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Get social with Small Farm Canada



Field Notes

TOM HENRY

The farmer takes a holiday Or does he?

If the folks who run the National Museum of American History, in Washington, DC, want young urban visitors to understand how things have changed in agriculture in the last 150 years they could do worse than the barbed wire exhibit. Yes, they have such a collection, which archives early attempts at developing a fence wire to help pioneers enclose land for livestock. Barbed wire was crucial to ending the era of free-roaming herds of cattle and beginning farming in a form we would recognize.

Sadly, the wire collection was in storage when I visited DC recently. It had been, along with the Lincoln Memorial, on my bucket list. But there was plenty more to engage a holidaying farmer.

If you are like me, you don't really take a holiday from farming; you may holiday from the farm itself, but the farmer brain is with you all the time, field spotting from the airliner window as you fly over the Great Plains, studying the offerings of local food on restaurant menus, checking out the barns in the background of a painting in the National Gallery of Art.

I returned from my trip to the US capital not so much cultured (way too late for that anyway) as reflective on the role of farming in American life, past and present.

--Yes, the Smithsonian may have archived samples of barbed wire, and yes, they may put those samples on display from time to time, but in the nearby countryside of Virginia and Maryland, where my wife and I meandered for a day in a rental car, I was taken aback by the lack of fencing. We passed field after field in the rolling country adjacent to the Blue Ridge Mountains that was wide open. You need fencing if you have livestock, so the only possible explanation is that the livestock has gone inside. Pigs and sheep in barns, cattle in feedlots.

--When America elected a Jefferson, Adams or a Lincoln, they elected a president with firsthand farming knowledge. Jefferson was an early advocate of succession cropping, Lincoln hired out as a farm hand especially adept with an axe, and Adams was an avid experimenter with compost, according to one account "using ashes, marsh mud, seaweed and 'whatever dung he could get' from Boston."

The last American president keenly involved in farming was Jimmy Carter. He grew peanuts. Maybe I'm reading too much into presidential backgrounds, but does this not explain

why we hear more about agricultural subsidies from the White House than we do about healthy soil?

--A presentation at Antietam National Battlefield, site of one of the largest and most definitive battles in the American Civil War, included a lengthy description of how a field of corn played a crucial role in the battle, and was the setting for some of the worst fighting between Union and Confederate soldiers.

Any farmer who has traveled will have wrestled with the dilemma of how much to simply walk away from the day-to-day goings on, and how much, especially given the easy access of smart phones, to remain involved. Personally, I like to remain involved for these twin reasons: dealing with an issue will be simpler if I do it right away—even at distance—than when I get back; and getting an ill-timed, farm-related call can be refreshing. I was in the National Portrait Gallery, doing my best to be reflective and thoughtful in front of Obama's distinctive "green" portrait, when my phone buzzed.

"Tom Henry here."

"Where's my ruffle fat?"

"Huh?"

"Ruffle fat. It was supposed to be delivered today."

"What is ruffle fat?"

"Never mind. I'll buy elsewhere."

"Wait, who is this?"

It was too late. Call was over. I looked at the painting of Barack Obama, then at the paintings of others in the room—of Kennedy, and Johnson, of Reagan—and for one brief moment I felt united by our problems, some enormous and consequential to history, and others infinitesimally small and consequential only to a travelling farmer from Vancouver Island, but still problems, problems, problems.

* * *

Congratulations to two SFC writers for their recent achievements. Columnist Dan Needles received a Silver in the Press Column category of the Canadian Farm Writers' Federation (CFWF), for his column "The disappointment phase of technology" (S/O, 2018), and freelance writer Alice Guthrie received a Bronze in the Press Feature category, CFWF, for her feature, "From a voice, buffalo" (M/A, 2019).



Rescue turkey

Thank you for the story on turkeys [Sept/Oct SFC]. A year ago my husband, Gary Young, said, "We're going for a drive, but no dogs can come."

"What's up?"

"You'll see."

After a drive of twenty minutes we turned off the highway into a dirt lane and from there to a farmyard a kilometre in. It was a bit of a mess. A teenager met us and he and Gary headed into the corral where there were chickens and turkeys.

Staggering back to the car, the kid had his arms around a big tom turkey. A turkey! My husband opened the back and assembled the cage he had brought along.

I was not happy.

"What's with the turkey? Don't I have enough to do?"

"It's a rescue."

"Right." He had me at 'rescue'.

"He is always scrapping with the other one, so they want him gone."

At home he was unloaded and escorted in with the chickens. He was a year-old and a beautiful bronze. You couldn't touch him or he would bite. Bite and twist. Nasty and not at all grateful for a new home.

A year later he is a sweetheart named Chester. I can give him hugs and scratch his chest where new feathers are coming in. No more biting. He has his own room and a big perch to fit his large feet. He can be hand-fed and sociable. He preens and struts when women come into his grassy compound. Men get a different bird altogether. He sidles up to them all flags flying and bumps them antagonistically with his chest while aiming to step on their shoes. A personality to admire who has found his voice.

Everyone should have a Chester.

*Maureen Foss
Lac La Hache, BC*

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BOOK REVIEW

Missing links?

Why bangers are better

Review of *Home Sausage Making: From fresh and cooked to smoked, dried, and cured*. 4th Edition. By Charles G. Reavis & Evelyn Battaglia. Storey Publishing. 2017. 367 pp. Reviewed by Janet Wallace

The first time, I took pigs to the abattoir, I surprised the butcher with my order. While my customers wanted hams, pork chops and the regular cuts, I wanted bacon, pork loin and almost everything else ground up. And I wanted the extra fat from all the pigs I brought in. The reason? I love sausages.

The idea of making sausages seemed intimidating but I couldn't swallow the idea of having a butcher add store-bought herbs, garlic salt with anti-caking agents, and who knows what else to my pork.

So, armed with the 3rd Edition of *Home Sausage Making*, I produced six types of sausages flavoured with herbs and garlic from my garden. Over the following years, I made hundreds of pounds of pork and mutton sausages following the book's recipes and tips. When I stopped raising pigs, I gave the book to a farming friend and soon after, her pork, goat and lamb sausages became a huge hit at her farmers' market. All of this is to say the 3rd Edition served me well.

The 4th Edition has been "completely revised and updated" and contains 120 new recipes. I got it because

I want to return to making sausage even though I will need to buy meat from the farmers' market. This edition is amazing with more than 100 recipes for sausages from around the world, such as Vietnamese pork and lemongrass sausage, Moroccan goat sausage, Fried chicken sausage, and Black bean and smoked corn sausage. Yes, a

new addition to the book is vegetarian sausages – and many of the recipes sound great (even though I don't consider them 'real' sausages). Beyond the traditional pork, beef and lamb recipes, the book also covers seafood, poultry and wild game sausages.

I particularly enjoyed reading the profiles of 22 sausage-makers (one Canadian, the others American). Full-time butchers, hobbyists, ranchers, hunters and even vegans provide their advice and insight into making delicious sausages. For cookbook junkies, the profiles transform the book from a collection of how-to advice and recipes to an interesting and fun reading



Home sausage makers will find 120 new recipes in the 4th edition of Reavis' and Battaglia's best seller.

experience.

The 4th Edition of *Home Sausage Making* is an invaluable guide to sausage-making for both first-timers and experienced producers. Whether you want to produce a few pounds of sausage now and then for home use or process your livestock into sausage for the farmers' market, this is the book to have.

BOOK REVIEW

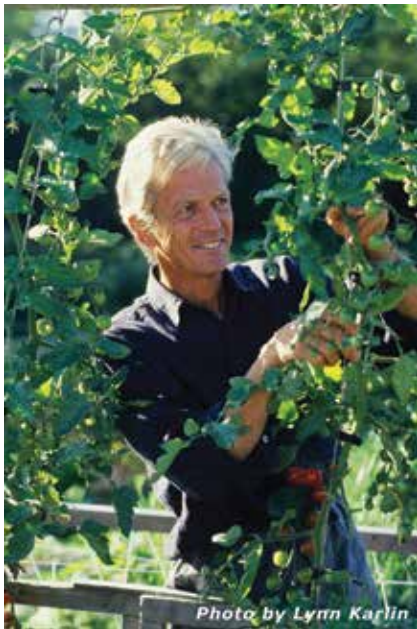
A classic, revised

Eliot Coleman updates for the 30th anniversary

The New Organic Grower: A master's manual of tools and techniques for the home and market gardener. By Eliot Coleman. 3rd Edition. Chelsea Green Publishing. 2018. 288 pp.

Reviewed by Janet Wallace

The New Organic Grower, the go-to book for so many organic market gardeners, has been revised. The 30th Anniversary issue of the book contains much of the invaluable content from the last two editions – such as details on designing a crop rotation to meet your needs, integrating cover crops into a market garden and using soil blocks. Again, there is



Eliot Coleman has updated his classic introduction to the principles of organic farming.

an excellent section on tools for the small-scale grower. This section has been updated and includes many new tools, some have actually been designed in collaboration with Coleman. The season extension section has also been expanded and revised. Also, the pest-eating ducks are gone from the livestock section and replaced with chickens, with schematics to build mobile “chickshaws.”

The new *The New Organic Grower* doesn't have a huge amount of new information. If you have one of the older editions, you might be better off investing in one of Coleman's other books. However, if you don't have this book

and are interested in market gardening or have a large backyard garden, this is the book for you. *The New Organic Grower* covers the basics for new gardeners while also delving into details to help experienced market growers fine-tune their growing methods, marketing techniques, season extension and overall efficiency. For those people just dreaming of farming, Eliot Coleman describes the principles of organic farming in a way that is approachable, interesting and rich in integrity.

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equipment, livestock,
garden tips, marketing
ideas, Dan Needles
and more!

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The magic of marigolds

Think about the aroma released when you start to peel an orange . . . many people might like the smell, but not whiteflies. The odour comes from limonene, a volatile organic compound found in certain plants, including citrus (particularly the peels) and marigolds. Limonene is the active ingredient responsible, at least in part, for the pest-repellent properties of marigolds.

Planting marigolds among vegetables is a traditional form of pest control. British scientists found that interspersing marigolds among tomato plants in greenhouses reduced the incidence of whitefly, a common greenhouse pest. Whiteflies were repelled by both the leaves and flowers of the marigolds, with the flowers having double the amount



of limonene and a greater repellent effect. The researchers compared the effect of the plants to that of dispensers releasing the chemical limonene and found the plants were a more powerful repellent.

The key to using marigolds is to plant them from the start. When marigolds were moved into the greenhouse after a whitefly infestation was in progress, they had only a minimal effect. Dispensers were more effective in this case.

Source: Conboy, NJA, T McDaniel, A Ormerod, et al. Companion planting with French marigolds protects tomato plants from glasshouse whiteflies through the emission of airborne limonene. PLOS ONE, 2019; 14 (3): e0213071 DOI: 10.1371/journal.pone.0213071

Closing the loop on the P cycle

Phosphorus (P) is needed by plants and often found in the soil — the challenge is having an adequate and constant supply of phosphorus in a form that plants can use. Canadian scientists have been studying the P cycle on farms, particularly organic farms, for several years. A recently published paper summarizes many of the findings.

First, the researchers discovered that “Crop yields could be maintained at lower than recommended soil test P concentrations.” One way to do this is by increasing the availability of the P already in the soil. Farmers can improve a crop’s access to P by ensuring there are high levels of soil organic matter and by supporting arbuscular mycorrhizal fungi (AMF). AMF form symbiotic relationships with many plant species, particularly legumes, and enable the plant roots to access more water and nutrients including P. These helpful fungi are harmed by many common farming practices including tillage, application of high rates of soluble P fertilizers, leaving soil bare and monoculture. Farmers can protect AMF by avoiding these destructive practices and also using diverse crop rotations that include green manures, particularly mixes of cover crops that include legumes.

As mined sources of rock phosphate are being depleted, soil scientists are seeking other sources of phosphorus. Struvite might be the answer. In traditional mixed farms, P was removed from the fields when crops were harvested but much was

later returned in the form of livestock bedding mixed with urine (a source of P) and manure.

Struvite is created by precipitation and crystallization of liquids containing urine or other high-P materials. The result is a high-phosphorus substance that can be used as a fertilizer. The original source of the material affects the quality of the struvite. For example, struvite can be made from municipal wastewater but this may contain undesirable chemicals that have also been flushed down the drain. Another alternative is to produce struvite from livestock urine and manure or food processing wastes.

The researchers suggest a multi-faceted approach to P availability is needed. For example, plant breeders might select for crops that form symbiotic relationships with AMF or are more efficient at using P. Many of the practices recommended to improve the availability of P (e.g., complex crop rotations, protecting soil organic matter, keeping soil covered) are generally good soil management practices with many other benefits.

Source: Schneider, KD, JR Thiessen Martens, F Zvomuya, DK Reid, TD Fraser, DH Lynch, IP O’Halloran and HF Wilson. Options for Improved Phosphorus Cycling and Use in Agriculture at the Field and Regional Scales. Journal of Environmental Quality. Vol. 48 No. 5, p. 1247-1264. <https://dl.sciencesocieties.org/publications/jeq/abstracts/48/5/1247>

What lives on your apples?

When comparing the microbiota of organic and non-organic apples, you might as well be comparing apples and oranges. Well, perhaps the differences aren't quite as stark as that, but they are significant.

All parts of an apple contain bacteria and we consume about 114 million bacterial cells with every apple we eat. "Interestingly, fruit pulp and seeds were bacterial hot spots, while the peel was less colonized," according to the researchers; so washing an apple won't affect how many bacteria you consume. The number of bacteria were similar on all the apples in the study regardless of how they were grown.



Apples grown organically, however, had a more diverse community of bacteria, which included *Lactobacillus* and other bacteria frequently used in probiotics. The apples grown non-organically, on the other hand, had significantly greater abundance of *Enterobacteriales*, which can be responsible for food-borne outbreaks. The scientists conclude that "the highly diverse microbiome of organically managed apples might probably limit or hamper the abundance of human pathogens, simply by outcompeting them; negative correlations between human pathogen abundance and the natural microbiome of fresh produce has already been described."

Source: B Wassermann, H Müller and G Berg. 2019. *An Apple a Day: Which Bacteria Do We Eat With Organic and Conventional Apples?* *Frontiers in Microbiology*. Volume 10. July. Article 1629. Pages 1-13.

Then and now, changing definitions



Drone



Privacy Concerns



Spam

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Underestimating the impact of neonics

Aphelinus abdominalis is a tiny creature that can have a big impact on a farm. The parasitoid wasp, about 1 cm long, attacks aphids in two ways. The wasp simply eats aphid eggs but also lays eggs in aphid eggs or aphid nymphs. The immature wasps later eat the aphid larvae from the inside out.

Researchers studied how these beneficial organisms are affected by thiacloprid, a neonicotinoid that was *not* included in the recent EU ban on the outdoor use of several related pesticides. They found that, like many wasps and bees, *A. abdominalis* is highly sensitive to neonicotinoid pesticides. When the pesticide was mixed with a fungicide (using the common practice of tank mixing agrochemicals), the mortality rates were much more significant. Given that most studies examine the effect of only one chemical on an organism at time, the effect of neonicotinoids may be underestimated.

Source: Willow J, A Silva E Veromann, G Smagghe. 2019. *Acute effect of low-dose thiacloprid exposure synergised by tebuconazole in a parasitoid wasp.* *PLOS ONE*. Volume 14. Issue 2: e0212456.

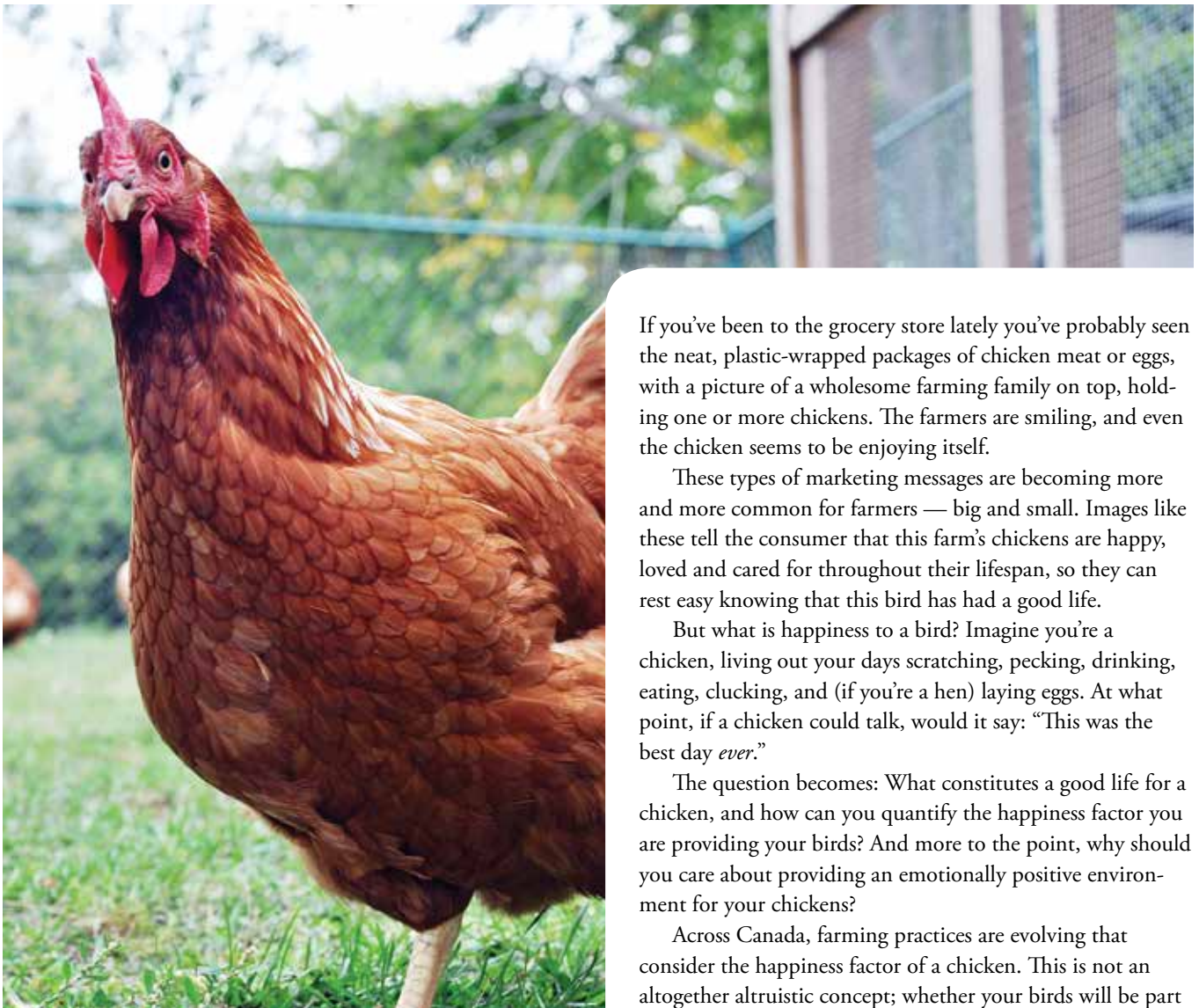


Poultry

AMY HOGUE

Raising happy chickens

Chicken psychology 101



If given space chickens will most likely stay busy too, which means less pecking and bullying.

If you've been to the grocery store lately you've probably seen the neat, plastic-wrapped packages of chicken meat or eggs, with a picture of a wholesome farming family on top, holding one or more chickens. The farmers are smiling, and even the chicken seems to be enjoying itself.

These types of marketing messages are becoming more and more common for farmers — big and small. Images like these tell the consumer that this farm's chickens are happy, loved and cared for throughout their lifespan, so they can rest easy knowing that this bird has had a good life.

But what is happiness to a bird? Imagine you're a chicken, living out your days scratching, pecking, drinking, eating, clucking, and (if you're a hen) laying eggs. At what point, if a chicken could talk, would it say: "This was the best day *ever*."

The question becomes: What constitutes a good life for a chicken, and how can you quantify the happiness factor you are providing your birds? And more to the point, why should you care about providing an emotionally positive environment for your chickens?

Across Canada, farming practices are evolving that consider the happiness factor of a chicken. This is not an altogether altruistic concept; whether your birds will be part of your farm life for only a few months or for several years,

Chickens like treats, and those treats can be leftover garden scraps.



Increasing the happiness factor in your chicken coop

1 Chickens need friends — even if their best friend is you

Chickens prefer to be among their own kind, but in a pinch a hen will cozy up to just about any other animal, or human, too. Chickens have been known to bond with cats, dogs, calves, goats, ducks (even humans), and they seem to need that bonding and interaction in order to be satisfied with their chicken lot in life.

2 Fresh air and sunlight — the big two

Would you want to stay inside all day breathing stale air permeated with ammonia and other by-products of manure decomposition? Most likely your birds aren't interested in that, either. Ensuring your birds have access to fresh air and sunlight can go a long way in giving them a chance at a happy life.

3 Chickens like treats, too

Imagine if all you ate every day was the same diet, day in and day out? Don't be fooled by the whole 'Animals don't care if they eat the same thing every day' argument. Proof that this isn't true is the speed in which any livestock will move when they see the treat bucket in your hands. After pigs, chickens are the next best way of getting rid of gardens scraps and leftovers (other than those containing poultry). These treats will be like crack to your hens or broilers.

4 Get to know their personalities

Each of your birds will have their own quirky chicken-personality, and it pays to get to know them so they aren't just nameless, faceless birds. After all, if you're raising layers, these birds will be part of your life for a few years, so putting a name to a chicken face will go far in impacting how you treat them.

5 Give them space

Just like people, poultry fare better when they have lots of space. When contained in a coop, more space will mean less pecking and bullying, and healthier birds overall. Make sure you have enough nesting boxes so everyone can have their turn, but don't be surprised if all your hens prefer to use one box, sometimes three at a time. This gives them something to fight about, which leads naturally to point number six!

6 Keep them busy — chickens get bored too

Bored hens will start pecking each other which can be problematic. You can keep your birds happy and occupied quickly and easily by periodically throwing a bale of straw into the coop for them to tear apart, or by hanging something from the middle of the coop for them to peck. Be creative; chickens love to explore new additions to their coop.

Poultry



Good housing is a measure of animal well-being. For egg layers this means enough nest boxes to avoid overcrowding.

happy birds also tend to be productive birds, and farm practices in general have been trending towards ensuring a high quality of life for livestock.

The National Farm Animal Care Council (NFACC) Code of Practice for poultry provides guidance on how to sustainably farm poultry for meat or eggs, while simultaneously preserving a higher quality of life for the chicken. A sample “Bird Welfare Policy” is included in the NFACC code of practice, and outlines a farmer’s commitment to their animals: “[*Our company/farm*] is committed to responsible farm animal care and handling. That means animals in our care deserve to be healthy, safe and well cared for.”

In essence, they are committed to ensuring a happy life for their birds. But how do you measure how happy a chicken is? We don’t speak chicken, and while it may seem at a glance like there’s not a whole lot going on in a chicken’s head, the truth is that chickens are capable of complex behaviours and feel the

pain and discomfort from illness injury and poor conditions just as abjectly as any animal.

One organization in the UK is attempting to quantify that happiness factor: The Welfare Quality Assessment protocol for poultry was created by the Welfare Quality Network and provides a certification standard similar in some ways to organic certifications. The Welfare Quality Assessment Protocol suggests that animals’ happiness can be measured, and provides a framework for analyzing the emotions a chicken might have in response to certain welfare conditions.

For example, one of the principles of the protocol is that poultry feel good, and the criteria analyzed to determine if this principle exists is absence of prolonged hunger or thirst. The measurement takes place at the slaughterhouse with evaluation of the carcass. Similarly, good housing is another principle that’s evaluated as part of the protocol, with the criteria being ease of movement, thermal comfort and comfortable resting space. The



Your birds' happiness factor is fairly common sense – chickens are like any other type of mammal, from pigs to cattle to humans – they do better when they live a varied, physically healthy and stress-free life.

measurement involves an analysis of the litter quality in the housing, stocking density, evaluation of poultry behaviours for panting, huddling etc. and overall cleanliness of the bird.

Not surprisingly, it seems that based on the Welfare Quality Assessment Protocol, increasing your birds' happiness factor is fairly common sense – chickens are like any other type of mammal, from pigs to cattle to humans – they do better when they live a varied, physically healthy and stress-free life.

Perhaps the key to ensuring happy chickens lies in how you look at them. Think of your chicken coop like boarding school – what would you want your children to have if they were sent away to school? Lots of fresh air and sunlight, room to move around, a varied curriculum, friends.

It's not rocket science, after all.



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Equipment

DAN KERR

Cable news

With a few simple tools, anyone can do basic rewiring on equipment

When I got my Muskeg into the shop and removed the engine side panels I was surprised at the size of the wire harness for such a basic machine and shocked by the lack of any fuses. Often I've seen old equipment burnt and just wrote it off to the volatility of gasoline. The lack of fuses made me think there are other possible causes for equipment fires.

The oversized harness was a result of every component having its own ground wire, which is a bit of an overkill when considering that the entire machine (such as farm equipment) is primarily steel either bolted or welded together. That said, most wiring problems can be attributed to a 'bad ground' so insuring that the engine and battery are properly grounded to the frame is essential.

If you are rewiring a machine consider the addition of a negative cut off switch. The battery is wired to the switch and the switch grounded to the frame. After use, final shut down is to turn off the ground switch; they are relatively inexpensive, easy to install and insure that the power is shut down.

Whether you are just doing some minor repairs on equipment, the installation of a new gauge or component or a total rewire job, basic tools and supplies will be needed.

Wire and connectors

Hardware stores and supply shops and some box stores carry basic packs of needed items. I have found that Princess Auto has a good selection of bulk mixed connectors and 25' rolls of different gauge wire and tools.

Epoxy lined shrink tubing

The other item on the to-purchase list should include epoxy lined shrink tubing (ELST). As the connectors are aluminum, they break down when exposed to the environment, very much so when exposed to components such as salt. I used this



A good crimper tool is all you need; it will allow you to cut, strip and attach the fitting to the wire.



Having a selection of crimp-on fittings is a good idea.



Dan's selection of epoxy lined (only) shrink tubing, sized for the job; it should fit as snug as possible.

product on a trailer rewire in 1998. This year I rewired the trailer with all new LED lights and wire as the wire loom had begun to crack. But when I cut open an ELST sealed connector it was like new. The epoxy seals the fitting of everything. I have found that the best ST is from 'Brafasco', the best for my area is 'Fastenal' which sell ELST in bulk bags. The ST does what is expected and there is sufficient epoxy that it oozes out properly. The ELST should be adequate size to sleeve the butt connectors and terminals to the wire.

Fuse block/holder

With my Muskeg and airplane I installed a fuse block which uses regular auto fuses (AF). If a fuse blows a corresponding



A perfect crimp with the proper tool.



When the shrink tubing is sleeved over the fitting there should be equal amount on either end.



When heated, epoxy will ooze out the end indicating it is sealed.

to invest in some band-aids as well.

Another tool is a heat gun. Hairdryers are not hot enough, cigarette lighters will work fine but too much and everything will burn or melt and if working around gasoline you might burn as well. Note here: the working end of the heat gun gets real hot so beware where you set it down. *continued on page 16*

LED light illuminates to reveal same. Inline AF holders and weather sealed ones are also available.

Tools

The primary tool is a wire crimper/stripper. Mine is a better variety and includes cutter, multi gauge stripper, crimper, re-thread and shear. You could possibly get away with 'Vise Grips' for crimping and an 'X-Acto' knife for stripping but you may want

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Equipment



My wiring drawer includes a selection of meters, nylon ties, fuses, wire and a heat gun.



An example of shrink tubing on the magneto fitting of my airplane, the epoxy seals the joint and will prevent accidental unplugging.



The Muskeg rewire job included a fuse box (top), negative shut off (centre) and fuse link (bottom) to the ignition switch. Note the heavy + battery wire; it's sleeved through a piece of heater hose to the starter to prevent chaffing.

Odds and ends

Electrical tape is used for certain insulating duties so a roll is handy. Nylon ties are also handy to keep the loom grouped and the job neat, this isn't a fetish it's safety oriented. Keeping the loom tight and away from hot engine components, revolving shafts and movement that can cause wire chafing and eventual shorting will prevent problems. Grommets for wires passing through metal is needed to prevent chafing and shorts, I used an old piece of heater hose to insulate the positive wire to the starter.

Getting started

When I decided to do a re-wire on the Muskeg the other thing that I couldn't get over was the lack of consistency. Removing the old harness revealed what started out white turned to red and on to green, which really simplified things, so I made my own schematic drawing to make the re-wire work.

When I added an electric fuel pump I started by routing the designated wire from the fuse block to the pump taking care to route it away from obstructions. I attached an insulated blade connector to the wire and a ring terminal connector from the pump to the frame for ground. The other end of the feed was given its own fuse and labeled. This basic step was followed for each wire replaced which allowed me to use designated colours from start to end.

The fuse block I attached was located close to the battery and I energized it with a fuse link. The fuse link was assembled in the following order: ring connector, wire, fuse block, wire and finally a ring connector attached to ignition switch. By doing this I ensured that the wire feeding the ignition was also fused.

When choosing your wire you have to consider that all wire has an amperage (AMP) draw so the longer the wire the more the AMP draw. All electrical components will be labeled as to their AMP draw and if your wire is less than 30' the following chart is a safe guide as to which American Wire Gauge (AWG) to use for the components AMP draw:

COMPONENT AMP=WIRE AWG SIZE

5-10	AMP	=16 AWG
15-20	AMP	=14 AWG
25	AMP	=12AWG
30	AMP	=10AWG

If you're rewiring to replace old cracked wires or add a component, follow the existing wire loom and replace or add as you go one wire at a time making notes or drawing a wire diagram, and label where each wire is going when it leaves the fuse block. I had to wire my first 8N Ford as it had no wiring on it at all when I got it, but I just followed the original wiring diagram (which was very sparse) to complete the job. As long as you have a supply of fuses and a fuse in place it's as safe as it gets, the fuse will let you know if you make a mistake.



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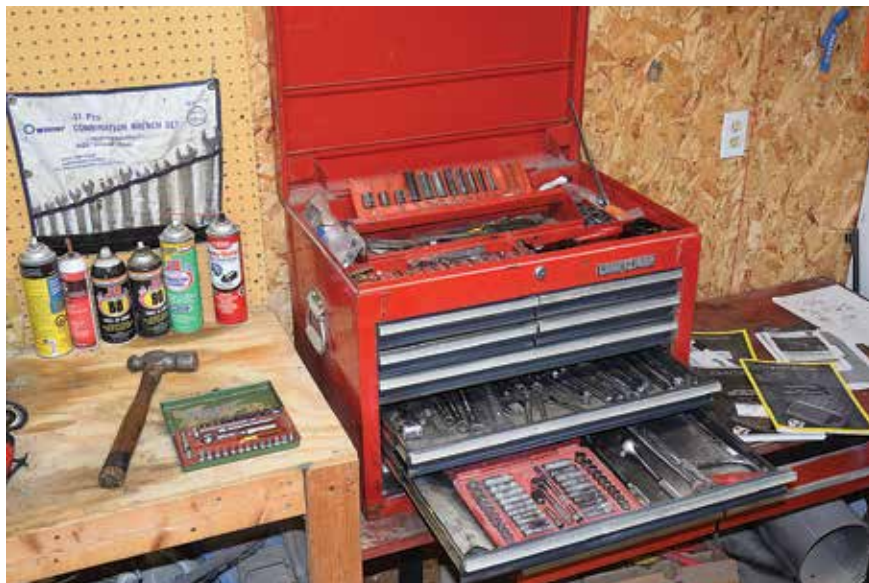
Check out our selection of great books on page 40-41 of this issue!





Repairs made simple

If you enjoy tools, own as many as you can afford. Otherwise, own only what you need.



A simple toolbox stocked with basic tools can accomplish amazing repairs in the hands of anyone willing to get their hands dirty and learn by doing.

Save money by fixing farm machinery yourself

BY DAN ANDERSON

Whether you farm thousands of acres or work a hobby farm on weekends, you're eventually going to have to get your hands greasy. Farming requires equipment, and equipment breaks down and needs to be repaired. Those repairs may be as simple as changing sweeps on a tillage tool, or as complex as rebuilding the motor on a chore tractor. The challenge is to determine if you're qualified to do that particular repair, and if so, how to accomplish the task.

First, acknowledge who you are. Some people are mechanically inclined. Other folks can work wonders with livestock, or have a sixth sense about working with plants, but don't know which end of a hammer to hold. Everybody has

talents and should focus on what they enjoy and what they're good at. If you've always been fascinated by machinery, then grab a wrench and dig into whatever needs to be fixed. But if you view machines as annoying necessities, and you'd rather spend time working with livestock or tending crops, consider hiring a professional mechanic to deal with mechanical problems. There's no shame in focusing on your strengths.

Having said that, most people (once they learn which end of a hammer to hold) can do basic maintenance and repairs to machinery and save the cost of paying someone else to do the work. With a few basic tools, a positive attitude and a supply of hand cleaner and

Should you do-it-yourself?

You can save money by maintaining and repairing your own equipment. You can also waste time and money if you don't have the experience, tools and especially the mindset to do the work properly. Here are guidelines to help determine when to DIY, and when to hire a professional mechanic.

Hire a professional mechanic if you:

- don't own at least a ball peen hammer and a Crescent wrench.
- don't understand the significance of "righty-tighty, lefty-loosey."
- were a failure as a child with building blocks and Legos, but a prodigy with finger paints and nap time.
- don't have, or aren't willing to spend the money, for blocks, jacks and tools to safely support machinery during repairs.

Dig in and do-it-yourself if you:

- occasionally, sort of, enjoy the taste of grease, oil or unidentified grime that ends up on your lips or in your mouth.
- look forward to any excuse to buy another hammer, wrench or special tool.
- are fascinated, or at least mildly interested, in how things work, and, "...always wondered what the inside of that gearbox looks like."
- are willing to invest money to save money. As in, spend \$100 to buy a repair manual or special tool that will eventually save thousands of dollars during future repairs.
- are willing to learn by doing.
- view mistakes as learning opportunities.



If repairs will require disassembling machinery as far as this tractor has been disassembled, it's a job for a professional mechanic with special tools, jacks, and experience.

shop towels, great things can be accomplished.

Basic tools to work on farm equipment include a 24-ounce ball peen hammer, sets of combination wrenches in both inch (3/8" to 1-1/4") and metric (8 mm to 30 mm) measurements, and some adjustable (aka "Crescent") wrenches. Add a set of Allen wrenches, a few punches/drifts, as well as a set of flat- and Phillips-head screwdrivers, and you can do amazing things. Especially if you have Internet access.

You can find instructions on how to fix nearly anything on the Internet. Sometimes you can find the manufacturer's official repair manual for a particular machine, which not only tells how to disassemble and reassemble things, but offers part numbers to help order replacement components. If manufacturers' repair manuals don't pop up during a Google search using the machine's exact model number, there's probably a range of amateur offerings on how to make those repairs. Whether those amateur offerings are valid is one of the risks of using the Internet as a reference. Be wary of any online "How to..." videos that have one or more open beer cans on-screen.

Fortunately, many agricultural repairs are straightforward and don't require detailed instructions for successful completion. They're simply a matter of removing shields and parts to access the broken component, replacing the broken pieces, then reassembling things in reverse order. If the disassembly sequence is not obvious, or there could be questions about how things should be reassembled, take cell phone photos before and during disassembly to use as a reference. Then, as each piece is removed, place it off to the side in chronological order. Reassemble mounting bolts and nuts in the holes from which they were removed once the piece is laid aside. That way you'll know exactly which nut and bolt fits in each hole, compared to dumping them all in a coffee can and having to sort and guess which bolts go in what hole during reassembly.

Do not follow the example of professional mechanics who casually toss parts, bolts and nuts in a pile beside the machine. They've probably made that repair dozens of times and know exactly where everything goes. Watch that same mechanic perform a repair he's never done before, and all the parts and pieces will be carefully laid out and organized in a chronological sequence that he can follow in reverse order when it comes time to put things back together.

Once the damaged parts have been replaced and it's time to start reassembling things, is it a good strategy to re-use undamaged parts? Yes and no. Undamaged bolts and nuts are generally safe to re-use. Undamaged bearings, bearing flanges and gears are probably okay to re-install. Professional mechanics prefer to replace all bearings, flanges and related components when making repairs to ensure the repairs maintain their reputation; when you're working on your own machinery you can make the call about which parts to re-use.

There are some parts that should always be replaced. Things to *always* replace during repairs include gaskets, rubber o-rings, seals and other components that control/prevent fluid or pressure leakage. Don't skimp on those items. They are often imperceptibly damaged during removal, so they may leak or cause problems if re-used.

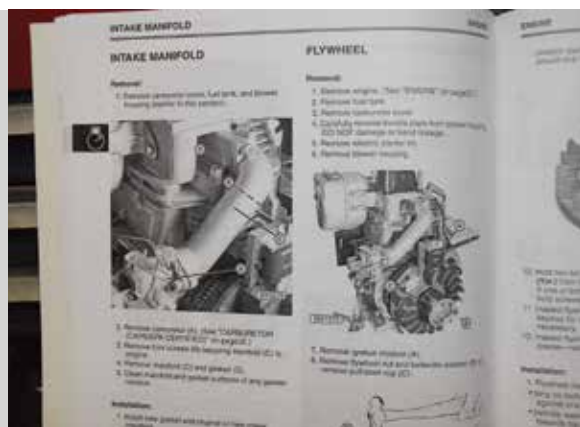
During reassembly, let the machine tell you what it needs. If parts don't seem to want to fit together, check to see why. Parts that came apart hard will probably require lifting, prying, even tapping with a hammer to get them back into alignment, but parts that were easily disassembled shouldn't have to be forced into place. If a machine is "fighting" you, there's a reason. Take time to make sure everything is aligned correctly, that all the right-size bolts are in their correct places, and that a small but critical part isn't out of place or still lying on the workbench and causing the machine's resistance to reassembly.

There will be mistakes. Partial disassembly and reassembly may be necessary. That's fine. That's how we learn. But there's a lot of satisfaction in repairing machinery yourself, not to mention significant savings. With a few basic tools and a methodological, positive attitude, anybody can be a successful amateur mechanic.



Professional mechanics can get away with casually piling parts and tools on a workbench. Amateur mechanics should label and identify where each part will go during reassembly.

Technical Manuals, available through equipment dealerships, provide detailed repair procedures. They are what professional mechanics use during complicated repairs. A technical manual may cost more than \$100, but can save do-it-yourselfers thousands of dollars over the life of a machine.



The Operator's Manual for a machine, from snowblowers to four-wheel-drive tractors, provides steps for basic maintenance including oil changes, filter changes and lubrication intervals, as well as basic adjustments and operating guidelines.

2020 SEED BUYING GUIDE

ASSEMBLED BY LILY JACKSON

Welcome to Small Farm Canada's annual seed buying guide. You'll find seed suppliers from across Canada and the U.S. who have worked hard to supply whatever seeds, bulbs, corms etc. your small farm needs. So put a log on the fire, curl up with the cat and start planning!



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800-700-1199
Ruppseeds.com
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Sage Garden

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T&T Seeds Ltd.

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Tasty Acres

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Canadian Seed Library

www.acornorganic.org/seedsecurity/bank

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226-600-7782
seeds.ca/diversity/seed-library

Garden Organic

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Coventry, Warwickshire CV8 3LG UK
024-7630-3517
gardenorganic.org.uk

International Seed Saving Institute

PO Box 4619, Ketchum ID, 83350
Seedsave.org/issi/issi.html

J.L. Hudson, Seedsman

Box 337, La Honda, California 94020-0337
USA
jlhudsonseeds.net

Just Food

2391 Pepin Court, Ottawa ON, K1B 4Z3
613-824-7771
<https://justfood.ca/seed-saving-projects-and-events/>

PEI Seed Alliance

peiseedalliance.com

Public libraries across Canada

Ask your local library if there is a seed library in your regional library system.

Saskatoon Seed Library

www.saskatoonseedlibrary.ca

Seeds of Diversity Canada

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226-600-7782
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USA
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Seedsavers.org

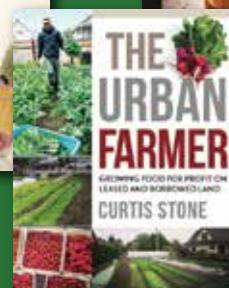
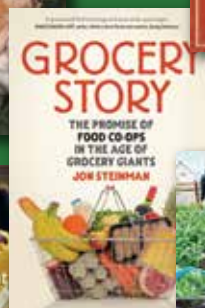
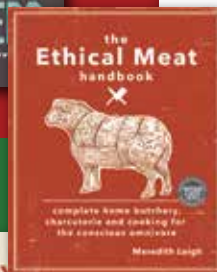
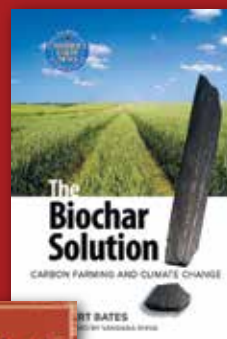
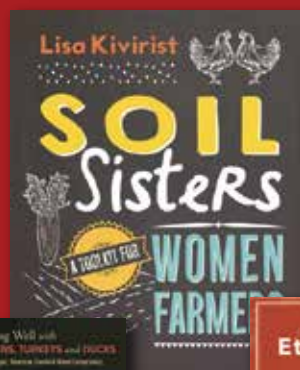
The Bauta Family Initiative on Canadian Seed Security

USC Canada's *Seeds of Survival* program in Canada.
Seedsecurity

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Check out our selection of great books on page 40-41 of this issue!



Cut flowers: what your farm needs this year

(And why Canada is a great place to get started)

This year's Seed Buying Guide features an expanded roster of businesses that specialize in cut flower growing materials: seeds, bulbs, tubers, corms and rhizomes that yield plants whose stems can be removed and sold, often for decorative use.

Many of these plants will be familiar to home gardeners, but they are also an increasingly attractive business opportunity for farmers. Growing cut flowers can diversify farm income, attract pollinators, enhance property appeal and reach a market hungry for an alternative to blooms jetted in from abroad or grown with energy and chemically intensive methods.

Despite the challenging temperatures and short growing seasons that plague parts of this country, Canada's cut-flower industry is evolving to make that business opportunity more accessible to small-scale growers.



An example of a wholesale order from Unicorn Blooms.
Photo: Lily Jackson

Louise Warner is owner of Unicorn Blooms, (a Peterborough-based, wholesale supplier of cut-flower materials that you can find listed in this issue), board member of Canadian Flowers Week and owner of flower-growing company Wild Imagination. She has seen significant shifts in the Canadian cut-flower community that make it more feasible for new and seasoned farmers to make money. For instance, the combination of more environmentally-conscious consumers, low-cost Internet marketing and e-commerce solutions and florist preference for a "wilder, romantic, garden-style look" have created more opportunities than ever for small-scale flower growers to find a market for their product.

In addition to these demand-based shifts, Canadian farmers also benefit from supply-side growth thanks to the business savvy of suppliers like Louise. In her case, she was frustrated that the world's largest producers of specialty flower varieties would often only ship to the largest greenhouse companies. She



Tulip 'Renown Unique', from Unicorn Blooms.
Photo: Louise Warner, Unicorn Blooms

established Unicorn Blooms to help smaller-scale growers access the lucrative product.

"When I started the company, at the time with Heather Henson of Boreal Blooms in Cold Lake, Alberta, we knew many flower growers across the country were looking for these specialty varieties and faced the same problem that we did; (We were) too small to independently import these items that we felt were necessary to set our businesses apart. We really needed specialty product to convince customers that local flowers were worth seeking out and paying a premium for," she says.

Now, Unicorn Blooms provides a Canadian wholesale source for prized Italian Ranunculus and anemone corms, Colibri poppy seeds, as well as various specialty tulips, dahlias, and narcissus that Louise imports to meet the demand for on-trend colours and forms. It means that Canadian producers can approach florists, designers, and flower lovers with high-quality, premium blooms grown locally. Louise notes that this trend is helping establish a more robust "cut-flower buying culture" in Canada by "showing people flowers and foliage they have never seen before."

"Be realistic about what you can handle growing well and who you can sell it to. Focus on a few crops that are high value . . . then assess what needs to be added or dropped from your mix."

If 2020 is the right year to test growing cut flowers on your farm, you'll find plenty of good places to start in the Seed Buying Guide.

~LJ

SURVEY RESULTS

Seller tips for success

We asked seed producers from across the country for advice. Their responses below

ASSEMBLED BY LILY JACKSON

Plan!

“By getting your order in early (and we mean before March!) there’s a much better chance that you will get what you want and your plants will be healthier and happier. The earlier the nursery stock is in the ground, the better it will establish itself in the first year. Also, the selection is better when ordering during the winter months.”

– *Silver Creek Nursery (ON)*

“Figure out what you want to do and get the right seed for that purpose. [...] Price should be the last consideration (“you get what you pay for”)—a perennial field lasts much longer than the memory of a cheap purchase price.”

– *Quality Seeds West (BC)*

“When growing a new crop for the first time, it’s best to choose at least three varieties of seed for planting. [...] By choosing more than one variety, each grower can see which ones do best for them personally. Good planning is absolutely key to a successful season. Making sure all perennial weeds are eliminated, that there is a clean seedbed free from sticks or stones and that the soil is loose with good fertility is key.”

– *John Boy Farms (MB)*

“The more you know about the size of your plot, the zone you are in, desired colour palette, the percentage of sun/shade and anything particular about your growing conditions, the better equipped you are to select the amount of seed and varieties that will provide the best outcome.”

– *Edgebrook Farm Curated Seed Company (ON)*

“Purchase enough seeds for your purposes and remember to always store them in a cool, dark, dry location to ensure viability. Most single regular packets on the market today are geared towards single planting for the home gardener. So double up on your favourite beets, carrots, onions and greens!”

– *Eagleridge Seeds (BC)*

“Plan and educate yourself before planting! Hardiness, disease-resistance, rootstock, space, soil type, drainage, pollination, sun and shade are all elements that need to be understood and checked before planting.”

– *Hardy Fruit Tree Nursery (QC)*

“Start planning early (December or January) and order seeds as early as possible to give time for back ups if seed does not come or comes late.”

– *BC Eco Seed Co-op (BC)*

“Planning: not super sexy but so important. Thinking what you want to grow and what would work best in your space. Also planning the fall beforehand, testing soil especially Ph and amending with lime, turning, mulching. It all makes the spring go smoother.”

– *Good Earth Farms (BC)*

Understand your region

(but be prepared for changing conditions)

“Some of the most important things to consider [are] your growing zone and sun light. If [you are] in zone 3–4 you do not want to be purchasing [plants that thrive in] 5, 6.”

– *Gardens Plus (ON)*

2020 SEED BUYING GUIDE

“Look for locally adapted, cold tolerant varieties, which are often the best suited to growing conditions in Canada. [. . .] There are thousands of regional types of each plant you might want to grow. Many of these are heritage seeds, or “land races,” that have been grown in a part of an area for decades. These types have adapted to local conditions, becoming even more reliable and productive in a particular area.”

– *Perfectly Perennial Herbs and Seeds (NFLD)*

“It is important to consider the source of your growing advice, especially online. Falling in love with a flower or plant that grows well on Vancouver Island may not give you the best results in northern Ontario. We would all love to be in the “Goldilocks Zone . . . not too hot . . . not too dry . . . but the reality is we all have some kind of concession that must be included in our growing plan to have a full, luscious garden.”

– *Edgebrook Farm Curated Seed Company (ON)*

“One thing we would want people to know about gardening is that it is important to watch the weather and monitor your soil conditions. As we garden in a changing climate, we can't rely on how we “always used to grow.” Seeds are dependant on soil temperature and moisture content for their best success. This may mean that Victoria Day weekend is not the gauge by which we seed or plant our garden. Our experience over the past 10 years is that every year is different!”

– *William Dam Seeds Ltd. (ON)*

“The biggest thing that can be done for a successful season, beyond maintaining healthy soil and leaving enough space for air between plants, is to plant an assortment of the same vegetable. Every year the weather is different and we never know what to expect. I have found there are always some varieties that do better than others in any given year. [. . .] Using seeds that have been acclimatized to local growing conditions, and have been grown in your area, improves performance of plants as well.”

– *Mountain Grove Seed Company (ON)*

Keep records

“Keep records of all your seeding dates with notes on how well the crops did. Push the edges of the calendar to spread your growing season out.”

– *Full Circle Seeds (BC)*

“The thing that I tell gardeners is most important is to keep good notes of their gardening activities. While they think they may remember what they did when, in the end it all runs together. Those notes can be very valuable.”

– *Baker Creek Heirloom Seeds (MO, USA)*

Know what your seeds need

“Growing most veggie and flower plants from seed is relatively easy, but there are some plants that are very tricky. [. . .] Make sure you educate yourself before ordering these seeds or you may be disappointed in your results.”

– *Green Barn Farm (QC)*

“Taking the time to choose varieties adapted to your climatic zone (number of growing days at maturity) and having the patience to start planting at the right time (not too early) are my two best tips to kick off your gardening season.”

– *Le Jardin de Julie (QC)*

“The most important factor is the quality of the [garlic] seed. Seed garlic should be disease and pest free, have no marks of blemishes and preferably have the close wrappers intact.”

– *The Cutting Veg (ON)*

“One piece of advice is for seed customers interested in the growing trend of medicinal and wild plants. These seeds often need special treatments in order to “wake up” and have a good germination rate. As a seed seller, our main goal is to guide the customers properly in growing their chosen plants. To do so, we add as much detailed information as possible on the seed packets concerning the conditions and treatments required to grow each specific plant. To ensure success, our best advice (one often overlooked) is to strongly encourage plant lovers to carefully read that information before sowing any seed!”

– *Jardin des vie-la-joie (QC)*

“When to plant is also key. Plant when cooler, less sunny part of the day and water in well. Never during a heat wave.”

– *Gardens Plus (ON)*

“By talking with your seed seller or other farmers, plant the seed “properly” (i.e. not too deep, into moist soil)”

– *Quality Seeds West (BC)*

“Feed your soil. We all want big, beautiful and bountiful plants. It all starts with healthy, thriving soil. Lots of compost and good crop rotation are always reliable techniques to improve soil health. We also avoid tilling and use deep mulch methods to suppress weeds and retain moisture.”

– *Matchbox Garden (ON)*

Plant for your personal enjoyment

“Have diversity in what you grow, especially if you are aiming to feed yourself. [. . .] Choose what you like to eat to give you stamina to see it through to seed!”

– *BC Eco Seed Co-op (BC)*

“The most common mistake I see new gardeners make is to get too big too fast. They plant too much to care for properly, become overwhelmed and then give up. I encourage gardeners to start small and build as they go.”

– *Baker Creek Heirloom Seeds (MO, USA)*

Other

“The best advice is to follow the growing instructions we provide very closely and email or phone questions.”

– *Wylie Mycologicals Ltd (ON)*

“Our customers for fresh market tomatoes ask us why our tomatoes taste so good. We subscribe to some of the same methods as our Okanagan vineyards to help express terroir. After establishing a good healthy vigorous plant from the start of the season, we withhold water in mid August to encourage the plants to send their roots deeper into the subsoil to pull out discrete flavours from minerals and micronutrients. All fruit set will ripen and the plant will produce more sugars to protect it from drying out too much to produce seed (fruit). This helps to produce the sensual luscious flavour so characteristic of heritage or heirloom tomatoes.”

– *Sunshine Farm (BC)*

“The most common mistakes people make when buying fruit trees are:

1. Not taking the time to plan and prepare properly.
2. Purchasing tree varieties or species that are not hardy enough or not adapted to grow well in their area.
3. Not paying attention to strong and hardy rootstock or good sourcing when purchasing grafted trees.
4. Taking the cheapest option and being disappointed later when the tree does not survive.
5. Ignoring pollination and ending up with fruit trees that cannot produce fruit due to lack of pollination.”

– *Hardy Fruit Tree Nursery (QC)*

“1. Mushrooms are fungi, not plants. They grow via a mycelial network, cultivated through mushroom cultures. Thus the grow kits are live cultures which need lots of air movement to take in the oxygen they require and release the CO₂ and spores. They also need light and humidity since mushrooms are 85 per cent water.

2. The best advice is to follow the growing instructions we provide very closely and email or phone questions. Mistakes are made when folk think they can interpret the kits’ needs. For instance, putting the kit in a corner or the basement deprives it of air movement and fruiting may not occur.

3. Industry trends support home growing for freshness and medicinal purposes. Lions Mane has been extremely popular because of the identified link between consumption and the prevention of Alzheimer’s and dementia.

4. It is best to order a kit or two at a time so that instructions can be followed and observations made for separate types. Since we suggest growing on the kitchen counter, space may be at a premium. We also suggest cooking each type separately for flavour identification.”

– *Wylie Mycologicals Ltd. (ON)*

Seedlings sales for fun and profit

Five small farmers share their insights on growing and selling seedlings

BY LISA TIMPF

There's a lot of upside for the small farmer thinking about venturing into seedling sales. CSA or market garden farmers may already be starting seedlings for their own use, and seedling sales can build on that foundation. In addition, they provide cash flow prior to the main growing season, and they're a venue for re-connecting to the customers after the winter.

Timing is everything

Hanna Jacobs, owner of Matchbox Garden Seed Co. near Caledonia, Ontario, notes that timing is critical when planting your seeds. "It's really important to find that sweet spot when planting, so every plant you take to market is at its best," she notes. Because Jacobs attends a number of seedling sales, as well as fulfilling contracts for wholesale customers, she needs seedlings in prime condition for dates spread over a long time frame. She staggers her planting time to ensure seedlings are at the optimum point in their growth when they go to the target venue.

Though she has only one seedling sale date to worry about, Angie Koch, owner and farm manager at Fertile Ground Farm in St. Agatha, Ontario, recognizes the need to have plants at different stages for different purposes. Although Fertile Ground transplants seedlings into the CSA garden around the same time as their annual seedling sale, Koch offsets the planting time of the plants destined for the two purposes. She prefers smaller, easier-to-handle seedlings for the planting into the CSA garden, while her seedling sale customers want to see more established plant.

The medium is the message

Selecting the right growing medium, notes Jacobs, is important. Jacobs prepares a blend that incorporates an ocean mix, sheep manure, and peat in equal parts. She finds that a lot of mixes are too light or peaty for her liking. She's pleased with the ocean mix, which she gets from an East Coast supplier, noting that after she started using it, "I couldn't get over how much better the plants looked."



Fertile Ground Farm holds a single, large seedling sale on-farm. Grouping like products under individual tents keeps the event organized and reduces lineups. Fertile Ground also provides food and live music to turn the sale into an event that promotes happy memories.

Marcelle Paulin, co-owner and co-founder of Sleepy G Farm in Pass Lake, Ontario, agrees that soil is important. "You should get the best quality potting medium you can afford," she says. Though Sleepy G hasn't yet ventured into the sales end of seedlings, it's on the docket for next year. Still, since the start of their CSA operation 10 years ago, Sleepy G has grown tens of thousands of seedlings for their own use, so they have a good understanding of the ins and outs of the growing process. Paulin uses a purchased potting mix, which she fortifies with inputs like kelp, green sand, rock dust, and alfalfa meal.

Koch uses a local organic greenhouse's peat-based mix that contains organic amendments, and applies perlite as a fertilizer. Sarah Judd, who operates Meadow Lynn Market Garden near Simcoe, Ontario, favours a peat moss mix with composted cow manure added. Since part of the family farming operation includes a dairy herd, she has a plentiful supply of the latter ingredient. Though she makes a point not to over-fertilize, Judd adds vermicompost mix as the season progresses, as needed.

Managing the conditions

For Koch, humidity control and air circulation in the greenhouse are key factors in nurturing the best possible plant for the customer. "Dampness on your seedlings is the best way to spread disease," she says.

Temperature is another critical factor. Since Sleepy G is located near Thunder Bay, Ontario, Paulin has the added challenge of keeping her seedlings happy in a cold climate. Sleepy G does their propagation in a 30 by 48 double-walled poly hoop house, with air between the two walls providing extra insulation. The greenhouse, equipped with a wood-fired boiler and a heat exchanger, is generally able to keep the temperature in the desired range. When the outdoor

temperature dips below -6 Celsius, Paulin pulls row covers over her seedlings for an extra layer of protection.

Providing the right amount of water is also key. Over-watering, Koch notes, can be just as detrimental as under-watering. Paulin agrees, noting that Sleepy G has found it best to assign one person to the watering task, to ensure consistency and avoid yo-yoing between over- and under-watering.

Hardening off is an important step in helping the plants make the transition from the sheltered world of the greenhouse or hoop house, to their ultimate home in the garden. Jacobs transfers her plants from the greenhouse to the unheated hoop house two weeks before they're due to go to market. She leaves both ends of the hoop house open for wind and cool air during the day, finding that sufficient to harden her plants.

Reaching your customers

Judd's seedling sales were a natural outgrowth of her CSA operation, and many of her early seedling sale clients were CSA customers. As the seedling operation grew, she took steps to expand her customer base. Partnering with the local horticultural society on plant sales proved to be a good avenue. She also holds seedling sales at small local businesses that attract people looking for something outside the mainstream, and provides an avenue for online orders.

Like Judd, Jacobs offers online ordering. She attends a variety of plant sales during the spring. In addition, she's arranged for a handful of health food stores and independently-owned garden centres to carry her seedlings.

For almost two decades, Koch's seedlings were offered as part of an annual event in Kitchener which included a number of vendors. The event outgrew the venue, and Fertile Ground also found the logistics of transporting 4,000 seedlings to be prohibitive. Now they hold their own seedling sale on-farm.

With the change in venue, Koch grouped the products in separate tents so customers could easily find what they were looking for. She wishes she'd made the move to on-farm sales sooner, noting that crowded conditions and long lineups at the previous venue may have lost them some customers.

Fertile Ground has a long history in the Kitchener area, so some of their sales volume is a result of this long relationship. Koch also reaches out to potential customers through posters, email lists, sponsored ads on Facebook and social media posts on sites catering to local horticultural and gardening groups.

When he operated Wilsonville Organics near Wilsonville, Ontario, Rick Posavad grew and sold a variety of seedlings, including 70 varieties of heirloom tomatoes as well as heirloom peppers, salad greens and other offerings. Posavad was fortunate in that signage at his location, on a busy road, drove a lot of drop-in traffic. He also took advantage of the



Before becoming co-owner of the Good Bread Company in Vittoria, Ontario, Rick Posavad grew and sold 70 varieties of heirloom tomatoes as well as other vegetables. He found the county tourism web site to be a good way to promote increased awareness of his seedling operation.



Sleepy G Farm, located near Thunder Bay, Ontario, has their greenhouse set up with row covers to provide seedlings with extra protection if the outdoor temperature is forecasted to dip below -6 Celsius.

In addition to providing the opportunity for on-farm pickup, Sarah Judd of Meadow Lynn Market Garden holds seedlings sales at local, independent businesses. Here, Judd chats with a customer at a seedling sale at the Good Bread Company in Vittoria, Ontario.



Located near Thunder Bay, Ontario, Sleepy G Farm has the added challenge of keeping seedlings happy in a cold climate. Sleepy G does their propagation in a 30 by 48 double-walled poly hoop house, using a wood-fired boiler system as part of the heating strategy.

2020 SEED BUYING GUIDE

opportunity to have information about his farm included on the local Norfolk County tourism web site to promote increased awareness.

I wish I'd known ...

As with any other enterprise, the experience of growing and selling seedlings has provided learning points along the way.

For Jacobs, nailing down the best timing for starting seeds was a challenge. "Sometimes, it's tempting to think you'll get ahead by seeding a couple of weeks early, but all you end up with is leggy plants," she says.

More than one of the interviewees had initially stayed away from offering items that a backyard gardener could easily grow from seed themselves. But Jacobs finds that lettuce seedlings offered in six-packs are a hot seller, and Judd also notes that lettuce, beet, and bean seedlings get snapped up. "You can't assume the customer doesn't want these products," Judd says. "And sometimes, they can be your highest-margin sales."

Koch started offering lettuce and bean seedlings five years ago. "We've quadrupled the amount of seedling greens we've sold in the past five years," she says. She thinks it's partly because "a lot of seeds are packaged in a larger volume than the backyard gardener needs. So, they can buy a few seedlings for about the same as they would pay for a packet of seeds, and someone has already done the work of getting them started."

Worth the effort

Whether they ventured into seedling sales to utilize extra greenhouse space, or as an extension of their existing operations, the interviewees feel the effort is worth the payoff.

Seedling sales have evolved into Jacobs' second-greatest source of income. "It was a practical way of



Many of the seedling growers noted strong customer interest even in items such as lettuce that could easily be direct-seeded into the garden. It's a trend Fertile Ground Farms has made note of.



At their seedling sales, Fertile Ground Farm tries to make it as easy as possible for the customer to find what they are looking for. Good signage helps.



Growers note that purchasers of heirloom tomatoes tend to be particularly hungry for information about the plants. Above, Fertile Ground Farms provides signage with plant specifications.

expanding what I was already doing," she says. "It's a season-extender with a quick turn-around and low overhead."

For Judd, seedling sales are an opportunity to promote her CSA and generate revenue at the start of the season. She's already doing the work of starting seedlings for her own CSA, so a little extra effort to grow extras for sale is worth it.

Koch notes that when all is said and done, she doesn't make a huge amount

of profit on her seedling sales. However, the money generated helps offset the cost of heating the greenhouse for her own CSA seedlings, and other early-season costs.

Paulin sees the value in expanding Sleepy G's scope to include seedling sales. "It's a way of increasing your network, increasing your reach, and increasing market share," she says. "In the end, the more individuals we get buying from us, the better."





Recipes

HELEN LAMMERS-HELPS

Missing an ingredient?

With wise use of substitutes — no worries!

Country cooks need to be creative. When you live miles from town you don't want to have to drive to the grocery store because you're missing an ingredient. Instead, it's often possible to substitute with another ingredient already on-hand.

The first rule of thumb when substituting ingredients is to consider the food family of the missing ingredient, says David Joachim, author of *The Food Substitution Bible* (Robert Rose, 2010). If you are out of milk, another dairy product such as evaporated milk, cream, sour cream or yoghurt might work, he says, by way of example.

The second rule of thumb is to consider the function of the ingredient, continues Joachim. Does it provide structure or flavour? For instance, if you run out of vanilla extract, you could leave it out or maybe substitute almond extract for a different flavour.

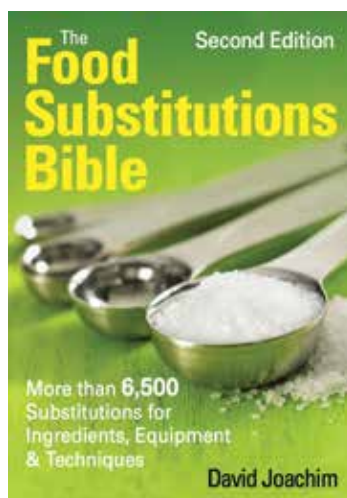
These are just two examples from the 6500 items covered in Joachim's book. The author of 30 cookbooks, Joachim had compiled a file of information on substitutions during his cooking career which formed the basis of the book. He also sought tips from friends, family and well-renowned cookbooks.

Joachim wrote *The Food Substitution Bible* to help both home cooks and professional cooks make ingredient substitutions that work. Many food professionals have told him the book has become an indispensable reference guide that they keep right in their kitchens.

I know *The Food Substitution Bible* came in handy when a recipe I was making called for capers (pickled flower buds) which I didn't have and usually don't keep on-hand. However, Joachim's book suggested chopped green olives as a suitable substitute which worked well because they had the same pickled flavour and texture as capers.

Besides lacking an ingredient, Joachim says other reasons for swapping out an ingredient may include allergies, diet, dislike of a particular food, reducing prep time, or simply to switch things up. You may even end up preferring the substitute, he says.

That's what happened with my sloppy Joe recipe. Not having the tomato paste called for in the recipe, I substituted canned tomato soup which I actually liked better.



If the nearest store is 30 minutes away and guests are due in 20 minutes, then David Joachim's book may get you out of a missing-ingredient pickle!

However, Joachim is quick to point out that when substituting one ingredient for another, the final dish will be impacted. "When you change the recipe, you will change things," he says. A case in point, recently I was making

mushroom soup. The recipe called for beef broth which I didn't have but I did have a carton of vegetable broth in my pantry. Wanting to get a little more depth of flavour, I turned to *The Food Substitution Bible* for suggestions which included adding a little beer or wine to make up for the lighter flavour of the veg broth.

With a bottle of red wine already open, I chose to add a little of the wine to the soup which resulted in a delicious flavour but unfortunately gave the soup a purple tinge. In this situation, beer likely would have been a better choice.

Here are some other useful examples from *The Food Substitution Bible*:

To replace semisweet chocolate, if the chocolate is to be melted, chips, squares, and bars are generally interchangeable. One cup of chocolate chips equals 6 oz (175 g) of chocolate. However, Joachim notes that chocolate chips contain stabilizers to help them maintain their shape during baking which may create a less velvety texture for delicate chocolate sauces and custards. You can also substitute 1 oz semisweet chocolate with 1 oz bittersweet chocolate (richer in chocolate flavour); ½ oz (15 g) unsweetened chocolate plus 1 Tbsp (15 mL) granulated

RECIPES *continued*

sugar; or 3 Tbsp (45 mL) unsweetened cocoa powder plus 1 to 1 ½ Tbsp (15 to 22 mL) granulated sugar + 1 ½ tsp (7 mL) butter, shortening, or vegetable oil.

If you want to vary the flavour, replace semisweet chocolate chips with an equivalent quantity of M&Ms, peanut butter chips, butterscotch chips, or chopped nuts.

Out of powdered mustard? Replace 1 tsp (5 mL) powdered mustard with 1 Tbsp prepared mustard minus 1 tsp (5 mL) liquid from the recipe.

No honey in the cupboard? Replace 1 cup (250 mL) honey with ½ cup (125 mL) granulated sugar plus ¾ cup (175 mL) maple syrup, corn syrup, or light molasses.

If you don't have cashews, substitute an equivalent quantity of peanuts, pine nuts or pistachio nuts.

For one cup (250 mL) self-rising flour, substitute 1 cup (250 mL) all-purpose flour mixed with 1 ½ tsp (7 mL) baking powder and ½ tsp (2 mL) salt.

No fresh herbs? Substitute 1 Tbsp (15 mL) fresh herbs with 1 tsp (5 mL) dried herbs.

For one cup (250 mL) buttermilk, use 1 Tbsp (15 mL) lemon juice or vinegar with enough milk to equal one cup (250 mL). (Let stand for 5 to 10 minutes before using.)

In the past, cooking knowledge was passed down from generation to generation but that often doesn't happen today, says Joachim. Too many people are afraid to experiment in the kitchen if they don't have all the ingredients called for in a recipe. "I wanted to help people to have more fun in the kitchen, to not be slaves to a recipe," he says, adding, "This book gives them the confidence to make substitutions."



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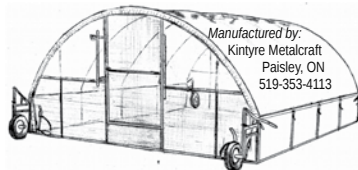
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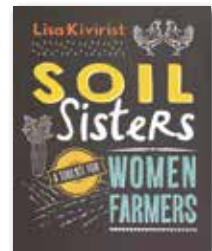
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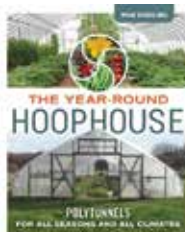


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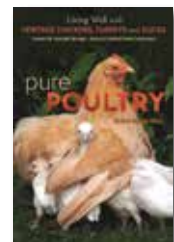


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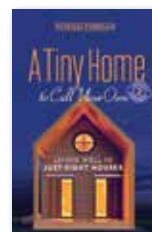


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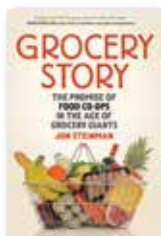


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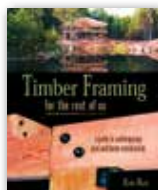


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Notes from the Larkspur Supper Club

DAN NEEDLES

The cost of living high on the hog

When I was a kid, I always bought three weaner pigs from a neighbour in the spring, put a ton of hog grower from the Co-op through them and paid the abattoir 25 dollars apiece to have them cut and wrapped. By the time they went into our freezer each pig had a cost price of about a hundred bucks or 60 cents a pound.

That was fifty years ago. This summer, I did it once again, with two pigs. But this time, with bagged feed and over \$200 in processing fees, each pig now costs me \$450. As my friend at the feed store says, "You know you're paying too much for feed when there's a diagram on the bag telling you how to open it."

Back in 1969 there were pigs on nearly every farm and we had a choice of eight abattoirs within 15 miles. Today there is only one old guy left with six sows and I have to remind him at Christmas that I am still in the game. We're down to two abattoirs now and they are so booked up you have to reserve a date at least a year in advance. I must also register for a producer number, a stakeholder number, a tattoo number and a premises ID number. It would make far more sense to just go to Costco and buy a foot long pork loin roast for \$10.00 rather than wrestle these pigs through an increasingly expensive and complicated system.

So why do I keep doing it?

For one reason, my pork is not 'the other white meat' advertised by the Pork Council. My pigs wander the farm all summer, snoozing under apple trees or lying in mudholes. They spend a lot of time snooting up the barnyard and they often escape and lead me on a leisurely chase to a neighbour I wouldn't otherwise get to see that much of. The result of all this wandering and snooting in the sun gives the meat a darker colour and a very distinctive taste and texture. Pork and chicken from the supermarket don't taste like anything much until you sauce it with something sweet or sour or spicy. I have a medieval history friend who insists the average peasant of the Middle Ages had

a much sharper sense of smell and taste because he couldn't drench everything in salt and sugar the way we do.

But the main reason I keep pigs every year is because I like them. I admire their zest for life and their boisterous fellowship. I like to think of them as pig lottery winners because they managed to land here and have the run of a small farm, just as I did when I was young. The poet Dylan Thomas captured it brilliantly when he wrote:

... as I was young and easy under the apple boughs
About the lilting house and happy as the grass was green, ...

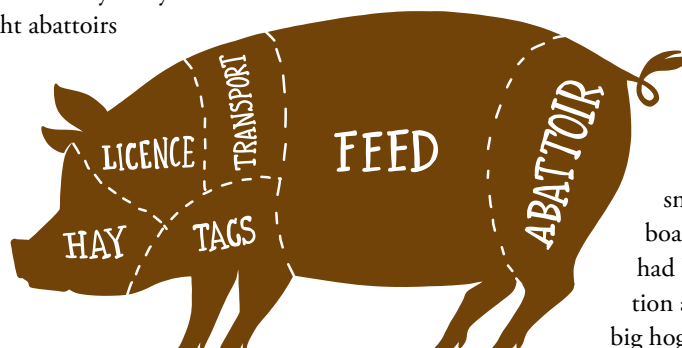
I watch the pigs running through the house high hay and
it reminds me of a report of a Swedish study

that claimed a pig needs several hours of daily snooting to retain its mental health.

My pigs are far better adjusted than I am because they do more snooting. One year, my local fair board dumped two pigs on me that had been part of a pork demonstration at the fair. They were out of a big hog barn and they were nuts. They fought and screamed and spooked whenever

a door opened. But a funny thing happened when they got out into the barnyard. They snooted up a storm and soon quieted down and when the snow blew in they built themselves snug nests under piles of straw. On frosty mornings they would burst out of their straw houses and come woofing cheerfully to the trough for breakfast. By the time it came to ship them in January, I was just as sorry to see them go as any of my summer pigs.

My wife says that October is always a difficult month for me. After all the tension of market day — tricking the pigs into a large crate, winching them up in the air and backing the truck under them — the barn feels suddenly terribly empty. For a couple of weeks, I mope about the farm until she finally orders me up to Keady Livestock Market to buy two steers to feed for the winter. The economics of steers are every bit as dismal as pigs. But I like them . . . and to maintain my mental health I must feed something.









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