



MARCH / APRIL 2014

AgriSuccess

**PORK,
POULTRY
AND MORE**
HOW MARTIN AND
VIVIANE USE A
DISCIPLINED APPROACH
TO GROWTH

.....

**LAND RENTAL
AGREEMENTS**

.....

**SHOULD YOU
BABY YOUR FARM
EQUIPMENT?**

10TH
ANNIVERSARY
ISSUE





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This is the 10th anniversary of AgriSuccess, and I've had the pleasure of serving as editor for most of those years. Originally called AgriSuccess Journal, the first issues were informative, and we have strived for constant improvement.

You probably have many excellent farm publications hitting your mailbox. For some, you pay a subscription fee. Others, like AgriSuccess, are complimentary. We knew AgriSuccess could fill a specific niche and resonate with producers across the country – producers involved in all sectors of agriculture with a focus on farm management.

When selecting stories and story approaches, we often go back to the mission statement stated on the right. We ask ourselves if a particular story has a strong takeaway message that readers can use.

It has become the norm to feature a young farmer in each edition. We do our best to feature young farmers from each region of the country, and all the different sectors of agriculture.

In recent years, new media platforms have emerged. Increasingly, we're directing readers to website links for related articles as well as videos they can watch online. Today, you can easily watch a video on your smartphone and then tweet about it to followers around the world. Not so 10 years ago.

What will the next five and 10 years bring? How will the publication continue to evolve?

While the future is difficult to predict, most of us still appreciate the practicality and portability of written materials be they print or online. We intend to continue having print editions in addition to online.

However, with so many information sources and so many distractions in our modern lives, content needs to definitely capture your attention. We're continually working on that. Let us know how we're doing.

Email kevin@hursh.ca or tweet @kevinhursh1. ■

This FCC publication is dedicated to helping producers advance their management practices. Here, you'll find practical information, real-life examples and innovative ideas for your operation.

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Which part of your farm is making the most money?

BY LORNE MCCLINTON

Your farm might be making money, but are all parts of it profitable? Splitting your farm into its component parts and then analyzing their individual income and expenses using enterprise accounting is the only way to know for sure.

Any standard accounting program will quickly show if your whole farm made or lost money, but it won't necessarily show specifically where you made or lost it. For example, it might have been very profitable to grow canola, corn and wheat last year. However, you could have lost some in your cow-calf operation. If this was the case, you were subsidizing your cattle enterprise with your grain enterprise.

You may suspect this is happening, but as long as you keep lumping both parts of your farm together into one big unit, it's difficult to know for sure. Dividing your operation's income and expenses into component enterprises and then comparing them using a farm accounting software program like AgExpert Analyst lets you see at a glance where you are making, or possibly losing, money. Good information is the basis for good decisions as you make adjustments to the overall operation.

Setting up to do enterprise accounting is relatively simple, says Janet Nielsen, an accountant and the

owner of JRN Consulting Services in Red Deer, Alta. It's just a matter of creating ranges in your income and expense accounts in such a way that they are attributed to the right farm enterprise.

Say you have a grain and livestock operation. Nielsen says to assign an appropriate percentage of every account in your data to each enterprise when setting up your software. A canola seed purchase, for example, would be 100 per cent attributed to the grain enterprise and 100 per cent of a cattle purchase to livestock. Fuel, repairs, interest payments and other fixed and variable costs used by more than one enterprise would be split between them at an applicable percentage.

"Then, if I pull off my income and expense enterprise comparison, I get a column for livestock, I get a column for grain, and then I get a total," Nielsen says. "I can pull reports by any date or any quarter throughout my year. AgExpert Analyst allows me to pull off these reports in either the cash or the accrual basis; no other software does this."

"You're collecting and entering this data anyway; it's all there within the software," Nielsen says. "It's just a matter of going through your numbers and pulling off the reports to see where you stand." ■

Plan a profitable crop rotation

Enterprise accounting is a great way to help cash croppers analyze the profitability of their crop rotation, Nielsen says. Normally, producers divide their farm operations into separate enterprises by splitting out major revenue streams so a farm might have dairy, trucking, custom farming and grain enterprises. The same techniques will work to split apart and analyze individual components of an operation.

“A grains and oilseed operation could set up a separate enterprise for each of its oilseed, pulse and cereal crops,” Nielsen says. “It would just be a matter of setting up your chart of accounts to have the amount of detail you need.”

You could set up a separate account for each crop to keep track of the amount of chemicals, fertilizer and seed you used. Then you can break out the rest of your operating costs in whatever percentage you wanted to allocate to each crop.

That way, at the end of the year, you would know exactly what was profitable.

This allows you to compare your actual income and expenses with the projections you made when you planned your rotation at the start of the growing season. It gives you another tool to help decide whether or not to keep growing a particular crop as part of your rotation next season. ■



HOW MANY ENTERPRISES DO YOU NEED?

Even though there are no real limits to how many enterprises each farm can be broken down into, keep it manageable.

“Only set up specific enterprises that are directly related to your farm’s profit centres,” Nielsen advises. “For example, you would definitely set up your dairy and grain operations as separate enterprises. But you wouldn’t want to set up a poultry enterprise just because you had a handful of chickens.”

Whenever Nielsen conducts an AgExpert Analyst training course, one of her goals is to have producers use the information they’re collecting to manage their operations more effectively.

“The program can give you valuable information if you understand what’s in there and then work with those numbers going forward,” Nielsen says. “It’s all there at your fingertips. It’s just a matter of making sure that you fine tune it for your operation.”



Change and growth fuel young farmer success

BY MARK CARDWELL

“I am a great believer in luck, and I find the harder I work the more I have of it.”

—Stephen Leacock

Quebec's Martin Beauregard is living proof of this Leacock quote. “We make our own luck,” says Beauregard, whose family farm is in St-Eugène-de-Grantham, just west of Drummondville. “We get up early and work hard every day. We leave nothing to chance.”

That has been the case ever since he and his wife, Viviane Labranche, decided to intertwine their destinies after meeting as students in the three-year farm management program at Institut de Technologie Agroalimentaire, Saint-Hyacinthe campus, one of Quebec's leading agricultural colleges.

After working for different producers for five years – when they planned, saved and acquired first-hand knowledge and experience in several areas of production including pork, dairy and poultry – they finally found a farm in 1997 on which they could stake their future.

“It was the perfect opportunity,” Martin says about the 316-acre property, which was owned by an animal nutrition company and had a swine herd of 450 sows cared for by managers. “The timing was good because the company was in search of contractors to take over the operation. So we got a good price, two good buildings and a profitable business with the supply chain and technical support of an established operation.”

Because the buildings on their new farm were not fully utilized, the young couple decided to double-down on the number of sows within six months. The next year they also bought a neighbouring farm. It was their first in an ongoing series of annual purchases of farms, buildings and machinery.

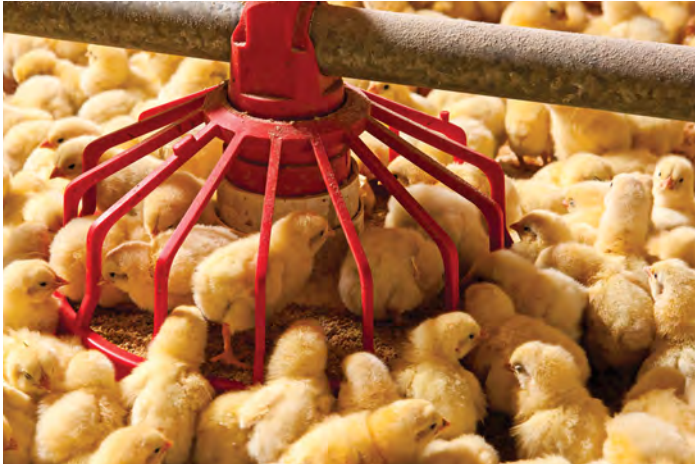
“We've always looked to expand – and we're still growing,” Martin says. “But we've never wavered from our original principle, which is to never invest in something that can't or won't pay dividends right away.”

That philosophy has enabled them to build a group of operations that today includes 8,200 spaces for nursing piglets; 10,500 spaces for feeder pigs; and a herd of sows that produces 72,000 live piglets annually. The couple employs some 20 full-time workers at the dozen or so hog farms they now own and operate.

In 2009, they diversified by buying a chicken farm, with poultry quota, in a nearby village. Viviane visits the farm twice daily to keep an eye on the 43,000 chicks they purchase six times a year.

“I love doing it,” says Viviane, who grew up in the Montreal suburb of Longueuil but fell in love with – and decided to make a life in – agriculture after spending her summers in the countryside.





“When we buy a new business, our bottom line is that it can’t have a negative impact on our family life.”

They also keep 5,500 free-range birds on the family farm Martin grew up on. They bought and converted it from the dairy operation Martin’s father had. It is managed by Martin’s brother Guy, who lives in their old family home.

Martin and Viviane made another important move in 2011 when they decided to reduce their own production of commercial crops like soybeans, wheat and corn. They had always hired local contractors to plant and harvest, helping them avoid investing in costly farm equipment. Now, they rent 90 per cent of their fields to local producers.

“It’s all part of the plan,” says Martin, who continues to offer a specialized service to fellow producers in the Centre du Québec region – levelling their farmland with a big tractor and laser-equipped grader, a sideline that keeps an employee busy 1,000 hours a year. In addition to hard work and expert advice, both Martin and Viviane credit their success to good communication between them, the attention they give their team of employees, and the farming and family life philosophy they share.

“When we buy a new business, our bottom line is that it can’t have a negative impact on our family life,” Martin says. He often checks for deals on everything from animals and equipment to farmland and even apartment blocks. “We put a lot of value on farming. We want our kids to see it as fun and as a way to be happy and successful.”

Martin and Viviane’s four teenagers, Olivier (18), David (16), Anthony (14) and Marilie (13), are their pride and joy – and a big help on the farm. For Viviane, the fact that three of them are interested in becoming producers is proof that farming is attractive to young people and offers them a bright future. In fact the oldest, Olivier, is now in the same program at the same college where she and her husband met and is starting his own operation nearby, with 70 acres of cropland and two hog buildings that can house 2,000 piglets.

“There are lots of producers out there who have no successors and are eager to help interested young people keep their business going,” Viviane says. “Even people who do not have a farming background can find opportunities if they are passionate about it, like I was.” ■



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The holy grail of crop breeding

BY KEVIN HURSH

Imagine a hybrid canola system where you can grow and use your own seed from one year to the next without any loss of yield potential, something that isn't possible for the current hybrids in crops like corn and canola.

Imagine having hybrid cereal and pulse crops for the first time, also with the ability to grow your own seed.

Saskatoon researchers Paul Arnison of Botanical Alternatives Inc. and Wilf Keller of AgWest Bio believe this will all come to pass in the not-too-distant future.

Since the advent of plant breeding, it has been known that some species of plants can occasionally produce seed without fertilization. The naturally occurring process is called apomixis. Recent progress in genomics and sequencing is allowing researchers to identify the specific genes involved.

Arnison and Keller point with pride to another Canadian researcher, Tim Sharbel, who has made tremendous progress understanding how apomixis works within rockcress, a Brassica plant closely related to canola. Sharbel is head of the Apomixis Research Group at a public plant-breeding institute in Germany.

"With apomixis, once you have a hybrid, the hybrid vigour won't break down from one generation to another," Arnison explains. "You can just keep growing the seed."

On the surface, one might wonder why seed companies would embrace the technology. There would be no need for ongoing hybrid seed production.

While no one can know for sure how the value chain will evolve, Keller and Arnison believe seed companies may be content with developing new and improved varieties while leaving most of the actual seed multiplication to farmers. Various licensing arrangements will likely evolve.

"Brassica species with apomixis could be available within the next decade," Keller notes. "Commercialization would then follow."

According to Keller and Arnison, Pioneer Hybrid is working with apomixis in millet. Other large seed companies also see the potential. Longer term, there's hope the technology can help develop hybrids in crops like wheat, peas and lentils that are self-pollinating.

"Hybrid apomictic wheat would be huge," Keller says. Hybrid cereals are expected to have a smaller yield boost than crops like canola, yet apomixis could help make them economically viable.

In the fast-moving world of biotechnology, Arnison and Keller consider apomixis to be a game-changer – the holy grail of crop breeding. If it lives up to expectations, crop trait improvements will come more quickly and there are likely to be game-changing structural changes in how the seed industry operates as well. ■



Apomixis

a-pom-mik-sis

Replacement of normal sexual reproduction with a form of asexual reproduction.



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Land rental agreements pivotal to success

BY KEVIN HURSH

By now, most farmland rental agreements for the upcoming growing season will be in place. Increasingly though, managing rental agreements is a year-round endeavour vital to economic success.

Across Canada, roughly 40 per cent of cultivated land is rented. For many producers, especially large producers, rented land accounts for a majority of the land base.

That's the case for Mike Kalisvaart, a grain producer from Gibbons, Alta. Renting land is a key component of his growth strategy and the farm has blossomed to 10,000 acres.

Like grain farmers across the country, Kalisvaart is competing for land while wondering what the future holds for grain prices.

The past year has seen the prevailing price for most major commodities drop by as much as 40 per cent. Profitable new crop pricing opportunities were abundant a year ago. Now, it takes an astute marketing plan and a sharp pencil.

If lower grain prices prevail, that should lead to a softening of rental rates. However, competition for land is often fierce. You don't want to lose money on rented land, but you don't want to lose your land

base either. This means you'll need good analysis of rental rates and economics as well as spending time with landlords to understand what's important to them.

"Know your cost of production," advises James Bryan, an agricultural economist with FCC who has done extensive research on both land prices and cash rents. "It sounds really basic, but a good knowledge of your production costs, including your fixed costs, is central to knowing how much cash rent you can afford to pay."

Bryan has gathered information from Alberta Agriculture & Rural Development, Saskatchewan Ministry of Agriculture and University of Guelph showing that cash rent agreements account for more than 75 per cent of all rental contracts.

Crop share agreements, once common, have been in decline. They require the landlord to share risk. As well, they can be difficult for producers to manage especially if you're dealing with a number of different landlords.

What's a fair rent?

Unlike land prices, which are public knowledge, information on the rental market is not transparent. Local chatter may concentrate on the highest cash rents that anyone has heard, but that's likely to be well above the average.

In fall 2012, the Saskatchewan Ministry of Agriculture hired a research company to conduct a land lease survey. On cultivated land, there were 1,497 cash rent agreements and 472 crop share agreements in the survey. The research excluded rental agreements between immediate family members.

Across the province, the rental rate ranged from an incredibly low \$6.25 an acre to a surprising high of \$140.60 an acre. The mean worked out to \$35.65, lower than many observers would have guessed. Breaking the data into crop districts, the highest average cash rent was in the Regina to Moose Jaw region at just under \$50 an acre.

The Saskatchewan study didn't include any information on the length of rental agreements, but information from Alberta Agriculture & Rural Development for 2011 and 2012 shows 40 to 50 per cent of rental contracts were one year. Three-year contracts had nearly 30 per cent of the total, with five-year deals accounting for roughly 20 per cent.

Growth in cash-rent auctions

Auctions are used for almost everything else, so it shouldn't be surprising that cash-rent auctions are becoming more popular. Many of the auction companies that run farm machinery sales also run farmland rental auctions from time to time.

There are also online auction services where landlords can list land for rent and producers can register bids. The website rentthisland.com is based out of Ontario, while rentterra.ca is based in Saskatchewan.

However, the vast majority of cash rent deals continue to be negotiated privately, and there's often more involved than just the rate.

See the landlord's perspective

Research conducted at the University of Guelph shows that most of the time, land is being rented from another farmer, a retired farmer, a widow, a rural resident or an individual investor. Investment companies make up only a small fraction of the rented land base.

Bryan says the rental rate is usually the factor most producers focus on when thinking about securing more land, but it isn't actually the most important aspect for the majority of landlords. An Iowa survey showed landlords value a tenant's trustworthiness, reputation, and caring about the land ahead of the rental rate.

"Landlords are looking for the same thing in a tenant that you would in a friend," Bryan notes. "A high bid might get you an initial rental contract, but if you develop a bad reputation, you can lose a lot of land very quickly."

Mike Kalisvaart agrees, saying that some of his landlords appreciate the mowing of fence lines and ditches, while others want straw for their cattle. For some, payment terms that help manage tax considerations are important.

"Some just appreciate that we stop by and have coffee every so often," he says.

If you're thinking about renting land, you're in good company. Managing rental agreements has become a critical component for the success of many grain operations. ■



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Agriculture and the atomic world

BY OWEN ROBERTS

Your grandparents were right when they said to eat your fruit and vegetables – research over the years has proven that produce helps fight disease and keep people healthy. Yet Canadians chronically under-consume the likes of peaches, pears and grapes, blaming (among other things) rapid spoilage. Experts agree there's more at play than that, but the point remains: despite huge gains in many aspects of farm management, modern agriculture and food processing, tender fruit in particular spoils at about the same rate it did decades ago, maybe even centuries ago, frustrating consumers and cutting producers' profits.

But thanks to a promising technology called nanotechnology (see sidebar), fruit that normally

goes bad as little as one or two days after being picked could stay fresh for up to 10 days. The key is better on-farm storage, involving a natural preserving agent called hexanal. In nature, it's the chemical that imparts the distinct scent of a freshly mowed lawn or freshly cut cucumbers. In food processing, manufacturers use it to produce fruity flavours.

Research over the past 15 years has shown hexanal also has preservation powers. A few select growers in the tender fruit sector in Ontario have used hexanal to try to slow on-tree ripening in peaches and nectarines (keeping them firmer at harvest, which enables them to be stored longer) by applying it on fruit before harvest.

However, after an hour or so, the hexanal application evaporates. Or, if the weather is rainy, it washes off.

Enter seasoned University of Guelph plant and food scientists Jay Subramanian, Gopi Paliyath, Loong-Tak Lim and Alan Sullivan. They have a long and successful track record of tender fruit variety development and of conventional food improvement through the addition of natural antioxidants, particularly from berries. Now, they're working towards a practical way to introduce hexanal into storage.

The team is involved in on-farm tests on a Niagara-region tender fruit farm to determine whether nanoparticles can be used to first retain hexanal, then very slowly release it over an extended period, in storage. "Delivering hexanal through nanotechnology could have a profound effect on farm management in the tender fruit sector," Subramanian says. "It could make fresh food more available across Canada." If all goes well, he predicts farmers here will be using it in five years.

This research team is among the first anywhere to employ what's called bio-nano particles – namely, those from tropical vegetation (coconut husks and banana plants) with particularly large pores, into which hexanal can be absorbed and retained.

Retention occurs when the particles settle into microscopic "tubes" in the plant cells. These tubes can be harvested and packaged in something as simple as a sachet, placed onto a conventional fruit storage bin, and sealed up. Or, they can be manufactured into a biodegradable lining like cardboard for either the storage bin or for food packaging. Similar product development activities are underway at the Bioproducts Discovery and Development Centre at the university.

The tropical connection for the hexanal research is with the Tamil Nadu

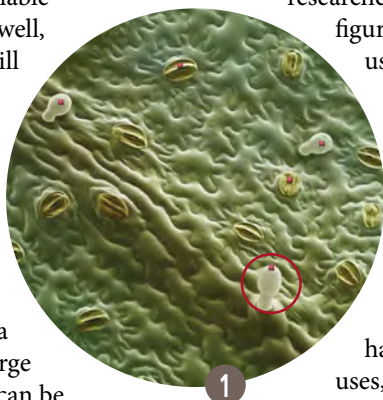
Agricultural University in India, in a project sponsored by the International Development Research Centre. India and Sri Lanka produce an abundance of vegetables and tropical fruit, but farmers there lose up to 40 per cent of their harvest due to poor storage. That loss is worth about \$800 million annually, in countries where incomes are already at the subsistence level and where per capita consumption – similar to Canada – is far below the recommended level. Here, Subramanian believes better storage could be especially effective for preventing spoilage in mangoes, an agriculturally important crop.

Yet another approach to using nanotechnology in agriculture is to take naturally occurring microscopic nanoparticles out of the field – harvest them, in other words – rather than put them in.

That's what University of Guelph physics researcher John Dutcher has figured out how to do, using corn. He and his research team found nanoparticles in that crop that are sugar molecules with what he calls "a remarkable ability" to retain moisture. That means they could have a wide range of uses, especially in cosmetics and personal-care products.

Dutcher anticipates the nanoparticles being well-received by industry because they're made of natural sugar and could replace synthetics, which are potentially toxic. He's now working with a provincial corn specialist to determine which varieties yield the most particles.

For his part, Dutcher says research is needed to make sure potential health and environmental effects of introducing microscopic nanoparticles into plants and fields are well anticipated and understood. But if that all works out, he says, "it will be a huge opportunity for farmers." ■



Atomic-scale applications come to agriculture

Nanoscience is the science of the almost impossibly small; the application of science and engineering at the atomic scale. More than half a billion nano-size particles would be needed to cover the head of a pin.

Nanotechnology is the application of nanoscience. It enables the atom-by-atom design and fabrication of tiny structures which have new properties and powerful applications.

Sources: Government of Canada Nanoportal (nanoportal.gc.ca), University of Guelph



1 Leaf showing stomata (tubes). The tiny red dot on top is encapsulated nanoherbicide.

Source: Department of Nano Science and Technology, Tamil Nadu Agricultural University

Cost vs. benefit of shedding your equipment

BY KEVIN HURSH

It would make an interesting thesis question for an agricultural economics student: How do the benefits of indoor farm equipment storage stack up against the costs?

In most regions of the country, virtually all equipment is normally stored inside. On the Prairies, it's more common to see farms where a considerable amount of equipment doesn't have a shelter.

Intuitively, producers know that equipment stored out of the elements has superior resale value. Faded paint is the most obvious sign of how equipment has been stored, but tires, hoses, bearings, chains and belts all last longer when not exposed to as much wind, rain, snow, ice, hail and sun.

For Gerrid Gust, who farms near Davidson, Sask., the biggest issue is electronics – particularly the electronic connectors on air drills and air carts.

“Pretty much anything with an engine, or that might get traded, will get put under cover,” Gust notes. However, this isn't accomplished with a single building.

“We set up a fabric-covered building about ten years ago. We found it inconvenient for grain storage, so it's used for equipment now.” In addition, the farm has a pole shed and a few older Quonsets located on land now owned or rented by the Gust family.

While the question sounds simple, the cost-benefit analysis has many variables. How new is your equipment and has it already been stored outside for a number of years? If you are buying new or nearly new equipment, how long are you retaining it?

“Many larger producers either lease or buy their equipment on a short term of one or two years,” Les Hill of the Prairie Agricultural Machinery Institute notes. “Over this time period, the environment has little effect if normal end-of-season care is taken.”

Farm equipment dealerships don't have the acres of inside storage they would need to put all of their equipment under a roof, but they're hoping for a quick turnaround.

“There are other considerations for storage that may be linked less to devaluation and more with convenience,” Hill notes. “Being able to put a machine away in usable condition and then being able to pull it out just before use, knowing that it is ready to go, provides peace of mind and saves valuable time.”

Empirical evidence

Unfortunately, no one seems to have an extensive side-by-side price comparison of equipment stored indoors versus equipment stored outside.

A noted authority on farm equipment values, Greg Peterson is certain that shedding results in higher retail prices. Based in the U.S., he compiles and analyzes sales data for subscribers on his MachineryPete.com website.

“There's no better investment you can make than a good shed,” Peterson says. He believes the difference really shows up on equipment at least 10 years old.

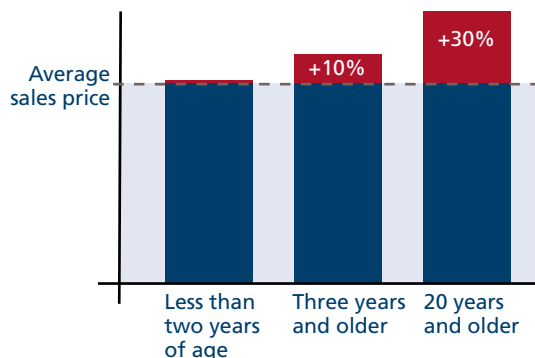
However, at farm auction sales, it's difficult to separate the shedding aspect from other factors. Bidding is likely to be more aggressive if service records are available and if the equipment has only had one or two owners. The overall appearance of the farm, and the reputation of the seller, also make a difference.

As an auctioneer and equipment auction manager for Kramer Auctions Ltd., based in North Battleford, Sask., Kim Kramer keeps close tabs on farm equipment values. He believes shedding can make a big difference in equipment value in some cases.

He cites the example of a 1981 tractor with about 110 horsepower and a loader that he sold last spring. Even though the tractor had 5,000 hours on it, the sale price was \$48,000 because the unit had been stored inside and had an excellent appearance. By comparison, he has seen similar units that were stored outside sell below \$30,000.



Estimated increase in value for self-propelled units stored inside



Source: Kramer Auctions

Building size and cost

One of the most popular choices for unheated equipment storage is a post frame, metal-clad building with a dirt floor. As farm equipment has increased in size and farms have accumulated larger fleets of equipment, buildings have ballooned in size.

“I often hear producers say they wish they’d have gone larger,” says Brad Edwards, who handles sales for Goodon Industries in Saskatchewan. It’s possible to add extra length to an existing building, but you can’t do anything about width and height.

“Our 60x120-foot buildings are very common now. That’s typically with a 40-foot-wide door that’s either 18 or 20 feet high.” Buildings of this size cost around \$100,000.

A 48x78-foot cold storage building is in the \$50,000 range, while 42x60 costs about \$37,000.

Increasingly, for storage buildings that are long, there are big doors on each end. A level, well-drained site with no underground lines and sitting at least 20 feet from trees is needed. Producers are asked to provide some crushed rock for tamping poles. Goodon dispatches crews of six to 12 people, who erect the entire building in a matter of days.

Metal frame fabric-covered buildings are another option for equipment storage. They have lots of natural light inside and can be dismantled and reassembled at another location, if necessary.

According to Norseman Structures based in Saskatoon, Sask., foundation needs vary depending on building size and model. Large buildings can use wooden pony walls, poured-in-place concrete foundations or precast concrete blocks.

For a 50x96-foot Norseman Structures building complete with an installed pony wall, the price is roughly \$62,000.

Go under cover

Storage has many benefits. Equipment such as grain trailers stay free of ice and snow when you need them in the winter. The combine can be moved inside at harvest when rain is expected. In the spring, if a light frost is forecast, the sprayer may avoid damage from frozen components if it is stored under cover.

In most cases, increased equipment value will more than pay for a building. How quickly depends on variables in your operation. However, if you’re keeping valuable equipment – particularly self-propelled equipment and air drills – for more than a few years, you should be money ahead from storing them inside. ■

Expert²Expert

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Genomics becomes useful tool for commercial beef producers

People familiar with genomics often talk about snips (SNPs). What are these?

SNPs, or single nucleotide polymorphisms, are like road markers on the genetic highway. Specific SNPs or markers are associated with specific gene functions. By submitting a DNA sample – usually some hair with the follicles attached or a semen sample – to a DNA lab, it's becoming possible to predict an animal's genetic potential. Some commercial producers are already using the technology. For instance, some operations might benefit from something as simple as sire verification. As costs come down and we learn more about SNPs, you are going to see more commercial application of this technology. For instance, SNP patterns will help the producer know an animal's genetic growth potential.

So right now, it would be fairly easy to submit samples and know which of your calves came from the several bulls running in the pasture? Or which came from your AI program and which from the clean-up bull?

Yes, in some cases it works out cheaper than trying to tag calves when they're born. In some cases, it will work out that you can run multiple bulls to improve your pasture management, reap the benefits from that and only keep your replacement heifers out of the bulls that are replacement suitable. So yes, there are all sorts of ways to use the technology. Costs vary depending on the lab, but the cost for sire verification is somewhere between \$10 and \$25 per sample.

On breeding stock, EPDs (expected progeny differences) have long been used in selecting desirable animals. This involves collecting data on birth weights, weaning weights and growth rates on progeny. How does genomics fit into that?

EPDs have helped us select more accurately and make quick genetic change. When you add genomics to that mix, the accuracy increases and the rate of change is even quicker. You have a lot more information on an animal even before it has produced any progeny. You don't have to raise a bull calf to maturity, have him breed cows and then monitor his offspring all the way to slaughter to get an idea of his performance.



Livestock genetics consultant Sean McGrath answers questions on the practical applications of DNA markers.

SEAN MCGRATH

Sean has a consulting business focused on livestock genetics, primarily beef cattle. He's also part of a commercial cow-calf operation southeast of Vermilion, Alta., with a satellite operation in Saskatchewan.



But you don't want to be going down the highway doing 140 and "Whoops, there's my corner." You need to have an idea where you're going ahead of time, because you can get there so much more effectively. You have to have a target.

Can you target multiple things at the same time, or does that become self-defeating?

You need to target multiple things at the same time, so if you were strictly selling cattle for meat production, you still need to target yield and quality grade, for example. On the maternal side, you need to have calves that grow but cows that breed back. So there's an art and a balance to it. It's knowing what you want to accomplish. And there will be trade-offs.

How much will this change the industry in five or 10 years?

I think it's one of the big changers because we can get this information when calves are six months or a year old. It actually shaves years off the breeding process and the selection process and I think that has the biggest potential of anything.

However, because a SNP is associated with a piece of DNA we're interested in, it may not be tied to the DNA in the same way in every breed, so each breed will have to go through the process of finding what we call informative SNPs. Then as you move into the commercial population where there are crosses of different breeds, we need to look for SNPs that are informative across breeds as well.

Does that give the larger breed associations an advantage just by the strength of their database?

It probably does. We can't get away from the need for data; DNA doesn't replace data. Data actually becomes more important and the better database you have, the more advantage you can take of the technology. The good news is that the cost of genomics will continue to come down. Like the early days of personal computers, much more data is becoming available at an ever-lower cost each year. ■



VIDEO:
Advances in
cattle genetics
[fcc.ca/
cattlegenetics](http://fcc.ca/cattlegenetics)

Make risk management routine

BY HUGH MAYNARD



Farmers engage in managing risk as routine business, and a lot of that risk management is done by transferring it over to someone else – at a price. Business risk management programs help protect against a drop in income, fire insurance lessens the cost of re-building a burned-down barn, or workers compensation covers wages lost to an accident.

Insurance isn't perfect for handling risk, as it doesn't cover everything – just ask farmers who have suffered through a flood in recent years. So, what are some of the areas of risk where producers can eliminate, or at least lessen, their concerns without breaking the bank?

The top priority is farm health and safety. Even setting aside the insurance aspect, a safer and healthier workplace is a lifetime investment for everyone who works – and lives – on the farm. To ensure a safe working environment, here are three fundamentals that will, at comparatively little cost, help minimize health and safety risks around the farm.

- 1 The first is education: a bit of time invested in a first aid course or a refresher workshop in pesticide handling are pretty big ounces of prevention. Quebec's regional agricultural training collectives, for instance, will help organize courses right on the farm, and a lot of information is available through websites such as SafeManitoba.com/farms. So there's no excuse for not knowing.
- 2 The second is preparedness: does everyone know where the emergency contact list is posted? Is there an emergency contact list? There should be, along with lists for every procedure from cleaning a chemical spill to proper handling of produce.
- 3 The third is technology: specifically, making information readily available to everyone involved. Forget about musty pieces of paper stuck away in a drawer somewhere. Put them online, in "the cloud," so they can be accessed anywhere on the farm by any farm employee with a smartphone. Could anyone on the farm give ambulance or firefighting crews directions to a particular field or yard site in the case of an emergency? They could if the information was readily accessible.

Risks can never be eliminated, but they can be greatly minimized. The best way to do that is to make risk management a routine part of daily business on the farm. ■



Supervise ATV use on the farm

BY MARK CARDWELL

There's no doubting the practicality and pleasure of using all-terrain vehicles (ATVs) on farms. But sound judgment and respect for some basic safety rules are needed if farmers want to keep the exercise fun.

For starters, let's consider the physical realities of these motorized vehicles that are increasing in popularity in a big way.

Designed specifically for off-road use – which is why they have large, low-pressure tires – ATVs can weigh in excess of 300 kilograms and reach speeds of over 100 kilometres an hour.

In other words, ATVs are not toys. That's why the Canada Safety Council (CSC) recommends children under 16 not drive them.

“Young people don't have the knowledge, strength, good judgment, and maturity to be able to operate these vehicles safely,” reads the CSC stand on ATVs.

So before letting Junior and his buddies take off for the back 40, consider this: nearly 40 per cent of people killed and one-third of those seriously injured on ATVs in Canada are under 19.

The most common causes of those accidents are driver error, poor judgment, loss of control and carrying passengers.

It's not just teenagers, however, getting banged up or killed on ATVs.

A recent study that looked at 10 years of data from hospitals in Alberta, which accounts for nearly half of ATV sales in Canada, revealed 79 deaths from ATV use.

Another 459 people suffered “serious trauma,” ranging from broken spines and broken necks to life-altering head injuries.

While some have called for increased regulation, the New Brunswick All-Terrain Vehicle Task Force concluded back in 2001 that regulations controlling ATV use on private property “would be difficult if not impossible to enforce. Ultimately, the adults in charge must actively supervise and make sure safety precautions are taken.”

CSC recommends owning only ATVs with four or six wheels (forget the tippy three-wheel models) and using proper equipment, including a helmet and eye protection, as well as boots, gloves and long pants. The council also encourages parents to serve as role models for their kids and follow basic ATV safety rules themselves. ■

TOP TEN SAFETY TIPS

- 1 Only drivers over the age of 16 should operate an ATV.
- 2 Always wear protective gear. Just like operating a motorcycle or bike, always wear a helmet.
- 3 Take a driver's safety course.
- 4 Only one rider per vehicle on single-rider models. ATVs designed for only one rider at a time require that you manipulate your weight in order to control the vehicle.
- 5 Ride ATVs in appropriate settings. Avoid improper terrain that may encourage the ATV to roll over.
- 6 Do not speed. Increasing the speed decreases your control and the vehicle's stability.
- 7 Do not operate an ATV when impaired. Even over-the-counter or prescription medications can slow your reaction time.
- 8 Carry a communication device with you at all times to call for help in the event of an emergency.
- 9 Do not attempt tricks or stunts while riding an ATV.
- 10 Use common sense.

Source: Classbrain.com



New look, new stories, new optimism in ag

Modern, vibrant and diverse,
Canadian ag has a bright future

Canadian agriculture is a dynamic industry filled with people who love what they do. And it shows.

Over the past 10 years, AgriSuccess has placed a spotlight on the people and places that make the industry so great. In that time, we introduced readers to hundreds of producers and businesspeople from every corner of the country: grain and livestock producers, dairy and poultry producers, horticulturalists, vintners and many more. All of them care deeply about agriculture and take great pride in their craft. And we profiled nearly 50 young farmers whose energy and enthusiasm continue to propel Canadian agriculture forward.

"FCC is proud to serve all of agriculture – all the time, in all sectors, all across Canada," says Lyndon Carlson, Senior Vice-President of Marketing at FCC. "We develop and encourage innovative ideas within the agriculture industry, which we know is dynamic and progressive, as are the producers and agribusiness operators that bring it to life. The knowledge we offer through AgriSuccess has been and will continue to be a major part of that commitment." ■

A Look Back

Look how we've grown! Now more than 20 pages, every issue brings you feature stories and regular columns with practical information for your operation.

By the Numbers

- 98% of farms are still family farms
- 1 in 8 Canadian jobs are in ag and agri-food
- Almost 25,000 farm operators are under the age of 35

In Quotes

Big things are happening in ag. Here are a couple quotes from FCC news releases in just the past few months. Rest assured, AgriSuccess will be there to cover the industry's exciting future.

"Opportunities for young people are growing, and reflect the overall strength of the industry."

Greg Stewart, FCC President and CEO

"Canadian agriculture is a challenging and rewarding industry, filled with professional, forward-thinking, business-savvy people who love what they do."

J.P. Gervais, FCC Chief Agricultural Economist

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