differently and turned for a third river crossing. His zig zag pattern put his final downstream landing into the neighboring conservation area, so I rushed through the park entrance and into the parking lot, taking advantage of the moment for a sort of running deliberation.

I was dripping wet, both from the rain and the river, though my torn straw hat was still in place. Water sloshed in my boots. I expect I smelled just a little like, well—a pig. Turning the corner, I realized I had crashed into a sea of tuxedos and fine dresses—a wedding party re-boarding their bus.

A circle of well-dressed gentlemen eyed me as a new item of interest. Noting my hat, one said, “Are you Amish?”



There's no denying the essential pigginess of pigs!

"No," I assured him, "I'm just using my hat for an umbrella. I'm looking for my pig."

"A pig!" he chortled. "You've got to be Amish!" I ignored him and walked on, only courteous enough to mutter "Hi," to the bridal couple as I tried to pass as unseen as possible in the shadows on the far side of the park road.

Water was still high along the river due to spring flooding. I expected that the swimming Rabadash would have morphed into an exhausted Rabadash, catching his breath near where he landed, and ventured out in that direction through the river backwaters while water poured into my boots.

I spotted him, out on a small island and found myself speaking much more courteously to him than the newlyweds. (Ever hear of pig whispering?) Rabadash, though, had trust issues, as well as deep reservations about sharing his newly discovered island with a pigheaded pig farmer, and set out for another swim.

I still don't understand how I caught him. Waist deep, chasing a pig through flooded underbrush, praying under my breath and out loud, I didn't think I stood a chance. Like a personal miracle, my river-water-greased pig was mine.

He screamed. He bit. He flailed. I was exhausted but held on, all the adrenalin-driven pigheadedness in this pig farmer up against the pigness of the pig.

We struggled up the edge of the river, through water and underbrush and came back to the bridge. The last of the bridal party slowly crossed beside me as the pig squealed like it was in its death throes. This was no dog walk, with a hand-

some, well-trained dog on a leash and approving admirers.

As I walked, I kept thinking of my friend who says he raises pigs for 'comic relief.' With time to think, the *comic* was edging back into my consciousness, but, ready to drop, *relief* was nowhere to be found.

The fishermen marked my progress. I stopped and asked them if they'd prefer pork or fish for dinner. They admired my pig, asking if they could pet it as they had never touched a pig before. That request was graciously granted, though their second request for a photo of the pig farmer and the pig together was a little more difficult. Here my decrepit 'Amish' straw hat may have been my saving grace; it hung low over my face, protecting my anonymity as I gave my new-found friend Rabadash a long, approving smile for the photo.

So Rabadash, now Rabadash the *Very* Ridiculous, and I walked on home. He's in the pig shed, as piggish as ever, but he's resting like it's always been home.

I'm resting too in the house, back from my third pig hunt for Hamish and Piglet. A little sore, I'm thinking about becoming a *former* pig farmer while the score is tied. Clear thinking should settle the question, confirming the hard truths experience has repeatedly taught me. But then, there is my pigheadedness about pigs, and like a bad addiction, I'm afraid this won't go away.

And the sad truth is, while I'm most interested in honouring Rabadash's pigness, mutuality is missing. Rab isn't in the least preoccupied with honouring the pigheadedness of pig farmers.



Lance Bishop, seen here taking aim atop his 10 year old Quarter Horse Cloe, has incorporated his childhood dreams and passions of horseback archery into his family farm.



## RESHAPING THE FARM WITH PASSION

Nova Scotia's Lance Bishop looks to revitalize his family farm by incorporating horseback archery

BY MATT JONES

"In our farming endeavors, many of us find the farming itself to be the passion," says Lance Bishop, between sips of steaming hot chaga tea. A bow and a quiver full of arrows are on the kitchen table next to the tea.

"In my case, I found the passion that might make this farm become the best version of itself outside of anything remotely related to farming. So keep an open mind and follow your heart. Try to listen to that more and more as your compass."

### Childhood dreams

Bishop is the founder of Seawinds Horse Archers, a horseback archery club based on his family farm in Canning, Nova Scotia. His family farmed for sustenance, and on that property his passion for archery first blossomed.

"My brother gave me his old bow and I made arrows any way I could, from TV antennas or whatever," says Bishop. "We had a set of *World Book Encyclopedia* – that was our version of the internet, our connection to the outside world. I had a fascination with First Nations people and, in particular, the plains First Nations people, how they hunted and went to war on horseback with bows and arrows."

In the coming years, after puberty hit and girls became more interesting than archery, Bishop studied biology in university and worked a variety of jobs. Most formatively, he started a horse logging business which saw him spend every day in the woods with a horse for over five years. In 2005, he moved back to the family farm and bought a small cow herd with the intention of selling grass-fed beef at the Wolfville



**“I would never have imagined how I could make money off this; that it would be something that would help pay the mortgage here.”**

– Lance Bishop, founder, Seawinds Horse Archers

farmer’s market. He had up to 150 cows at one point.

“I felt like the farm was ready to be economically self-sustaining; turns out it wasn’t,” deadpans Bishop. Today, all but 50 of the farm’s 230 acres serve as a woodlot.

As Lance sat down to talk to *Small Farm Canada*, his wife, Kathleen was heading out in a pick-up truck with a menagerie of four-legged friends. The Bishops run Greendog Real Foods, a dog food business with a processing facility in Canning. Bishop is happy to work with the business, but dogs are his wife’s passion.

Bishop was trying to find his own passion when his thoughts returned to his childhood fantasies of horseback archery. In 2016, however, the World Book Encyclopedia had been replaced with the Internet.

## Studying at the feet of the master

“I Googled horseback archery and the first video was a guy in Hungary, cantering down a track, shooting an arrow every few seconds and hitting targets from 50 feet away. I thought it wasn’t possible.”

The video was of Lajos Kassai, a Hungarian who had spent 35 years following his own journey with horseback archery. Kassai is credited with reviving traditional horse archery and adapting it into a modern context. The video was a turning point in Bishop’s life. In February 2017, he travelled to Los Angeles to attend a clinic with the man himself, which

Bishop describes as like meeting a god. Kassai’s techniques, he says, are unique in the world of archery.

“Traditional archery is very much using your left brain — your thinking brain. In horseback archery, based on a martial art for warfare, speed is very important and doing it with the rhythm of the horse is very important. In order to bring an accurate arrow forward from yourself, you have to go from your left thinking brain to a more intuitively developed process that’s based on your right brain.”

After training with him several more times, including a 2018 visit to Kassai’s school in Hungary, Bishop began the process of being certified as a Kassai international horse archery judge. The final step in that process would be to form his own club and hold a competition with Kassai in attendance. Bishop and the members of the newly formed Seawinds Horse Archers Club built a track, a 99 meter long trench and set up a rotating target.

Bishop himself took first place, though he acknowledges that there wasn’t much local competition. Traditional archers are often an ill-fit for horseback archery, since it requires unlearning techniques that have likely become instinctual. The more likely fit is someone who has already been horseback riding for years and may even have their own stable of well-trained horses — though even that has adaptation challenges.

“You can’t hold the reins of the horse, so you have to control him somewhat with your legs and torso,” says Bishop. “It’s a challenge that a lot of riders aspire to learn.”

*continued on page 38*

## Making it work for the farm

In 2019, the Canadian Federation of Mounted Archery (for whom Bishop now serves as a board member and lead for coaching and safety), successfully petitioned equestrian insurers to offer a policy for horseback archery in Canada. Now insured, Bishop taught six weekend clinics at the farm and around the province that year and, between club dues and income from clinics and competitions, the club is paying for itself.

“I’m not losing money, but I am putting a lot of time into it,” says Bishop. “Just in this year, after going through this process in the dark a couple of years in a row, I’ve started to see how it could be more of an income maker for the farm.”

Bishop plans to build additional cabins on the farm and to hold an expanded competition and training camp for advanced archers. He is also looking at holding some children’s camps, with an end goal of children’s summer camps during the week, with beginner’s clinics on the weekends and competitions twice a year. The next competition will be held August 7th to 16th, with registration required by June 9th.

“I think the magic thing is the passion. It can be addictive for people. I would never have imagined how I could make money of this, that it would be something that would help pay the mortgage here.”

Bishop urges other farmers to examine their own passions and see how they might be incorporated into their farms. Sometimes there are social, economic or geographic factors that may prevent a small farm from reaching a desired level of productivity and profitability. But maybe what your farm needs is to look beyond that lens.

“What are the unique gifts of our place and our own personal talents? The answers might surprise us. I love to farm, but I love this too and, somewhat unexpectedly, the gifts of the land and my uncommon talents have started to reshape the enterprise, at least for the summer months. My game changer was giving myself the freedom to do something that wasn’t all about making the farm work. What do you really, really love? Do it! People will naturally want to be part of that kind of energy!”



Bishop took first place in a competition held at Seawind Archers, in August of last year. *Photo courtesy of Lance Bishop*



Bishop takes a moment to commune with a newer horse, a Haflinger named Honey. Building a strong bond with your horse is critical in any equestrian efforts, but especially horseback archery.



Long before actually firing an arrow atop a horse, drills like the one Bishop is demonstrating here help archers practice what it’s like shooting from a moving horse.



HELEN LAMMERS-HELPS

## The many uses of Instant Pots

Appliance helps get dinner on the table in a hurry

By now, everyone has likely heard of the Instant Pot. Even if you don't own one, there are probably a few people in your circle of friends and family who rave about how much they love their Instant Pots. Some people love them so much, they have multiple units.

I've had an Instant Pot for about two-and-a-half years. I don't fall into the "I don't know how I ever lived without it camp," but the Instant Pot does have its advantages.

For those not familiar with the Instant Pot, this Canadian invention is a combination pressure cooker, slow cooker, rice cooker and other appliances, all in one unit.

The main advantage of the Instant Pot, or one of the many similar appliances now available from other manufacturers, is that when the pressure-cooking feature is selected, you can cook food fast. A roast can be cooked to a tender state in just 40 minutes, for example.

This can be a real time-saver during the busy seasons on the farm.

However, it's important to note that the time it takes to build to pressure and release pressure, adds several minutes to the "cooking time" so, there aren't any time savings for pressure cooking foods with relatively short cooking times such as white rice or quinoa.

It's also hands-off cooking. You can basically throw everything into the pot and "set it & forget it" although Elmira, Ontario nutritionist, Amy Sonnenberg, recommends being present.

Another advantage of the Instant Pot is fewer dirty pots. By using the appliance's sauté function, you eliminate the need to sauté onions or brown meat in a separate frying pan.

The portability of the Instant Pot is another plus. You can use it during a kitchen renovation or take it to the cottage, campground or family reunion—anywhere you can plug it in. The Instant Pot also creates much less heat than preparing food on the stove top or oven, so it helps keep the house cooler during hot spells.

One of the disadvantages of the original Instant Pot, especially if you have a small kitchen, is its large size. It takes up a lot of counter space although smaller versions are now available as well.

Although the Instant Pot has a slow cooker function, most people I know prefer using a traditional crock pot over the Instant Pot's slow cooker function.

Some people don't use their Instant Pots because they find the buttons and operating instructions overwhelming. However, if you follow the steps in the manual, it will become easy with a little practice. There are also many helpful tutorials available online.

Another disadvantage for me, and this is a personal thing, is that when using the pressure feature, it's not convenient to open the lid to check on the food and sample it. This takes away from the tactile pleasure of cooking, in my opinion.

Despite some of the drawbacks, there is no denying that when time is tight, the Instant Pot can help you get a meal on the table fast. In an informal survey of my friends and family who regularly use their Instant Pots, being able to get dinner on the table in 30 minutes start-to-finish was their favourite feature.

Ginette likes to make simple, foolproof, weeknight family dinners in her Instant Pot. She especially likes to cook, "pot-in-pot" with "potatoes on the bottom, meatloaf on the trivet in its own meatloaf mold and carrots all around."

Amy likes to use her electric pressure cooker to make soup broth, dried beans, brown rice, and hard-boiled eggs. "My farm fresh eggs are so easy to peel and my soup broth is nutrient-rich and delicious," she says.

For Lisa, making beef stew in just 40 minutes, and rice pudding in 20, are her favourite ways to use her Instant Pot, while Dave cooks enough steel cut oats for the entire week in his Instant Pots.

When it comes to recipes, Marilyn Haugen, author of two Instant Pot cookbooks, recommends using recipes developed specifically for electric pressure cookers rather than trying to convert recipes.

This recipe for Instant Pot Greek Chicken from Lentils.org (the Saskatchewan Pulse Growers website) is one example of a simple one-pot meal that can be made in about half an hour.

*continued on page 40*

# Recipes



Greek chicken—Instant Pot style

*Photo courtesy Lentils.org*

## Instant Pot Greek Chicken

### Ingredients

- 1 Tbsp (15 mL) olive oil
- 1 onion, diced
- 4 garlic cloves, minced
- 1 1/2 cups (375 mL) chicken stock
- 6 boneless, skinless chicken thighs
- 2 small carrots, peeled and diced
- 1 cup (250 mL) green lentils
- 1 tsp (5 mL) dried rosemary
- 2 tsp (10 mL) dried oregano (I cut back a little as I found this much oregano tends to overpower the other flavours)
- 1 tsp (5 mL) paprika
- 1 lemon, juice and zest
- ½ cup (125 mL) crumbled Feta cheese
- ¼ cup (60 mL) chopped fresh parsley (optional)
- Salt and pepper, to taste

### Method

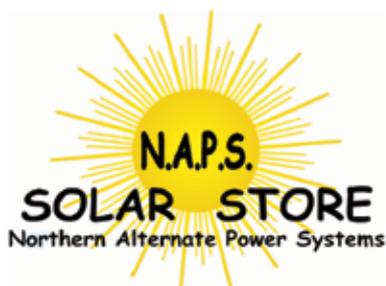
- Press “sauté” button on Instant Pot and add the oil. Once hot, add onion and garlic and a sprinkle of salt. Cook for 3-5 minutes, until softened.
- Press cancel to stop the sauté function. Pour in stock, scraping up any browned bits. Add carrots, lentils, rosemary, oregano, and paprika to the pot and stir to combine.
- Place chicken thighs on top of the lentil mixture.
- Seal the lid and set to cook on HIGH pressure for 15 minutes.
- Once the timer has stopped, let the pressure release naturally for 10 minutes, then carefully turn the vent to release the remaining pressure completely before opening the lid.
- Season to taste with salt and pepper. Stir in lemon zest and juice, feta and garnish with parsley.

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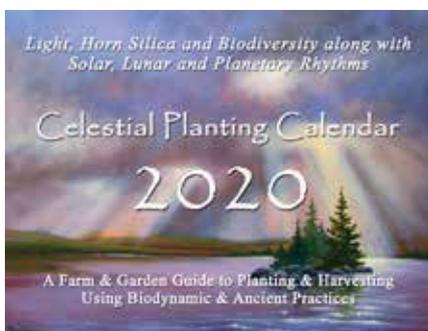


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# Notes from the Larkspur Supper Club

DAN NEEDLES

## The Canadian collective in a time of peril

As I count my blessings, I put at the very top of the list the accident of my birth in a country that reacts to a crisis by rushing out to buy toilet paper. By contrast, our neighbours south of the border dash out to buy ammunition.

Canada has always been the North American 'other,' a land of limited opportunity where the cult of the rugged individual never really took root. That is because it is hard to pretend you can get through a Canadian winter by yourself. So, we are more likely to accept the idea that you can't get through a pandemic by yourself either. In the past few weeks, as the countryside gradually locked down, I watched my neighbourhood revert to familiar patterns of self-care that I have seen over my lifetime: checking on the elderly, distributing essentials, sharing and volunteering. The Canadian collective is alive and well.

This time, my efforts to make a contribution met a stern response: "Go home and stay put!" said my family doctor. "You are a wind-broke old horse and very much in the risk group."

I have been holed up on my little farm for several weeks now which turns out to be another item near the top of my list of blessings. The only drawback to riding out the crisis on a farm is there is no excuse for idleness. I am reading about people in downtown condos taking advantage of their isolation by learning jazz piano or finally figuring out how to podcast and it all sounds very creative and therapeutic. But the farm is a jealous mistress and wants your undivided attention. It cares nothing for pandemics and stock market meltdowns because this is spring after all, the most demanding season of the year with the most rigid deadlines.

Self-isolation is something a farmer does naturally. (And a writer, too, for that matter.) Our first instinct in a crisis is to get into a machine by ourselves and drive in circles for days on end. When the first Covid case struck our community I should have been watching CNN but I was too busy jump-starting lambs with artificial colostrum, administering four feedings of milk replacer daily and giving selenium shots and Tasvax. That and regular battles with reluctant mothers trying to get them to change their minds about parenting kept me occupied for several days.

In the house I had become a reluctant parent myself as all four of my offspring lost their jobs. The two boys came home and the two girls out West occupied Facetime with us for an hour every day. I had to supervise work projects to keep them all away from their screens. The boys pruned the apple trees, fixed fence, burned brush and started building a proper shop for me, something that has been put off every year since we took up permanent residence here 32 years ago. The girls reorganized their work lives on-line and became a permanent presence at the dinner table every evening.

A friend of mine called to ask if we had a good supply of everything. The boys burst out laughing because their mother has been prepared for nuclear winter since 1988. Our basement looks like a survivalist's mail-order warehouse. If this keeps up beyond 2024 we could be in trouble. In the meantime, since Canada produces 70 per cent of the food we consume there should not be any dramatic shortages. The produce aisle may soon go bare as supplies from California dry up, but Canadians are great gardeners and a vast amount of seedlings are being put under lights this week across the country. We can grow a lot of zucchini without very much encouragement.

Big changes lie ahead of us. The polio epidemics that flared up every summer of my childhood in the 1950s forged a coalition between scientists and politicians that gave us the Salk vaccine and paved the way for universal government health insurance by 1966. The polio experience also had an impact on me personally because I shared a desk for eight years of public school with a farm boy on crutches and I learned that he could still play baseball as an umpire, go fishing, sing in the church choir, get married and bombard me with cat videos by email for decades.

A lot of our differences will probably fade as the summer unfolds. As mother used to say, "These things are sent to try us." This particular trial will be very unusual if it does not remind us that the Canadian collective is a very sturdy association worth its weight in gold.





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