

# Better pork

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DEAR READER: LETTERS FROM A FAMILY FARM

## THE BEST-LAID PLANS

Over the past few years, my sister **Jessica** and I have taken on more of the management of the family farm business.

It's been kind of a gradual transition, as we discover our strengths and the best way to divvy up the work. Jessica handles the use of the accounting software, while I manage the broader record-keeping. Together with **Dad**, we develop our grain marketing plans. And **Mom** helps keep everyone together.

During our discussions, our differences in personalities and backgrounds become evident. Dad has a few decades of farming experience under his belt, which allows him to provide context and practical advice for our planning. Jessica is more of a strategic risk-taker. She's the one who pushes us to set aggressive target orders, for example, which can result in some benefits for the business.

I'm the most cautious one of the four of us. I always need to have a plan – and I think my family would agree that these plans have often proved beneficial.

But, of course, there's a limit to the factors within our control in our industry. Mother Nature can throw a curveball at the best-laid plans, for example, and NAFTA renegotiations continue. (For more information on the latter issue, see the article by department writers **Moe Agostino** and **Abhinesh Gopal** on page 44.)

Given my personality, though, I think that my family might say that I can worry too much. Having a Plan B is good business sense. Expanding to a Plan C when the first two options are pretty solid, however, could be seen as going a bit overboard.

Perhaps in light of my tendency to overthink things, department writer **Richard Smelski's** article stood out to me. Sometimes, I think we can all get caught up in our concerns and forget the bigger context. Smelski's piece is a good reminder that, at some point, we need to step back and approach problems in a new way. **BP**

ANDREA M. GAL

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Jeroen Van Boekel photo

**"I make sure that we are thinking ahead of the game and that we have the right quality and correct quantity of pigs going out the door," says pork producer Jeroen Van Boekel. See his interview with staff reporter Kate Ayers on page 22.**

Correction: Geert Geene's name was incorrectly spelled on page 10 of the December 2017 edition of *Better Pork*. We extend our sincere apologies for this error.

Jevtic/Stock/Getty Images Plus photo



## 'GENE'RATING HEAT FOR MODERN PIGS

Researchers in China and the United Kingdom are creating a breed of pig that is more cold-tolerant, according to an October article in *Science*.

Specifically, the scientists have reintroduced a gene that was "thought to have disappeared from the ancestors of modern pigs about 20 million years ago," the article said.

This gene, UCP1, allows fat cells to "produce heat to provide a way to maintain body temperature that doesn't involve shivering," **Andy Robinson**, an associate professor at the **University of Guelph**, explained.

This heat-producing and temperature-regulating mechanism can improve the welfare of the animal, Robinson said.

And, this improvement may be particularly helpful for piglets.

"Young mammals are at a greater risk of hypothermia due to their size and the energy they are putting into growth," he said.

While pig barns have heat lamps to provide supplemental heat to nursery piglets, the animal's thermal needs can change depending on its proximity to both the sow and the lamp.

"The stronger piglets can muscle their way into the best spots while the smaller ones who are already at greater risk may not be quite as successful," Robinson said.

So, the weaker piglets may end up shivering in an attempt to stay warm.

When the UCP1 gene is expressed, the animal uses energy that is stored in fat rather than in muscle, Robinson said. **BP**

## FILLING A NICHE IN EUROPEAN MARKETS

Federal officials have resolved the main, remaining obstacle facing Canadian pork exports to Europe under new **Comprehensive Economic and Trade Agreement** (CETA) rules but **Canadian Pork Council** (CPC) officials have few expectations of an imminent bonanza.

**Canadian Food Inspection Agency** officials changed health mark practices in late October to meet European requirements. Now, processors can place labels on frozen pork. Previous Canadian rules required labels at an earlier stage of processing that effectively prevented exports under CETA. Remaining hurdles involve relatively minor facilities' inspection issues, **Gary Stordy**, director of government and corporate affairs for CPC, said in an interview.

He predicted a process of identifying and supplying potential niches. "Many regions of Europe consume pork and their domestic production fills that demand," Stordy said. "What we want is to go into that market and fill a niche just with our Canadian product itself," he said.

CETA secures a tariff-free quota volume of about 80,000 tonnes of pork. In 2016, Canada exported 1,075 tonnes of fresh, frozen and chilled pork to Europe. **BP**



ghh007/Stock/Getty Images Plus photo

## HOT HOGS DON'T DRINK MORE WATER

New research from England may just shake up your understanding of pigs' drinking patterns.

In the heat of summer, pigs do not actually drink more water.

Rather, they change their pattern of water consumption, according to an October release from **ARM Buildings Ltd.** in Staffordshire, England.

During periods of exceptionally hot weather (86 F/30 C or higher), older pigs were less active during the hottest part of the day. Instead of consuming more water, they were more inclined to eat and drink earlier and later in the day, **Dr. Sadie Douglas**, data services

manager at **Farmex** said. Their altered behaviour lasted for an average of three days after the heat diminished.

These findings "should have no major implications for producers as long as the pigs have enough access to water during the times when they will be drinking. Producers should verify that their water pumps can keep up



with higher water intakes when animals are heat stressed," said **Laura Eastwood**, swine specialist with **Ontario's Ministry of Agriculture, Food and Rural Affairs**. **BP**

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# BREATHE EASY: AIR FILTRATION ENHANCES BIOSECURITY

Air filtration helps prevent disease transmission and offers pork producers greater peace of mind.

by KATE AYERS

**Brent Robinson, Vista Villa Genetics co-owner, pulls a fabric pre-filter over one of the approximately 400 Protair-X agricultural air filters deployed in the attics of the barns at Vista Villa Farms in Walton, Ont.**

For Brent Robinson of Vista Villa Farms in Walton, Ont., which is a genetic nucleus of Alliance Genetics Canada, the installation of an air filtration system has “been a real positive” for his businesses.

In total, Robinson has 3,000 sows. He sells breeding stock, open gilts, bred gilts and boars to producers in Ontario’s commercial swine industry. Robinson also sells semen and live animals outside Canada. So advanced biosecurity and healthy animals are critical for his operation.

“The air filtration system has allowed us to do one more thing on the biosecurity side to help protect the health of our sows and our whole production,” says Robinson. He installed the system about seven years ago.

Robinson was one of the earlier Canadian adopters of air filtration. While the technology made its first appearance in North America in 2003, only 30 commercial swine buildings in Canada and 98 buildings in the United States were equipped with air filtration about a decade later, the Centre de développement du porc du Québec Inc. (CDPQ) reports.

But producer interest in the technology has begun to grow in recent years, and more pork producers are installing air filtration systems, says the CDPQ.

## **Filtration’s role in pathogen prevention**

The technology can help reduce the threat of pathogens, including porcine reproductive and respiratory syndrome (PRRS).

“When you look at the cost of a PRRS outbreak per sow, and you figure that most herds will break with PRRS once every five years, you realize that the cost-benefit analysis works out well in favour of doing filtration in a barn,” says Curtiss Littlejohn, the innovative projects and swine products manager for Canarm AgSystems.

A PRRS outbreak can significantly affect both a swine herd and a producer’s emotional well being.

“If the PRRS virus gets into the population, it can cause extensive

## AIR FILTRATION SYSTEMS

mortalities ... many pigs get sick with respiratory disease and may not recover. ... And then the sows can abort their piglets and die themselves,” explains Dr. Scott Dee of Pipestone Veterinary Services in Minnesota.

Air filtration helps “keep disease out of the barn, especially PRRS. That’s the main thing,” says Hans-Gerd Ulrich, Big Dutchman’s business development manager.

This effectiveness is backed by grounded studies, says Littlejohn.

“We can look at research that has been done in barns that are 100 per cent filtered all year round. The statistics, so far, show zero incidence of PRRS outbreaks due to aerosol transmission.

“A couple of barns have broken out with PRRS, but everything points to a biosecurity lapse in some other area, such as trucking or employees,” says Littlejohn.

Referring to his team’s work in Minnesota, Dee agrees that air filtration reduces the incidence of PRRS infections.

“PRRS virus and other agents have an airborne risk factor. By filtering incoming air, you reduce that risk factor significantly,” he says.

“Basically, the virus is travelling on particles in the air, and the filters reduce the amount of virus in the air.”

And this disease protection extends beyond PRRS.



Brent Robinson photo

The pre-filters, which are changed twice a year, pull larger particulate matter from the airstream before it is filtered by a 15 layer antiviral and antimicrobial mesh below. Brent Robinson hopes the pre-filtration stage helps extend the longevity of the bio-filters, which currently have to be replaced every four years at the cost of \$500 per unit.

An advertisement for Husky Farm Equipment Ltd. The background is a photograph of a large field with several pieces of green and yellow equipment, including tankers and pipe carts. The text is overlaid on the image. In the top left, there is a logo for Husky Farm Equipment Ltd with a '50 Years' anniversary banner. The main text reads 'Husky Farm Equipment Ltd Committed To Quality You Can Depend On!'. On the right side, it lists 'Also Available Lagoon Pumps 10-12" Pipe Carts Truck Mounted Tanks Wireless Remote Controls'. At the bottom, it says 'A Complete Line Of Liquid Manure Handling Equipment' and provides contact information: 'husky@huskyfarm.ca 519-846-5329 www.huskyfarm.ca'. A small circular inset shows a close-up of a pipe cart.





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Robinson, for example, has noticed fewer outbreaks of influenza in his herd since he installed the air filtration system.

**Air filtration types**

Negative pressure filtration is most common on Canadian farms, reports a 2015 CDPQ study. This system draws air into the building through the filter while exhaust fans push stale air outside. The system creates a

partial vacuum inside the barn.

Positive pressure systems, however, force air into the building through HEPA filters, and the air is exhausted through outlet openings.

Both types of systems have their advantages and disadvantages.

“If I had a situation where I had a brand new building, I’d certainly consider a positive pressure system. The nice part with a positively pressurized building is that you’re

bringing filtered air in – kind of pushing it in,” says Robinson.

But he had his barns retrofitted for negatively pressurized air filtration.

In negatively pressurized systems, regular building maintenance and monitoring are important. They help ensure the highest security. The main challenge is preventing unfiltered air from coming in through openings such as door frames and building joints.

“We are always checking our buildings to make sure there are no cracks or crevices where unfiltered air can come in. The system is always trying to draw air in, so we want the air to be drawn in through the filter, not through a crack in the barn,” says Robinson.

Although the negatively pressurized system requires routine upkeep, it is less expensive than HEPA filters and positive pressure systems.

“When we put the air filtration system in, we realized it was going to change our lives. You have to think about biosecurity all the time and just be alert. ... The system has been really excellent but ... it takes care

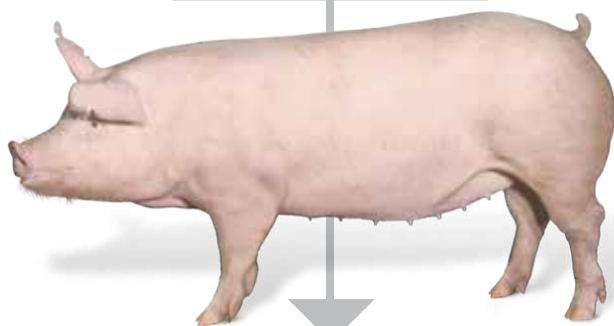
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Kyle Rodriguez photo

**Brent Robinson stands behind the gate to Vista Villa Farms, a second-generation family-owned “farrow-to-finish” hog operation, where they raise pigs from birth to market size.**

# Supporting the Ag System

*New initiatives are ensuring Ontario agriculture is supported now and in the future*

**E**nsuring Ontarians have access to a diverse supply of local food is about more than just protecting high quality farmland. It also requires protecting and enhancing an agricultural system providing the critical services, goods and infrastructure that farmers need to get their products to market.

The Greenbelt Fund, a non-profit supported by the Government of Ontario to bolster the province's local food sector, is investing in projects that help sustain agriculture and help ensure farmers have access to the full roster of goods and services needed to stay in production.

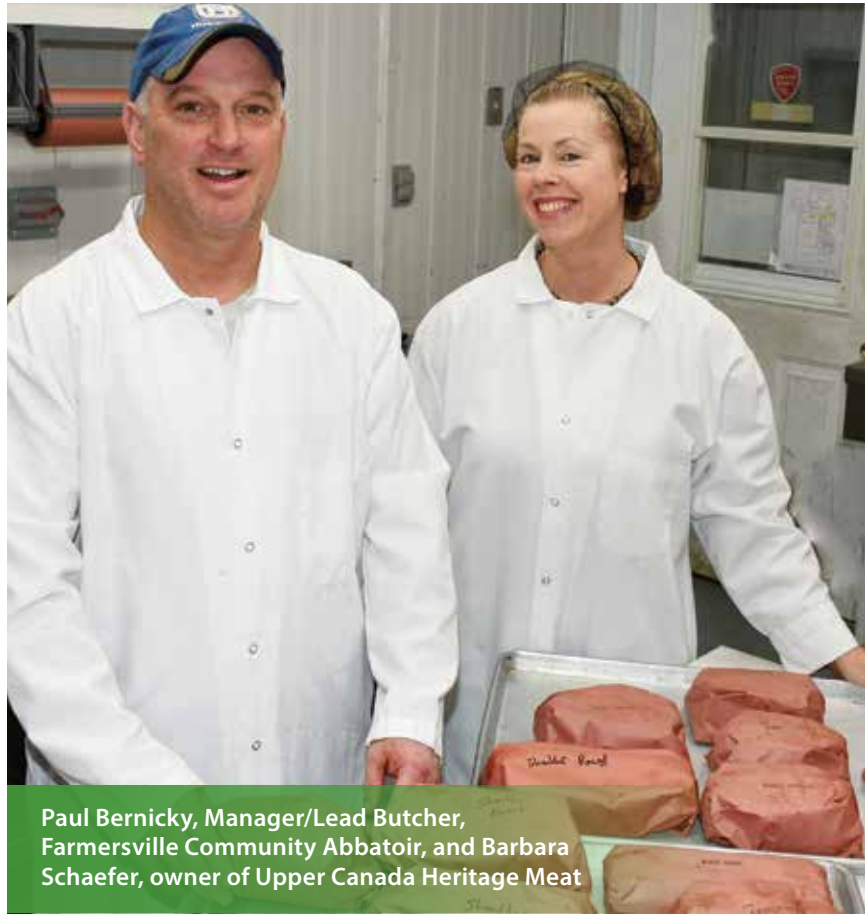
## Community Leadership in the Ag System

In North Augusta, a group of private citizens headed by Barbara Schaefer worried that lack of access to abattoirs in the community was jeopardizing the future for local hog farmers. The group came together to create a new, not-for-profit community-owned abattoir to meet the needs of the farmers in Leeds and Grenville, Frontenac, Lanark and Ottawa-Carleton.

Farmersville Community Abattoir (FCA) received \$30,141 from the Greenbelt Fund last year for new equipment to refurbish the decommissioned slaughterhouse now run by the group. FCA estimates that this abattoir will help secure the futures of 1,300 area farmers and increase local food sales by \$240,000 a year.

Schaefer (who owns her own farm Upper Canada Heritage Meat) says that there is a shortage of local abattoirs that have facilities for pork, so she decided to take action to help secure her own future as a pork producer and that of other pork farmers. "We started with this fairly run-down slaughterhouse," she recalls. "The equipment was out-of-date and we needed to upgrade."

With help from the Greenbelt Fund, Schaefer and her team were able to make the abattoir functional by October 2016, and she notes that Greenbelt Fund staff have been very helpful and



**Paul Bernicky, Manager/Lead Butcher, Farmersville Community Abattoir, and Barbara Schaefer, owner of Upper Canada Heritage Meat**

accommodating. "With a start-up project like this, steady cash flow is very important in the beginning and the Greenbelt Fund made this possible," she explains. "They were there for us from the very beginning when we needed the cash. It worked out very well for us and gave us a great start."

## Regional Support

Supporting not only farmers but the agricultural system is an idea that's gaining traction at all levels of government. Halton Region is one municipality that is investing in this area.

The Region created an "Agricultural Liaison Officer" position, hiring Anna DeMarchi-Meyers for the role. DeMarchi-Meyers works with staff from the Land Use Planning and Economic Development divisions as part of the Region's rural ag strategy to support

farming. An analysis on the following initiatives is underway:

- Rural broadband internet gaps;
- A local food procurement pilot project involving regional long-term care facilities (also supported by the Greenbelt Fund); and
- Mapping of existing ag-related assets

Kathy Macpherson, Vice President of Strategy and Programs at the Greenbelt Fund, says support for the entire farming system is key to long term agricultural viability. "It's now more clear than ever that we must go beyond protection of the agricultural land base and ensure there are sufficient services for farm businesses," she notes. "These include everything from farm equipment repair to crop storage, processing and marketing services, and slaughter capacity."

Photo: Leeds Grenville Economic Development Office

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and maintenance, and you have to give it the attention it deserves,” Robinson explains.

**Choosing the right system**

Producers must consider several factors when selecting the best air filtration system for their operations. Their decisions should be



Scott Dee

based on a system’s filtration efficiency, the ease of filter installation, filter air resistance and the system’s susceptibility to clogging.

Producers should also consider the overall cost of the filter throughout its lifespan. Costs include the initial purchase and installation fees, filter longevity,

energy, maintenance and disposal, the CDPQ says.

In addition, producers should understand the ease of system service and maintenance schedules.

“Because filters require maintenance and should be replaced periodically, you have to have good access. You have to have an environment where people can get to these things to work, service, change and monitor them,” says Littlejohn.

The lifespan of filters depends on the amount of clogging that occurs and the resistance to air flow.

**Filters and replacement**

Once air filtration systems are installed, producers and their staff must maintain the technology to keep it functioning at its best.

“For filtration to work effectively, it needs a proper maintenance schedule. It has to be serviced regularly,” Littlejohn says.

Robinson similarly stresses the need to monitor the system.

“Filters don’t last forever, and the big part is monitoring these filters so that we know when they are starting to degrade and become less effective,” says Robinson.

Service requirements vary by filter type, and each barn will have a differ-

*Continued on page 14*



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Kyle Rodriguez photo

**One of approximately 130 No-Backdraft Dampers installed at Vista Villa Farms, vents hot, humid air from the pig barn into the winter cold outside.**

## AIR FILTERING RESEARCH AND DEVELOPMENT CONTINUES

A new product and on-going research aim to improve the biosecurity of Canada's pig barns.

Big Dutchman has introduced an air filtration system that is an alternative to negative pressure systems. This product can be a good fit for older buildings which do not have airtight attics.

The system prevents unfiltered air from coming into the barn through the attic, where the air is typically drawn from, or through gaps in the wall or roof.

"These new, decentralized systems use more air inlets that sit on the outside walls of the building. These inlets

feed filtered air directly into the building," says Hans-Gerd Ulrich, Big Dutchman's business development manager.

And researchers continue to think about PRRS prevention and mitigation.

For example, scientists are "still evaluating different filter types and different aerosol intervention strategies, such as the ultraviolet light treatment of the air. ...

There's more research in the intervention and mitigation side of the problem," says Dr. Scott Dee of Pipestone Veterinary Services in Minnesota. **BP**



Hans-Gerd Ulrich photo

Big Dutchman has introduced a decentralized air filtration system, an alternative to negative pressure systems. In this photo, the product is installed in a pig barn in Quebec.

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Continued from page 12

ent cleaning regimen. Robinson is testing the longevity of filters with Protair-X Technologies, the manufacturer and distributor of his system's filters. Specifically, the company is examining when the filters start to clog up and move less air through.

Robinson uses a MERV 15 (minimum efficiency reporting value) filter. This 15-layer filter of woven plastic has both antimicrobial and anti-

viroidal properties.

He sends a sample of the filter media away for analysis in a lab. Robinson is about a year into testing but he thinks the MERV 15 filter should be replaced every three to four years.

Another method that ensures proper filtering is installing pressure gauges that measure the static pressure in the barn, the CDPQ says. Static pressure indicates the level of

clogging in the air filtration system and makes it easier to determine when the filter needs to be replaced.

Producers must also replace pre-filters twice a year to maintain maximum efficacy. Pre-filters, which are a cotton-batten-like bag, remove the bigger particles and rougher materials from the air. They prevent a lot of dust from entering the expensive filter.

The pre-filters are 7 to 8 per cent of the cost of the big filter, Robinson says. The items are worth the investment to keep the system running effectively.

**Extra safety net**

Since every producer's building and operation requirements are different, a tailored approach to system design and installation will ensure the best fit. Local air filtration suppliers can help determine which air filtration system is adequately suited to a producer's operation.

Many filtration systems can be incorporated into new buildings as well as retrofitted into existing buildings. Regardless of the type, any air filtration system is better than nothing, Dee says.

"The bottom line is that air filtration is effective, independent of the system. It just depends what fits the building style and budget. There are different designs and systems you can use, but the concept is pretty universal," he says. **BP**

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# MAKING NEEDLES A THING OF THE PAST

Producers are no longer on 'pigs and  
needles' about needle-free technology.

by KAITLYNN ANDERSON







Canadian producers considering the adoption of needle-free injectors can look to one of the country's leading pork producers to help determine whether the technology could properly fit in their operations.

Since 2011, HyLife, located in La Broquerie, Man., has used needle-free injectors on all their pigs from birth to slaughter.

The company conducted its first trial in a research barn in 2008, said Karine Talbot, director of animal health at HyLife, at the 2011 Manitoba Swine Seminar in Winnipeg.

The primary goal of HyLife's study was to determine whether the use of needle-free injectors was practical in a pig barn, she said.

"It didn't take (us) much time to realize that this technology was promising," said Talbot.

In 2009, the federal and provincial governments announced funding as part of the *Growing Forward* food safety program to assist producers with the costs of phasing approved needle-free injectors into their operations.

"This (program) was the last incentive that HyLife needed to make the decision to ... start the transition to needle-free (devices) in all of the barns," said Talbot.

### How does it work?

Before switching to needle-free injectors, producers may want to understand the logistics of the technology.

"Needle-free devices use hydraulic pressure to force the inoculant through a tiny orifice, which is usually six to seven times smaller than a typical hypodermic needle," said Cal Funk, general manager of AcuShot Inc. "The inoculant becomes the needle, penetrates the skin and goes into the tissue of the animal."

AcuShot manufactures and markets two of these devices, both of which are battery-powered. The products can perform from 300 to 1,000 injections per charge in all sizes of livestock, the company's website says.

Pulse NeedleFree Systems also manufactures and sells needle-free injection devices. The company offers

## NEEDLE-FREE INJECTORS

a range of devices that allow users to inject different dosages.

For example, the Pulse 250 has a dose range of 0.5 to 2.5 millilitres while the Pulse 50 Micro Dose Injection System has a range of 0.1 to 0.5 millilitres, the company's website says.

Producers may find the Micro Dose Injection System useful for the "injection of ... antibiotic products in young pigs, where speed, flexibility and dose accuracy are vital," the website says.

Overall, Funk has received favourable feedback from swine producers who have used needle-free devices in their operations. "Producers tend to like the response from the animals. The pigs seem to experience significantly less stress," he said.



**AcuShot injectors are battery-powered and can perform up to 1,000 injections per charge in all sizes of livestock.**

## IMPROVING FARMER ACCESS TO NEW TECHNOLOGY

The Saskatchewan Pork Development Board (Sask Pork) wanted to ensure that swine producers could have access to needle-free injectors, despite any start-up costs.

To achieve this goal, the group worked with the provincial and federal governments to create the Saskatchewan Swine Welfare Program.

"This program was designed to help producers adapt to new requirements in the Code of Practice for the Care and Handling of Pigs," said Bridget Gray, Sask Pork's producer services manager.

Since July 1, 2016, the code has required all swine producers to administer analgesics to pigs that are being castrated or having their tails docked to control post-procedure pain, Gray said.

Farmers can inject these medications into pigs with needle-free devices.

This "injection equipment has advantages over traditional needles for delivery of analgesics — or other injections, such as vaccines," Gray said.

Some benefits include "less pain and stress on piglets, accurate administration of very low doses of medications, and the elimination of broken needles and needle pokes in barn workers."

A total of 38 producers invested in needle-free technology last year, thanks to funding assistance from the program, Gray said.

To be eligible for support, producers must register with the Canadian Quality Assurance (CQA) program. They must complete the application for Canadian agriculture funding through *Growing Forward 2*.

Together, the provincial and federal governments



AcuShot Inc. photo

**When they used needle-free injectors instead of regular hypodermic needles, some producers found less disease transmission between pigs, Karine Talbot said.**

cover 60 per cent of the cost, while Sask Pork provides another 20 per cent of the funding (up to \$4,000 per registered premise). Producers only have to cover 20 per cent of the \$4,000 maximum and any additional costs over the limits of the program.

Producers can submit their funding applications to Sask Pork until the end of February. **BP**

Because stress commonly indicates pain, these results could mean the devices are less painful than hypodermic needles. When producers use needle-free technology, “the animal’s pain can be reduced or almost eliminated,” he said.

### Reasons to adopt the technology in your operations

HyLife chose to use these devices mainly to eliminate the risk of leaving broken needles in the meat. However, producers may find other benefits by using the technology, Talbot told *Better Pork*.

For example, the needle-free devices tend to deliver a more consistent and more accurate injection than regular needles, she said.

Users have also reported that pigs absorb vaccines more efficiently because a small portion of the inoculant remains in the skin and improves the animal’s biological response, Funk said.

When using needle-free injectors instead of regular hypodermic needles, some producers even find less disease transmission between pigs, said Talbot.

“The conventional needle, when used from pig to pig, has the potential to transfer blood and pathogens,” she said in her presentation.

Needle-free injectors reduce — but don’t eliminate — this risk, said Dr. Christopher Chase, a professor in the department of veterinary and biomedical sciences at South Dakota State University.

“Viruses like PRRSV (porcine reproductive and respiratory syndrome virus) can still be transmitted by injectors but at a lower rate than by traditional needles,” said Chase.

In addition to mitigating the spread of disease, producers can use needle-free devices to inject a smaller volume of the vaccine, he added.

And the technology tends to be more user-friendly.

“The devices are easy to use ... and there is no risk of needle-stick injury,” Talbot said.

Since the technology has no needle, producers don’t have to organize proper needle disposal.



AcuShot Inc. photo

**Pigs seem to experience significantly less stress when injected with vaccines from needle-free technology, Cal Funk said.**



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HyLife photo



Once crews are properly trained and understand the issues, they can use needle-free injectors to immunize, said Dr. Christopher Chase.

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### Not without its challenges

Although the use of needle-free injectors bestows many advantages, swine producers may encounter some challenges when they use the devices in their farm operations.

In addition to paying the up-front cost, producers must regularly maintain the devices. Maintenance could cost more money.

“These needle-free injectors require much more maintenance than a conventional syringe and needle,” said Talbot.

However, when comparing the cost of the two options, producers “are really surprised when they look at the amount of money they are spending on syringes, needles and needle disposal,” Ed Stevens, president of Pulse NeedleFree Systems Inc., explained in an interview with *Better Pork*.

The unit upkeep is also relatively straightforward.

“Most of the small technical problems have been fixed at the barn by the employees,” Talbot said to the audience at the seminar.

Given the time needed to care for the device, it might be more suited for larger producers, industry representatives suggest.

“There are steps required before and after the use of any needle-free injector that take some time, (such as) priming and cleaning the unit,” she said.

So producers could find the devices difficult to use for the treatment of individual pigs. Small amounts of

the drug can be lost, for example, when the user primes the unit, she said.

By undergoing proper training, farmers and their staff can learn how to use the devices more efficiently and mitigate this concern.

### Staff training required for effective use

Some producers worry that their employees won't be able to maintain the equipment.

However, after proper instruction, users "quickly get the hang of the equipment and can perform proper maintenance in only few minutes per week," said Stevens. "After a couple of weeks, trained individuals usually vaccinate animals more efficiently with needle-free" devices than with conventional needles.

Employees should be taught how to complete tasks such as oiling and cleaning the device. They should also learn how to change the O-rings regularly, said Talbot.

Training is necessary to ensure

that users administer the entire vaccine to the animal.

When using transdermal devices, the user must hold the injector perpendicular to the animal's skin, said Chase. "If the device is held at an angle, the animal is less likely to receive the complete dose."

The injection site may look wet if the user does not properly administer the vaccine and it splashes back, he added.

However, the site may appear slightly wet even if the injection was successful, Chase noted.

Producers can choose from several types of needle-free injectors, and each one may require different instruction.

"The more compact, self-contained devices require less training ... than the larger backpack-type units," said Chase.

And employers can use different methods to ensure employees are trained properly.

"At HyLife, we have developed videos and posters to help train

employees," said Talbot. "We also have a few key people that can help train new employees and fix the equipment when needed."

Once employees are properly educated about these devices and understand maintenance and troubleshooting, needle-free injectors can help immunization, said Chase.

Overall, producers seem to like the needle-free technology.

"The technology was implemented at HyLife over six years ago," said Talbot. "Some employees have never actually injected our pigs with traditional needles."

"Producers tell us that they have more peace of mind with our product," said Stevens.

"They don't have to worry about how often their staff are changing needles, whether the animals are receiving full doses of the vaccines and, most importantly, whether users are going to accidentally leave broken needles in the meat products," he explained. **BP**



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by  
**KATE  
AYERS**

# NEW COUNTRY, NEW OPPORTUNITIES

**This pork producer is living his dream in Manitoba and expanding his production capacity.**

Jeroen Van Boekel became involved in the pig industry at a young age in the Netherlands, nurturing a lifelong interest in the field.

The passion “grew kind of naturally as I was growing up,” says Van Boekel.

He pursued a university degree in Den Bosch, Holland for animal husbandry and animal care. After graduation, he sold pig genetics to Dutch farmers for five years and worked on hog farms. Although happy to be working in the swine sector, Van Boekel wanted more.

He wanted “to be happy doing what we do every day,” and aspired to run his own pork operation. Van Boekel set his sights on Canada, as he felt the country had the available resources for him to start a life of farming.

Leaving his parent’s hobby farm behind, 28-year-old Van Boekel moved to Canada in 2001. He started his own farming operation, Greyland Pork, in Carman, Man.

Shortly after his arrival in Canada, Van Boekel met his wife, Sheila. The couple now has twin girls, Kiersten and Khloe, who are 5 years of age.

Van Boekel built Greyland Pork from the ground up. He manages 3,500 sows in three locations – one farm houses 700 sows, farrow to finish, while the other two farms are farrow to wean.

Van Boekel takes pride in supplying larger groups of healthy weanlings to his buyers. He produces pigs for the United States, and provides breeding stock for Manitoba producers as well as for overseas markets. Greyland Pork finishes about 20,000 pigs per year.

Van Boekel is in the process of expanding to about 5,000 sows and he is converting his barns to group sow housing. This system is easier to manage when there are more employees on site, he says.



Jeroen Van Boekel photo

**“I like to spend time with my family and I also like to coach my kids’ soccer team,” says Jeroen Van Boekel.**

With a happy and healthy family at his side and 1,500 more sows on the way, Van Boekel is living his dream. He looks forward to seeing the results of his farm expansion and renovation.

## **What contributed to your decision to become a pork producer?**

Working with pigs and having the drive to run my own business, I thought it would be a good combination to set up my own business.

## **Describe your role on your farm operation.**

I am more of the general manager. We have 13 employees, so I am not involved in the day-to-day work in the barn.

Right now, we are expanding one of our sites. We are building a new sow barn, so I am doing some general contracting there.

Basically, I watch to make sure that my employees reach their production targets. I also make sure that we are thinking ahead of the game and that

Jeroen Van Boeke | photo



**Jeroen Van Boekel is building a new sow barn in Rhineland, Man. to expand his operation's capacity to 5,000 pigs.**

we have the right quality and correct quantity of pigs going out the door. I do all the negotiations on contracts for both the pricing and buying of ingredients.

**Hours you spend in the barn per week?**

Lately, I haven't spent a lot of time in the barn. Normally, I spend about 20 to 25 hours a week there.

**Hours you spend in the office per week?**

I spend about 25 hours a week in the office and on the road or wherever ... doing other things outside of the barns.

**How many emails do you receive per day?**

I would guess between 20 and 40 emails.

**How many text messages do you receive per day?**

I would say 10 texts, maximum.

**Hours a day on a cellphone?**

I don't use my landline so I spend an hour per day on my cellphone, probably.

**Email or text?**

I use email more than text.

**Any favourite apps?**

I like to keep an eye on hog prices and exchange rates, so the apps for that.

**Hours a day on the Internet?**

I would say I spend an hour a day, two maybe, on the Internet.

**How often do you travel?**

For pleasure? Maybe twice a year. I usually go on a winter holiday.

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**Day 2 - Wednesday March 28** - Innovative diet formulation arising from external pressures; When your opposition plays dirty; Management and feeding to maximize efficiency, carcass quality and profits; Precision pigs - Using big data; Swine health - Back to basics; Niche programs - Exploring the opportunities; Troubleshooting reproductive issues; Workplace regulations - What will it cost?; Retail / consumer trends; Future of processing in Ontario & North America.

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**Where did you last travel to?**

The Bahamas.

**What do you like best about farming?**

Trying to manage all of the variables that we have to deal with in the industry while still being as profitable as we can.

**What do you like least?**

There are not many things that I don't like at all about farming. But I can get annoyed with government paperwork.

**What is the most important lesson you've learned?**

Follow your dreams and keep developing.

**What's your guiding management principle?**

Never give up and be creative to find solutions for your problems.

**Are you involved in any committees, boards, associations or volunteer efforts?**

I am the chairman of the Independent Hog Farmers Co-op. It is a group of farmers in Manitoba who try to work together ... for purchasing and all kinds of other things that can be beneficial.

I am also a district adviser on the Manitoba Pork Council.

**What are your hobbies or recreational activities?**

I like to spend time with my family and I also like to coach my kids' soccer team.

**What was the last book you read?**

I'm not really a book person. I don't think I've read a book in the last five years. That is not my thing. (Laughs.)

**What does your family think of farming?**

My parents live overseas so I've never asked them. The family that I have here – my wife and kids – I think they like that I enjoy what I do.

But my family also makes me aware that there are other things in life than farming.



Jeroen Van Boekel photo

**Jeroen Van Boekel aspired to run his own pork operation and set his sights on Canada.**

**Is your farm vehicle messy or neat?**

I wouldn't say it is terribly messy but I could do a better job. We have three different sites so, lots of times, I have to carry supplies and parts with me. Sometimes these parts end up in the truck and they don't leave for a while. (Laughs.)

**What are three items that are always in your farm vehicle?**

A pen, paper and some parts.

**What are three items that are on top of your desk?**

Calculator, laptop and a pen.

**What was the last piece of shop equipment you bought?**

We are not really shop people because we don't farm any land but we are building a 1,500-head sow barn. So, we are buying lots of equipment for what's

going in there, like group sow housing and ventilation – all that kind of stuff.

**What was your most memorable production year?**

I would say 2001. That's the year I immigrated to Canada and started farming here.

**What's your top goal?**

To be happy doing what we do every day.

**How do you define success?**

Being able to follow your dreams as a family.

**What do you see as current or future challenges for the industry?**

I think being able to help the consumer understand how we produce pork. I think that is my biggest concern. **BP**

by  
S. ERNEST  
SANFORD



# LEPTOSPIROSIS: A COMMON INFECTION

**Timely vaccinations can prevent abortions in sows and protect piglets from developing the disease.**

Both humans and animals can be infected by leptospirosis, which is a disease caused by one of the more than 180 species of the spiral bacterium, *Leptospira interrogans*.

While infection by *Leptospira* spp. is common, the disease is not, meaning that most of the infections are subclinical (i.e. there are no clinical signs). When they do occur in swine, clinical signs consist of fever, jaundice, death in piglets, and abortion and stillbirth in sows.

Leptospirosis is much more common in pigs reared outdoors, where the animals can pick up the *Leptospira* organism in stagnant water from which infected wildlife drank. Infection also occurs by direct contact and entry of the leptospires via cuts, transplacental transmission or by venereal transmission.

After entering the body, the bacterium multiplies and becomes a bloodstream infection (or septicemic) which is when clinical signs might be seen.

Septicemia may cause damage to organs, including the liver and kidney. The latter is a favourite target of the organism and kidney tissue has a marked interstitial inflammatory cell reaction. Septicemia also triggers the infected animal's antibody production, which stops the septicemia in seven to 10 days.

## Diagnosis

A presumptive diagnosis can be made upon observing premature farrowings and weakborn piglets with early neonatal mortalities. Isolation of the leptospiral organism from newborns is possible but requires special techniques not usually available in routine laboratories. Fluid accumulations in piglets' chest and abdominal cavities are also common.

A definitive diagnosis is made by identifying the *Leptospira* spp.



vanderveiden/Stock/Getty Images Plus photo

in affected pigs. Since isolation of the leptospires is very difficult, laboratories use molecular (e.g. DNA) techniques.

Molecular methods are virtually guaranteed to identify new species of *Leptospira* spp. as they have already done with other bacteria. Several bacteria formerly of the genus *Haemophilus*, for example, have been reassigned to genus *Actinobacillus* after being subjected to molecular examination. The most extreme example of reassignment after molecular examination is the movement of *Eperythrozoon suis* (a

protozoal parasite) to *Mycoplasma suis* (a bacterial mycoplasma).

## Treatment

Acutely affected animals can be given antibiotic treatment with penicillin, streptomycin or tiamulin. Abortions can be prevented and renal carriers eliminated through a single injection of streptomycin. A course of daily streptomycin treatments over three to five days is also effective.

## Control

Vaccination of sows before service with the appropriate species of

*Leptospira* spp. may prevent abortion. Vaccination of piglets before the period of risk, usually between six and ten weeks of age, may prevent disease. The treatment does not, however, prevent infection by the leptospires. Colonization of the kidneys and subclinical infections may still occur.

**Prevention**

Good hygiene, disinfection of barns and elimination of rodents are important first steps in prevention. To help eliminate the disease, producers can consider vaccination, treatment or slaughter of carrier pigs, or a total slaughter policy followed by a restocking of the barn with uninfected breeding stock.

**Summary**

Leptospirosis is a disease of animals and humans caused by one of the species of the spiral bacterium, *Leptospira interrogans*. Infection by *Leptospira* spp. is common but the disease is not – many of infected



animals are subclinical carriers of the organism and are a source of infection to noninfected animals.

When present, clinical signs consist of fever, jaundice, death in piglets, and abortion and stillbirth in sows.

Leptospirosis is much more common in pigs reared outdoors, where the animals may drink stagnant water infected with the *Leptospira* organism by carrier-infected wildlife, especially rodents.

A presumptive diagnosis can be made upon seeing premature farrowings and weakborn piglets with early neonatal mortalities. Isolation of the *Leptospira* spp. organism is confirmatory but requires specialized techniques not routinely available at most diagnostic laboratories. Molecular (e.g. DNA) techniques are usually employed to identify the leptospires for diagnosis.

Acutely affected animals can be treated with antibiotics such as penicillin, streptomycin or tiamulin. A single injection of streptomycin or a course of daily streptomycin

treatments over three to five days can prevent abortions and eliminate renal carriers.

Control can be achieved by vaccination of sows before service with the appropriate species of *Leptospira* spp. to prevent abortion. Vaccination of piglets before the period of risk, usually between six to ten weeks of age, may prevent disease. This treatment does not, however, prevent infection by the leptospires. Colonization of the kidneys and subclinical infections may then occur.

Producers and staff should practice good hygiene, disinfect barns and eliminate rodents to help prevent the disease. Farmers can consider vaccination, treatment or slaughter of carrier pigs, or a total slaughter policy followed by a restocking of the barn with uninfected breeding stock to help eliminate the disease. **BP**

*S. Ernest Sanford, DVM, Dip Path, Diplomate ACVP, is a Swine Veterinary Consultant based in London, Ont.*

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## Zoonotic Diseases: Crossing Between the Species

Back in November I had the opportunity to attend the Saskatchewan Pork Industry Symposium. The two day event was very well organized and had an excellent program, drawing over 280 delegates. The following write up is a summary of a presentation given at the event called "Zoonotic Diseases: crossing between the species" by Dr. Susan Detmer of the Western College of Veterinary Medicine.

Zoonosis refers to an infection or disease that is transmissible from animals to humans under natural conditions. There are also reverse or bidirectional zoonosis in which the transmission is from humans to animals, or between species. The term 'natural conditions' refers to normal contact. For example, farm workers and pork processing plant workers are at a higher risk of contracting a zoonotic disease than consumers of pork products. There are several different worldwide zoonoses of concern when it comes to pigs. They can be divided into foodborne bacteria, foodborne parasites and occupational contact.

There are several risk factors that come into play. For example, there are differences between industrialized vs. undeveloped countries. Undeveloped countries often have open-air markets and sub-par meat handling and cooking practices which can significantly increase the risk of zoonotic

transfer. Regardless of location, commercial production practices also can alter the risk of zoonoses. Commercial facilities that are indoors, on cement with rodent control programs help to reduce the risk when compared to animals raised outside. Implementation of meat inspection and surveillance programs also drastically reduces the risk of zoonotic transfer.

### Foodborne bacteria:

Salmonella is more of a concern with eggs and poultry, however up to 23% of salmonellosis cases can be attributed to pork. *Campylobacter jejuni* is the form of campylobacter that causes the majority of disease in humans, whereas *Campylobacter coli* accounts for over 90% of isolates from pigs.

By cooking meats and practicing proper meat handling procedures there is low risk of contracting diseases related to the low and non-pathogenic strains. Disease

surveillance programs also help reduce the risk when it comes to these pathogens.

### Foodborne parasites:

*Taenia solium* is a concern in undeveloped countries. The cycle consists of ingestion of tapeworm larval cysts in undercooked and infected pork. The larvae may develop in muscles, skin, eyes and the central nervous system. Neurocysticercosis is a leading cause of epilepsy in endemic areas (accounts for 30% of epilepsy cases in developing countries). Over 2 million people have neurocysticercosis.

*Toxoplasma gondii* uses warm blooded animals as an intermediate host. Pregnant and immune compromised people are at the most risk. Cats are the definitive host for this parasite (it reproduces in cat intestines), so ensure pigs do not have contact with cats to prevent infection. The lifecycle is shown in Figure 1.

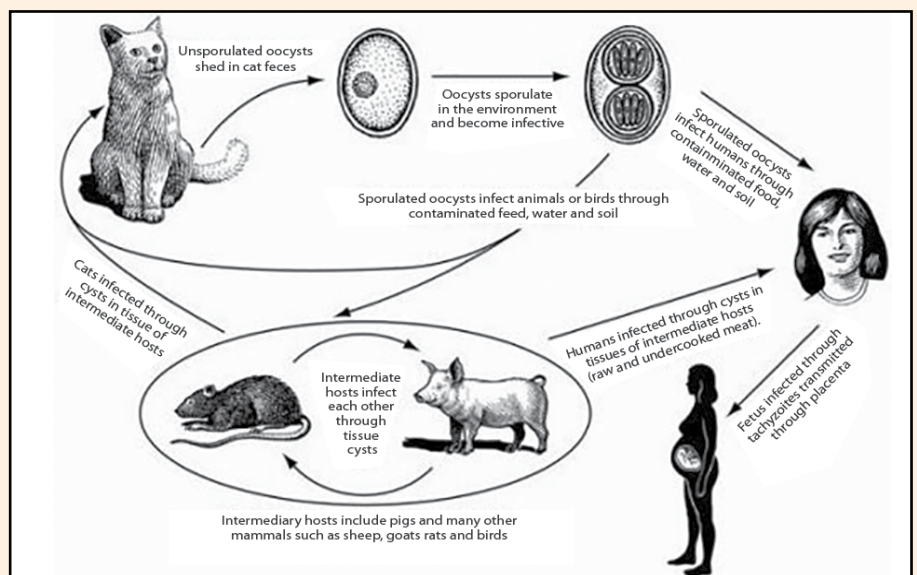


Figure 1: Lifecycle of *Toxoplasma gondii* (source: OMAFRA factsheet #04-055)

## Occupational contact diseases:

There are many different occupational risks when working with pigs, including needle-stick injuries, noise injuries, repetitive motion disorders, respiratory issues and many more. Zoonotic diseases are also a risk for people that work with pigs on a regular basis. Approximately 13% of swine veterinarians have reported having at least one zoonotic infection.

Many of the occupational contact diseases can be prevented fairly easily. For example, brucellosis, erysipelas, salmonellosis, meningitis, leptospirosis, scabies, ringworm and toxoplasmosis can all be prevented with proper hand

washing procedures. Tetanus can be prevented through routine vaccination. However, influenza A virus and methicillin-resistant Staphylococcus aureus (MRSA) are more of a concern.

MRSA is resistant to several different antibiotics. It often develops around skin infections as well as lung infections and surgical sites. It is often found in healthcare facilities as well as schools and athletic facilities. Approximately 2% of the general population has MRSA on them. In a Dutch study, 3.2% of tested slaughterhouse workers had MRSA in their nasal passage, with higher numbers of people infected if they worked at the start of the

slaughter process. Gloves worn by workers early in the slaughter process (lairage, scalding, dehairing), had increased positive tests for MRSA. By changing gloves and washing hands frequently you can reduce the risk of contracting MRSA. Wearing a properly fitting face mask can also help. In an Ontario study of farm workers, MRSA was isolated from 45% of tested farms, 25% of the pigs and 20% of farm workers. MRSA symptoms include a skin wound that is red, swollen, painful, pustular and warm. A fever will most likely accompany it. It is important that workers take all necessary precautions to prevent contracting MRSA. Properly fitted masks, good hygiene and hand washing are key. Also, do not share personal items such as towels.

Influenza A occurs in humans, swine, horses, birds and other mammals. This includes subtypes H1 to H16 and N1 to N9 (eg. H1N1). The challenge with the influenza virus is that it is constantly changing through antigenic drift (gradual, subtle changes in genetic makeup) and antigenic shift (reassortment of genes, fast and dramatic changes). On farms there can be transfer from pig to human and human to pig. Influenza vaccination programs for sows in the summer months will help confer maternal immunity to piglets. Vaccination of humans in the fall will help reduce the risk of influenza contraction and spread. People working with swine and poultry should be vaccinated yearly as they are in a higher risk category

## Summary:

Many of the zoonotic diseases of concern to the swine industry can be prevented or the risk of contraction significantly reduced. Practicing good hygiene is often the first line of defense. Washing your



Figure 2: Proper hand washing techniques

hands (Figure 2), changing gloves on a regular basis, and not sharing personal items such as towels can prevent many issues. It is also important to keep pigs away from mice and cats to help prevent parasites. If pigs have outdoor access, talk to your veterinarian to set up a proper parasite control program. And as always, practice proper meat handling and cook meat to proper temperatures.

Dr. Detmer's presentation can be found online at <https://www.sask-pork.com/html/pork-symposium/sask-pork-proceedings/index.cfm>, along with all of the other presentations given at the Saskatchewan Pork Industry Symposium.

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## High Crude Protein DDGS with Improved Digestible Energy and Amino Acids for Pigs

Research on the feeding value of corn distillers grain with solubles (DDGS), which began more than 50 years ago, has commoditized its use in swine feed programs. However, the primary unresolved issue with DDGS is the concentration and variability of available energy and amino acids, the most expensive components in swine diets. Energy use in DDGS is largely impacted by the grain stock used in processing before, during and after fermentation.

The main energy yielding substrates in DDGS are fat and protein, and to a small extent fiber, via hind gut fermentation. In general, during the fermentation process, a large portion of starch is converted to ethanol and carbon dioxide, which leaves the co-products highly concentrated in fiber. The high concentration of fiber in DDGS is of

**Table 1:** Concentration of standardized ileal digestible crude protein and amino acids protein (g/kg, DM basis) in DDGS samples.

Distillers dried grains with solubles					
	Conventional <sup>1</sup>	HP-A <sup>2</sup>	HP-B <sup>3</sup>	SEM	P
<b>CP</b>	200.2 <sup>c</sup>	258.7 <sup>b</sup>	313.2 <sup>a</sup>	13.4	<0.01
<b>Essential AA</b>					
<b>Ile</b>	7.61 <sup>c</sup>	11.0 <sup>b</sup>	12.3 <sup>a</sup>	0.39	<0.01
<b>Lys</b>	4.91 <sup>c</sup>	6.10 <sup>b</sup>	7.35 <sup>a</sup>	0.52	<0.01
<b>Met</b>	4.63 <sup>c</sup>	6.80 <sup>b</sup>	7.44 <sup>a</sup>	0.14	<0.01
<b>Thr</b>	6.75 <sup>c</sup>	9.54 <sup>b</sup>	10.7 <sup>b</sup>	0.56	<0.01
<b>Val</b>	10.2 <sup>c</sup>	14.3 <sup>b</sup>	16.0 <sup>a</sup>	0.51	<0.01

<sup>1</sup> Conventional corn DDGS obtained from commodity market.

<sup>2</sup> High protein corn DDGS collected at time point A (HP-A).

<sup>3</sup> High protein corn DDGS collected at time point B (HP-B).

concern because fiber components are known to negatively influence feed intake, nutrient utilization, and health and metabolic processes in pigs, to the detriment of performance and marketable carcass. Moreover, high fiber increases manure output and thus the cost of storage and spreading. To address these challenges, the ethanol industry continues to innovate and evolve DDGS production to reduce

fiber content. For example, processing procedures such as mechanical removal of hulls prior to fermentation, addition of viscosity reducing enzymes during fermentation, adding back the syrup, and altering the drying process (intense and duration). Such procedures result in a new generation of DDGS products. However, a successful application of such DDGS products in swine rations will be dependent on

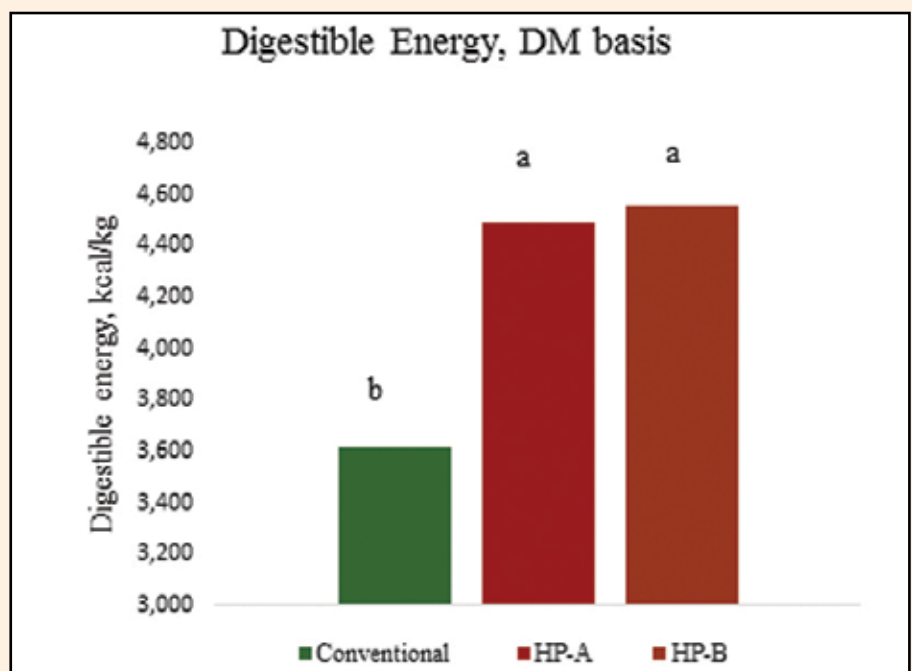


Figure 1: Digestible energy content in DDGS samples.

the characterization of their nutritive value and potential economic benefits when formulated correctly into pig diets.

The first critical step to introducing new feedstuffs is the characterization of their digestible energy and amino acids for accurate diet formulation. The research reported here determined concentration of standardized ileal digestible amino acids (SID AA) and digestible energy (DE) in two samples of new high crude protein DDGS (HP-A and HP-B) developed through physical removal of fiber prior to fermentation. High protein DDGS samples were produced at the same facility using the same processing techniques. The only difference was that they were sampled at different time points. A sample of conventional DDGS was also tested for comparison. In both HP DDGS samples, digestible crude protein and amino acid content of lysine, methionine, threonine and valine were higher than the conventional DDGS (Table 1). As lysine, methionine and threonine are the first three limiting amino acids in common swine diets, it is important that adequate amounts are provided to the animal to maximize their growth and performance. Differences in digestibility of AA contents were observed when comparing the two HP DDGS. This indicates that with the new processing technique, the variation in nutrient content within different batches of HP DDGS remains.

Available feed energy is the greatest contributor to the growth and efficiency of pork production. In general, due to the high fiber content in DDGS, it is usually low in digestible energy; however, the tested HP DDGS samples showed higher digestible energy values than a conventional DDGS sample (Figure 1). As mentioned earlier, since dietary energy is the most ex-

pensive component in swine diets, ingredients such as HP DDGS with higher DE and SID AA amino acids may be effective as alternative ingredients to reduce feed costs.

In conclusion, HP DDGS were better digested by pigs than conventional DDGS. The next step is to evaluate HP DDGS for optimal and economical inclusion levels in practical swine diets.

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## Keeping African Swine Fever Out of Canada

African Swine Fever (ASF) virus is a Foreign Animal Disease (FAD) that can resemble several other diseases of pigs including Hog Cholera and Erysipelas. Acute clinical signs of disease can include: loss of appetite, high temperatures (40-41 degrees C), depletion of white blood cells, hemorrhages in internal organs and of the skin along with high mortality. Laboratory testing must be used to confirm if ASF virus is the causative agent.

An outbreak of ASF in Europe has

continued through the spring and summer of 2017 with the disease having moved into Romania and the Czech Republic. Most cases affect wild boar or back yard herds with poor biosecurity. On occasion larger commercial herds may be affected. This disease has been associated with illegal movement of infected wild boar and contaminated meat products. **North American production could be at risk from illegally imported meats that make their way to a pig farm. Producers and staff should be reminded that they should not bring uncooked meat into their barns**, as outlined in the National Swine On-Farm Biosecurity Standards.

Countries in Europe are on alert for this disease. Recent research by Dr. Scott Dee at Pipestone found that ASF was the only virus that was able to survive a simulated transoceanic transport event in the absence of supportive media such as feed ingredients. This is a scary virus! Everyone must do their part to keep this virus out of Canada.

*From the July-September 2017  
Ontario Animal Health Network  
(OAHN) Swine Producer and Industry  
Report. For the full report go to  
[www.oahn.ca](http://www.oahn.ca)*



Image above shows skin lesions caused by ASF that could be mistaken for Erysipelas



## Needle Free Technology: Usage and Precautions

The following is a summary of a presentation given by Dr. Jeff Bergermann (Olymel) at the 2017 Saskatchewan Pork Industry Symposium.

The first hypodermic needle was created in 1853 by Charles Gabriel Pravaz and Alexander Wood. Prior to that, injections did occur but with much more crude mechanisms. In 1936, Marshall Lockhart created the first needle free injection device which was used extensively in human vaccination protocols, especially in military settings. A number of needle free injection devices are now available, and are becoming more popular in both the human and animal fields.

There are several advantages of using needle free injectors with livestock species. Improved food safety is one of the major advantages. If no needles are used, then there is no chance of a broken needle ending up in the food supply (Figure 1). Needle free injectors also eliminate the risk of accidental needle pokes by workers. The use of needle free injectors can be rapid and reduce pain when compared to needles. Additionally there is evidence that needle free injectors lead to improved immune responses to vaccines and reduce the lateral spread of diseases. As an added bonus, they are more environmentally friendly as you do not need to



Figure 1: The use of needle free injectors removes the risk of broken needles contaminating the food supply.

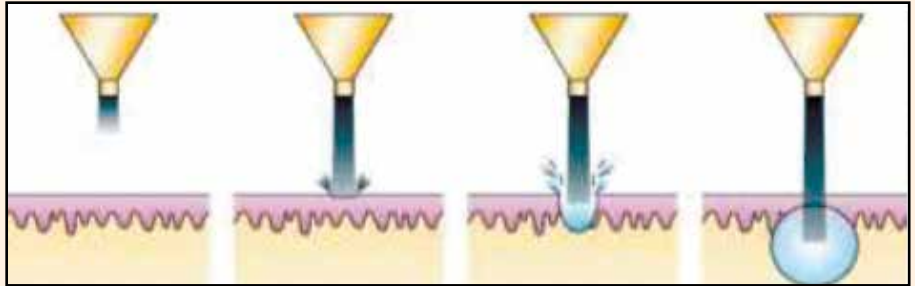


Figure 2: Diagram showing how a needle free injector works.

dispose of biohazardous materials (sharps containers).

Although there are many advantages of using needle free injectors, it is important to understand that there are also some disadvantages to using them. They are more complex and complicated to use than standard needles. They are less portable and are not practical for single use. They also require proper training as well as repair and maintenance. Additionally, they cost money. You need to consider both the advantages and disadvantages of needle free injectors to decide if they will be suited for your farm.

There are a few different types of needle free injectors; spring loaded, battery powered and gas powered jet injectors, as well as powder injector systems. Regardless of the type of injector being used, they all rely on the same three essential components: an injection device, a nozzle and a pressure source. The needle free system produces a high pressure stream of liquid which is capable of puncturing the skin (Figure 2). Each injection takes approximately 0.3 seconds to complete.

Needle free injectors can be mounted onto processing carts in farrowing rooms. Different configurations can be used in nurseries, grower-finisher barns and sow barns. Configurations will depend somewhat on which needle free injector you chose to purchase. Some troubleshooting may be required to get the system working properly in your herd. For

example, if you see product leaking down the animal's neck, then the pressure in the system needs to be increased. If you are seeing a fair bit of bleeding at the injection site then your pressure is too high and should be turned down. Most of the needle free injector companies will have a good set of instructions for use, maintenance and repair, and also provide technical assistance. You will likely want to carry a full inventory of parts so you can fix the system quickly if needed.

The slide deck for Dr. Bergermann's presentation can be found online at <https://www.saskpork.com/html/pork-symposium/sask-pork-proceedings/index.cfm> along with all of the other presentations given at the Saskatchewan Pork Industry Symposium.

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## 56th Southwestern Ontario Pork Conference

Wed. February 21st, 2018 -  
U. of Guelph Ridgetown Campus

Trade show and refreshments  
start at 2pm

Program details at  
[www.ridgetownc.com/swopc](http://www.ridgetownc.com/swopc)

Early registration ends Feb. 14th  
Visit the new campus Swine Barn  
from noon-2pm



## 2017 Ontario Monthly Hog Market Facts

Compiled by Jaydee Smith, OMAFRA

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Month	Jan '17	Feb '17	Mar '17	Apr '17	May '17	Jun '17	Jul '17	Aug '17	Sept '17	Oct '17	Nov '17	Dec '17
100% Formula Price (\$/c/kg, 100 index)	\$150.70	\$174.67	\$173.64	\$152.66	\$172.71	\$201.55	\$210.92	\$191.96	\$145.30	\$138.50	\$154.12	\$146.05
<b>* Same Month - Previous year</b>	<b>\$141.99</b>	<b>\$163.11</b>	<b>\$159.33</b>	<b>\$155.57</b>	<b>\$178.74</b>	<b>\$187.70</b>	<b>\$189.66</b>	<b>\$160.74</b>	<b>\$147.55</b>	<b>\$126.19</b>	<b>\$118.99</b>	<b>\$132.28</b>
Average price (\$/c/kg, DW total value)	\$180.00	\$203.63	\$204.29	\$184.76	\$200.92	\$230.64	\$244.64	\$225.42	\$180.64	\$164.63	\$184.46	\$179.87
Low price (\$/c/kg, DW total value)	\$155.12	\$180.75	\$184.49	\$164.87	\$178.83	\$209.63	\$221.99	\$206.90	\$161.42	\$144.09	\$165.90	\$158.05
High price (\$/c/kg, DW total value)	\$221.54	\$231.69	\$228.50	\$220.57	\$232.63	\$252.35	\$265.57	\$247.09	\$221.24	\$204.77	\$215.06	\$214.38
Ontario Market Hog Sales	418,185	400,000	492,050	380,084	358,344	469,687	376,117	377,907	499,333	390,470	422,834	468,907
<b>% Change Same Weeks - Previous Year</b>	<b>9.1%</b>	<b>0.2%</b>	<b>-0.9%</b>	<b>-2.68</b>	<b>0.02%</b>	<b>6.67%</b>	<b>7.4%</b>	<b>-3.6%</b>	<b>0.9%</b>	<b>-2.7%</b>	<b>-1.2%</b>	<b>6.5%</b>
Average Carcass Weight (kg)	103.60	103.00	102.34	102.13	\$101.50	101.31	101.00	101.17	101.97	102.16	103.07	103.81

Weaned Pigs (\$/pig, 5 kg)**Formula	\$39.20	\$45.42	\$45.15	\$39.69	\$44.91	\$52.40	\$54.84	\$49.91	\$37.75	\$36.01	\$37.97	\$43.61
Feeder Pigs (\$/pig, 25 kg)**Formula	\$62.60	\$72.05	71.63	\$62.97	\$71.25	\$83.14	\$87.00	\$79.19	\$59.90	\$57.13	\$60.25	\$69.22
Value of Canadian Dollar (US\$)	\$0.7567	\$0.7640	\$0.7479	\$0.7443	\$0.7340	\$0.7508	\$0.7866	\$0.7928	\$0.8112	\$0.7952	\$0.7827	\$0.7702
<b>* Same Month - Previous year</b>	<b>\$0.7068</b>	<b>\$0.7228</b>	<b>\$0.7533</b>	<b>\$0.7777</b>	<b>\$0.7729</b>	<b>\$0.7761</b>	<b>\$0.7665</b>	<b>\$0.7701</b>	<b>\$0.7634</b>	<b>\$0.7549</b>	<b>\$0.7487</b>	<b>\$0.7540</b>
Prime Interest Rate at End of Month	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.95%	2.95%	3.20%	3.20%	3.20%	2.90%

Corn (farm price) - \$/tonne	\$180.86	\$184.29	\$183.78	\$184.83	\$190.68	\$191.12	\$184.65	\$176.67	\$180.45	\$167.96	\$168.45	\$180.07
<b>* Same Month - Previous year</b>	<b>\$189.25</b>	<b>\$187.00</b>	<b>\$180.28</b>	<b>\$179.68</b>	<b>\$189.01</b>	<b>\$202.40</b>	<b>\$179.69</b>	<b>\$177.90</b>	<b>\$173.93</b>	<b>\$176.97</b>	<b>\$174.58</b>	<b>\$181.56</b>
Soybean Meal (Hamilton + \$20)-\$/tonne	\$526.12	\$523.55	\$510.84	\$481.69	\$476.68	\$465.79	\$486.76	\$463.38	\$476.24	\$483.35	\$488.72	\$488.60
<b>* Same Month - Previous year</b>	<b>\$483.64</b>	<b>\$466.99</b>	<b>\$457.97</b>	<b>\$475.07</b>	<b>\$574.60</b>	<b>\$626.23</b>	<b>\$586.37</b>	<b>\$538.70</b>	<b>\$501.58</b>	<b>\$493.77</b>	<b>\$533.06</b>	<b>\$520.46</b>
Corn - Western Ontario Feed - \$/tonne	\$201.47	\$200.84	\$197.93	\$197.38	\$204.22	\$202.79	\$200.47	\$193.73	\$195.88	\$193.05	\$186.11	\$196.36
<b>* Same Month - Previous year</b>	<b>\$202.37</b>	<b>\$200.32</b>	<b>\$192.15</b>	<b>\$193.75</b>	<b>\$204.68</b>	<b>\$216.94</b>	<b>\$193.90</b>	<b>\$195.18</b>	<b>\$189.21</b>	<b>\$191.80</b>	<b>\$197.66</b>	<b>\$197.22</b>
DDGS FOB Chatham/Sarnia/Alymer (\$/tonne)	\$139.75	\$150.00	\$165.20	\$175.00	\$176.75	\$174.50	\$165.25	\$150.50	\$143.40	\$142.75	\$175.21	\$159.01
<b>* Same Month - Previous year</b>	<b>\$230.00</b>	<b>\$229.21</b>	<b>\$214.00</b>	<b>\$192.10</b>	<b>\$195.50</b>	<b>\$217.88</b>	<b>\$228.30</b>	<b>\$183.63</b>	<b>\$180.50</b>	<b>\$195.50</b>	<b>\$140.80</b>	<b>\$196.63</b>

### Summary of OMAFRA Swine Budget (\$/pig, Farrow to Finish)

Value of Market Hog	\$175.46	\$201.88	\$199.43	\$175.22	\$196.76	\$228.86	\$238.68	\$217.76	\$166.61	\$159.20	\$168.45	\$180.07
Feed Cost	\$114.46	\$114.81	\$114.81	\$114.31	\$113.76	\$112.94	\$112.34	\$112.05	\$112.15	\$111.79	\$174.58	\$181.56
Other Variable Costs	\$41.45	\$41.25	\$41.24	\$43.69	\$43.78	\$44.08	\$44.56	\$44.77	\$44.70	\$44.45	\$488.72	\$488.60
Fixed Costs	\$23.76	\$23.76	\$23.76	\$23.76	\$23.76	\$23.76	\$23.76	\$23.76	\$23.76	\$23.76	\$533.06	\$520.46
Total Costs	\$179.67	\$179.82	\$179.81	\$181.77	\$181.30	\$180.79	\$180.66	\$180.58	\$180.62	\$180.01	\$186.11	\$196.36
Net Return	-\$4.21	\$22.06	\$19.62	-\$6.55	\$15.46	\$48.07	\$58.02	\$37.18	-\$14.01	-\$20.81	\$197.66	\$197.22

++ Year figures are based on January to December



## Swine Budget – Average 2017

Compiled by Jaydee Smith, OMAFRA

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Income (\$/pig)	Farrow to Wean	Nursery	Grow-Finish	Farrow to Finish
Market Pig @ 101% of Base Price \$167.73/ckg, 110 index, 102.26 kg plus \$2 premium				\$192.55

Variable Costs (\$/pig)				
Breeding Herd Feed @ 1,100 kg/sow	\$13.43			\$14.73
Nursery Feed @ 33.5 kg/pig		\$16.14		\$17.00
Grower-Finisher Feed @ 277 kg/pig			\$81.25	\$81.25
Net Replacement Cost for Gilts	\$2.48			\$2.73
Health (Vet & Supplies)	\$2.16	\$2.10	\$0.45	\$5.03
Breeding (A.I. & Supplies)	\$1.80			\$1.98
Marketing, Grading, Trucking	\$0.90	\$1.50	\$5.76	\$8.33
Utilities (Hydro, Gas)	\$2.35	\$1.38	\$2.13	\$6.17
Miscellaneous	\$1.00	\$0.10	\$0.20	\$1.40
Repairs & Maintenance	\$1.18	\$0.60	\$2.13	\$4.05
Labour	\$6.27	\$1.85	\$4.00	\$12.83
Operating Loan Interest	\$0.24	\$0.30	\$0.98	\$1.56
<b>Total Variable Costs</b>	<b>\$31.82</b>	<b>\$23.96</b>	<b>\$96.90</b>	<b>\$157.05</b>

Fixed Costs (\$/pig)				
Depreciation	\$3.92	\$2.00	\$7.09	\$13.50
Interest	\$2.20	\$1.12	\$3.97	\$7.56
Taxes & Insurance	\$0.78	\$0.40	\$1.42	\$2.70
<b>Total Fixed Costs</b>	<b>\$6.90</b>	<b>\$3.52</b>	<b>\$12.48</b>	<b>\$23.76</b>

Summary of Costs (\$/pig)				
Feed	\$13.43	\$16.14	\$81.25	\$112.98
Other Variable	\$18.39	\$7.83	\$15.65	\$44.06
Fixed	\$6.90	\$3.52	\$12.48	\$23.76
<b>Total Variable &amp; Fixed Costs</b>	<b>\$38.72</b>	<b>\$27.48</b>	<b>\$109.39</b>	<b>\$180.81</b>

Summary	Farrow to Wean	Feeder Pig	Wean to Finish	Farrow to Finish
Total Cost (\$/pig)	<b>\$38.72</b>	<b>\$67.78</b>	<b>\$138.35</b>	<b>\$180.81</b>
Net Return Farrow to Finish (\$/pig)				<b>\$11.74</b>
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) includes 101% Base Price & \$2 Premium				<b>\$157.40</b>

This is the estimated accumulated cost for a market hog sold during 2017. For further details, refer to the "2017 Budget Notes" posted at <http://www.omafra.gov.on.ca/english/livestock/swine/finmark.html>.



## Swine Budget – December 2017

Compiled by Jaydee Smith, OMAFRA

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Income (\$/pig)	Farrow to Wean	Nursery	Grow-Finish	Farrow to Finish
Market Pig @ 101% of Base Price \$146.05/ckg, 110 index, 103.81 kg plus \$2 premium				\$170.44

### Variable Costs (\$/pig)

Breeding Herd Feed @ 1,100 kg/sow	\$13.27			\$14.56
Nursery Feed @ 33.5 kg/pig		\$16.05		\$16.91
Grower-Finisher Feed @ 277 kg/pig			\$80.81	\$80.81
Net Replacement Cost for Gilts	\$2.20			\$2.42
Health (Vet & Supplies)	\$2.16	\$2.10	\$0.45	\$5.03
Breeding (A.I. & Supplies)	\$1.80			\$1.98
Marketing, Grading, Trucking	\$0.90	\$1.50	\$5.76	\$8.33
Utilities (Hydro, Gas)	\$2.35	\$1.38	\$2.13	\$6.17
Miscellaneous	\$1.00	\$0.10	\$0.20	\$1.40
Repairs & Maintenance	\$1.18	\$0.60	\$2.13	\$4.05
Labour	\$6.27	\$1.85	\$4.00	\$12.83
Operating Loan Interest	\$0.24	\$0.32	\$1.07	\$1.67
<b>Total Variable Costs</b>	<b>\$31.38</b>	<b>\$23.90</b>	<b>\$96.54</b>	<b>\$156.14</b>

### Fixed Costs (\$/pig)

Depreciation	\$3.92	\$2.00	\$7.09	\$13.50
Interest	\$2.20	\$1.12	\$3.97	\$7.56
Taxes & Insurance	\$0.78	\$0.40	\$1.42	\$2.70
<b>Total Fixed Costs</b>	<b>\$6.90</b>	<b>\$3.52</b>	<b>\$12.48</b>	<b>\$23.76</b>

### Summary of Costs (\$/pig)

Feed	\$13.27	\$16.05	\$80.81	\$112.28
Other Variable	\$18.11	\$7.85	\$15.73	\$43.86
Fixed	\$6.90	\$3.52	\$12.48	\$23.76
<b>Total Variable &amp; Fixed Costs</b>	<b>\$38.28</b>	<b>\$27.42</b>	<b>\$109.03</b>	<b>\$179.90</b>

Summary	Farrow to Wean	Feeder Pig	Wean to Finish	Farrow to Finish
Total Cost (\$/pig)	\$38.28	\$67.26	\$137.92	\$179.90
Net Return Farrow to Finish (\$/pig)				-\$9.46
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) includes 101% Base Price & \$2 Premium				\$154.25
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) excludes 101% Base Price & \$2 Premium				\$157.54

This is the estimated accumulated cost for a market hog sold during the month of December 2017. The farrow to wean phase estimates the weaned pig cost for July 2017 and the nursery phase estimates the feeder pig cost for September 2017. For further details, refer to the "2017 Budget Notes" posted at <http://www.omafra.gov.on.ca/english/livestock/swine/finmark.html>.

# PED ELIMINATION ON TRACK IN ONTARIO

Producers must remain vigilant, however, particularly during the colder months of the year.



Keili Jo/Stock/Getty Images Plus photo

**Ontario's swine industry is well on the way towards eliminating Porcine Epidemic Diarrhea (PED) virus from the province's herd.**

Ontario's swine industry is in a position it did not think was possible in 2014 – it is well on the way towards eliminating Porcine Epidemic Diarrhea (PED) virus from the province's herd.

“Ninety-six per cent of Ontario farms which broke with PED are now negative and we have only one system where it's endemic,” Dr. Martin Misener told the audience at the 2017 Ontario Swine Health Advisory Board's Big Bug Day.

“In 2014, we didn't believe (we could eliminate PED). These are big farms and complicated barns, and we've learned a lot – and can do a lot.”

Of the 105 confirmed, primary PED cases, only four remain positive. Only six new sites broke with the disease in last year. Producers deserve high marks for paying attention to risk factors, Misener said.

However, success can breed complacency and now is not the time to stop being vigilant during the higher risk cold weather, he added. In fact, it's more important than ever to pay attention to biosecurity details and risks posed by assembly facilities, where PED is known to circulate.

The disease is also active in neighbouring Manitoba, where 2017 marked a stressful year for dealing with new outbreaks across almost every swine production system in the province, said Karine Talbot of HyLife in her Big Bug Day presentation.

Prior to 2017, the Manitoba PED story was a quiet one with only 10 cases in three years. The situation changed in the spring and summer, when 77,000 of 116,000 sows in a pig-dense area of the province became infected. Over one million pigs came under disease surveillance.

“PED escaped from high-traffic sites, reached critical mass in high-density pig regions with large sow herds, and then spread through pig movement,” said Talbot.

HyLife alone had 37 cases affecting over 37,000 sows. Nine sow barns, six nursery sites and 20 finishing sites were all infected with PED. The company's first case was discovered on May 15, followed by a second on May 26.

Although HyLife initially thought the disease could be contained, it began jumping from barn to barn every three to five days, resulting in a domino effect of infection, Talbot said.

At the same time, other barns belonging to other production systems in other areas began to break as well. Over 38,000 sows became infected in only 15 days in the

summer, creating a large spread area.

“Where was (the disease) coming from? It was big farms moving pigs, with 38 per cent of cases resulting from direct animal movement,” Talbot said.

“Normal biosecurity protocols are not enough to prevent spread, especially when there are gaps or lapses in the protocols, such as (workers) not using showers.”

Aerosol transmission was also thought to be a culprit of disease spread in Manitoba. This spread was suspected due to the specific dynamics of pig production in the area, including large barns in close proximity and summer ventilation conditions.

“This was new for us. Summer ventilation led to big spread with full fans blowing out the virus day and night, and no UV at night to kill the virus,” Talbot said, adding that lots of wind and the “right” weather conditions were contributing factors.

The rapid, efficient movement



The rapid, efficient movement of piglets sometimes resulted in producers moving piglets before they saw clinical signs.

of piglets sometimes resulted in producers moving piglets before they saw clinical signs. High risk movements in and out of high risk areas, the sharing of staff between barns, manure spreading, and the movement of feed and service providers also helped disperse the virus.

PED is a reportable disease in Manitoba, which led to weekly testing supported by the provincial government and Manitoba Pork, Talbot said.

Biocontainment procedures were implemented that included testing, biosecurity, and processes for moving everything from pigs to people and feed in and out of affected areas without contributing to further spread.

“It took a real team effort to contain the virus, which also included weekly conference calls with transporters, assembly points, producers and Manitoba Pork,” she said.

Although things have now quieted down, the threat remains. Talbot shared the following lessons learned with the Big Bug Day audience:

- Sow barns had the biggest impact

on the spread of the disease, but infected finishing pigs ready to go to market were also critical. Every truck moving PED-positive finishing pigs to processing was washed, disinfected and heat-treated to minimize the risk of spread.

- Biosecurity is still key but, under certain conditions, aerosol spread of PED may play a role as well.
- Outbreaks require a lot of resources, including people, equipment to segregate PED-positive and -negative environments, and infrastructure like washing and disinfecting facilities.

“You can never be prepared enough. Even if you have a strong contingency plan, the devil is in the details. One mistake will get PED into your barn,” Talbot said. “It was a very difficult summer and we aren’t done yet. The high-risk PED season is (underway) due to ... cold weather.” **BP**

*Swine Health Ontario is a leadership team focused on improving and coordinating the industry’s ability to prevent, prepare for and respond to serious swine health threats in Ontario.*

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# VENTILATING CONVERTED GESTATION FACILITIES

**When converting barns to loose housing, producers also should consider altering their ventilation systems.**

Prairie Swine Centre photo



**Ventilation affects many aspects of the animal environment, as well as energy costs.**

Ventilation affects many aspects of the animal environment, as well as barn operating costs – particularly energy bills.

Retaining the existing ventilation system in sow facilities converted to loose housing will lead to over-ventilation during the winter months because existing minimum ventilation fans are designed for higher animal densities. This situation results in the use of extra heating fuel and potentially causes the chilling of animals, which affects performance.

If producers continue ventilation at the pre-remodelling level (prior to conversion to group housing), the building would be ventilated 33 per cent more than required, which can cause an increase in heating energy consumption of 75 per cent. During the summer, the impacts are less pronounced but over-ventilation uses extra electricity which translates to higher costs.

In addition, the transitioning of the ventilation system design from

stalls to group housing requires careful reconfiguration to ensure proper air distribution throughout the room to eliminate dead spots (unventilated areas) and prevent unwanted drafts.

Air exchange is critical to provide a healthy environment that fosters efficient pig growth by reducing humidity and gases like ammonia and carbon dioxide.

Since under-ventilation can create an unhealthy environment and over-ventilation wastes energy, finding the right balance is key to a healthy environment for both animals and workers, as well as to energy savings and efficiency. This balance can only be achieved by a careful redesign of the existing ventilation system in a converted gestation barn.

Researchers worked with a numerical computer simulation technique which utilized computational fluid dynamics (CFD) principles to numerically simulate fluid flow, heat and mass transfer,

and mechanical movement. They used this tool to examine various design configurations and determine the most effective design of the ventilation system for a converted group sow housing facility.

Ventilation system design parameters investigated included:

1. Capacity and location of exhaust fans
2. Size and location of air inlets

These two parameters were configured in such a way that the resulting ventilation system design adhered to the following principles: upward airflow, downward airflow or horizontal flow ventilation.

## **Implementation of the most effective system design**

Researchers used two group-housed gestation rooms. They modified one room, designated as the treatment room, to incorporate the horizontal flow configuration, identified from the simulation work. The ventilation system in the second room (the





Jim Algje photo

**The horizontal ventilation system design for group sow housing provided better air quality and cleaner floors than the unmodified design.**

control room) was similar to those systems in pre-converted (stall) gestation barns. Scientists carried out a total of eight replicates – four in the winter and four in the summer.

In treatment rooms, scientists located air inlets at one end of the room and exhaust fans at the opposite end, allowing air to flow horizontally through the entire length of the room. In control rooms, researchers located inlets on the ceiling and fans on one of the external walls; this configuration represented a downward airflow direction, which is typical in commercial sow barns.

### Conclusions

Results from the computer simulation work confirmed the need to redesign the ventilation system in a newly converted group sow housing facility.

Among all the design configurations tested, the horizontal flow ventilation system was the most effective in removing heat from the animal-occupied zone in the room during both the summer and winter.

In-barn evaluation of the selected ventilation system design showed about a 21 per cent reduction in natural gas consumption during the heating season. The research also showed a 14 per cent reduction in electricity consumption in the room with the horizontal flow ventilation system relative to the control room with the unmodified system.

The horizontal ventilation system design for group sow housing provided better air quality and cleaner floors than the unmodified design.

Animal performance and productivity were not adversely nor beneficially impacted by having a horizontal flow ventilation system in

a gestation room.

In terms of behaviour and welfare, enrichment use was greater in the room with the horizontal ventilation design which implies that sow comfort was better in the treatment room.

### Acknowledgements

Agriculture Council of Saskatchewan Inc., through the Advancing Canadian Agriculture and Agri-Food Saskatchewan (ACAAFS) program, and the Saskatchewan Agriculture Development Fund provided financial support for this project.

The Prairie Swine Centre also acknowledges strategic funding from the Saskatchewan Pork Development Board, Manitoba Pork Council, Alberta Pork, Ontario Pork, and the Saskatchewan Ministry of Agriculture. **BP**

*The Prairie Swine Centre conducts near-market research that can be applied by the pork industry within a one- to seven-year time frame.*

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by  
**CURTISS  
LITTLEJOHN**

# BUSTING MYTHS ABOUT LOOSE SOW HOUSING

Learn why loose housing may be the right choice for the welfare of your sows.

Automation has crept up on us in the last 25 years. I counted the number of clocks in my kitchen one night as I waited for the kettle to boil: a decorative clock on the wall; digital clocks on the stove, microwave, coffee pot, and TV timer; and clocks on my smartwatch, smartphone and tablet. When I was a kid, if you wanted to know the time, you had better hope that you remembered to wind your watch!

The Internet has irrevocably altered the way we conduct our lives since it became commercially available nearly 27 years ago. The speed at which we learn, exchange information and challenge the validity of old concepts continues to increase, as we look for the best way to achieve a goal.

We often hear arguments that this way of doing things is better than that way. The simple answer is, if that situation was the case, then there would be only one kind of car, one kind of tractor, one kind of computer, etc. In reality, different styles of management structure and different philosophies produce different results from equal systems.

So, let's discuss three major myths regarding loose housing.

## Myth #1 – Sows continually fight in loose housing

What farmers call fighting, researchers call competitive dominance social encounters.

Sows bully each other to determine a social structure.

This is normal behaviour – any animal group has a process to determine social pecking order. “The first thing sows do when they are placed in a pen is elect a chairman,” as a friend of mine likes to say. Sows bite and snap at each other until one of them is crowned queen of the group or pen.

They snap at each other in stalls as well, as anyone who has worked in a



Canam AgSystems photo

As we close in on 40 PSY, we must manage each sow to ensure her well-being and a profitable, productive life.

conventional barn long enough can attest. In a stall-type gestation barn, a certain number of sows are unable to acclimatize to the stall. They are always trying to get out, often getting trapped in very odd positions as they try to escape.

In loose housing, in contrast, sows determine a pecking order fairly quickly and then activity settles down, the research shows. Pens that incorporate areas in which sows can hide from or escape the queen are part of a good overall design.

At the 2016 Group Housing seminar, one of Quebec's major producers, who is using a stall-type feeder in loose housing, discussed the increased feed costs, lower production levels, and difficulties sorting and moving sows to farrowing. Notably, this production group is, in my mind, one of the best managed operations in Canada.

The producer had a well-developed plan, and understood the challenges

surrounding a move to loose housing, yet had to adapt to the realities in the barn.

## Myth #2 – Loose housing does not perform as well as stall barns

The highest producing herds in North America have at least part of their barns in group housing, and quickly realize its benefits. Many herds have experienced a decrease in farrow time, fewer stillborn animals and shorter recovery time for the sows. Well-managed sows in loose housing tend to have better body condition scoring (BCS) at farrowing since exercise and diet are integrated.

No longer are we limited by having to adjust 1,000 feed drops as feed density, day of gestation, feed curve, barn temperature or season of the year changes. Feed level adjustment is infinite, often accomplished with only a few taps on a smartphone or tablet right beside the sow.

Recently, a vet at the Swine Vet



It's a myth that sows continually fight in a loose-housing system.

Centre said to me that, not too many years ago, some of the largest producers in the practice had stated “No way will we ever move away from our gestation stalls.”

Today, those same producers say the only way they will achieve 40 pigs per sow per year (PSY) is with the advantages of loose housing.

**Myth # 3 – The same high level of management cannot be provided to group-housed sows**

So what is management? It is the ability of an organization to perform, analyze, adapt and then outperform previous results.

From my 30 years of experience as a producer and 10 years of experience working on animal welfare production strategies, I have become increasingly involved in understanding how sows interact with each other. I have become more familiar with their needs from nutritional, physical and welfare perspectives.

Being willing to adapt and change is not mandatory, but then neither is survival, said management consultant W. Edwards Deming. Just look at the advances in human health care: 40 years ago, someone who underwent a triple bypass surgery had to spend six

weeks in bed before he or she could begin rehabilitation. Now, someone with a quintuple bypass is walking the next day.

Inactivity is more problematic than anything else we expose ourselves or our animals to.

I now challenge producers to show me the daily standard operating procedures (SOP) for their gestation stalls – daily feed requirements, water monitoring, observation and assessment of lameness, BCS, and barn temperature. In most barns, this SOP does not exist.

I challenge producers to consider how they would assess those tasks in a loose-housing environment. Often, they realize that many of these management functions can be determined by looking at data that is gathered from an electronic sow feeder (ESF).

The sow went to the feeder, so she can walk. An increase or decrease in the number of visits to the feeder suggests sickness or need for nutritional adjustment. If a sow did not eat, producers can consider if she needs attention.

Producers can quickly determine, with a walk through the barn, if a sow needs a feed adjustment for being

under- or over-conditioned.

Many of our best pork business managers subscribe to the theory that, if you cannot measure it, you cannot manage it. But these individuals can be hard-pressed to look at the data an ESF can provide to take their operations to the next level.

Loose housing is an accepted norm in the world of swine production and is quickly gaining traction in North America. I believe, as we close in on 40 PSY, it is imperative that we manage each sow to an exacting standard to ensure her well-being and a profitable, productive life. **BP**

*Curtiss Littlejohn is Innovative Projects/Swine Products Manager for Canarm AgSystems. A pork producer for 30 years, he is a passionate industry advocate and has been involved with foreign animal disease, trade, and animal welfare policies on provincial, national and international levels.*

*Canarm AgSystems is a business unit of Canarm Ltd., a highly diverse, successful company with an 80-year history. The company has achieved many firsts in the agricultural industry, including the design of the first stainless steel ESF manufactured in North America.*



by  
**MOE AGOSTINO  
& ABHINESH GOPAL**

# NAFTA'S IMPACT ON THE PORK INDUSTRY

Analysts worry about the financial ramifications of a renegotiated trade agreement for the ag industry.

Basilios1/E+ photo



Without NAFTA, the North American trade situation would be similar to that of the 1980s, with disrupted supply chains, trade barriers, and lower economies of scale and scope.

The North American Free Trade Agreement (NAFTA) is a trade deal between the United States, Canada and Mexico that has been in place for 24 years. As promised in his election campaign, American President

Donald Trump initiated a renegotiation of NAFTA last year in order to resolve trade issues.

The three North American economies have largely benefitted from NAFTA. Over the first two decades of

the deal, regional trade increased significantly, jumping from about US\$290 billion in 1993 to over US\$1.1 trillion in 2016. Cross-border investment also swelled during this period, as direct American investments in Mexico increased from US\$15 billion to more than US\$100 billion.

Canada is America's number one destination for exported goods, followed by Mexico. The United States accounts for 80 per cent of Mexico's exported goods. NAFTA proponents estimate that around 14 million American jobs rely on trade with Canada and Mexico.

With so much money exchanging hands between the three countries, the current NAFTA negotiations have a lot at stake. Without NAFTA, the North American trade situation would be similar to that of the 1980s, with disrupted supply chains, trade barriers, and lower economies of scale and scope.

American agricultural exports totalled US\$140.5 billion in fiscal year (FY) 2017, climbing nearly US\$10.9 billion from the previous year to the third highest level on record. The U.S. agricultural sector posted an annual trade surplus of US\$21.3 billion, up

## WHICH STATES WOULD SUFFER THE MOST IF THE UNITED STATES WITHDRAWS FROM NAFTA?

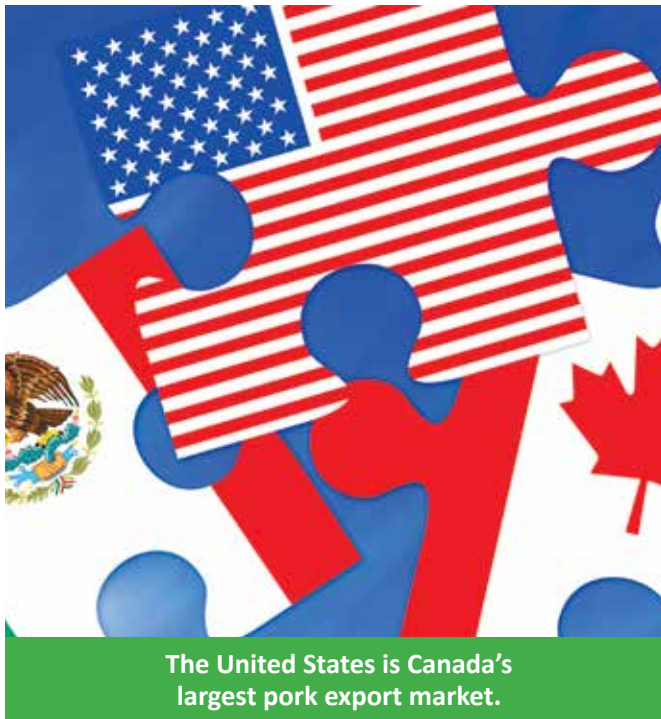


	U.S. State	Jobs at risk if U.S. withdraws from NAFTA	Share of exports bound for Canada and Mexico	Value of exports to Canada & Mexico (US \$)
1	Michigan	366,000	65%	\$35 Billion
2	Wisconsin	249,000	46%	\$9.6 Billion
3	North Dakota	33,000	84%	\$3.5 Billion
4	Texas	970,000	48%	\$112 Billion
5	Missouri	250,000	56%	\$7.8 Billion
6	Ohio	463,000	52%	\$25 Billion
7	Iowa	138,000	47%	\$5.6 Billion
8	Indiana	253,000	47%	\$16 Billion
9	Arizona	236,000	47%	\$10 Billion
10	Nebraska	87,000	42%	\$2.6 Billion
11	Pennsylvania	513,000	37%	\$13 Billion
12	North Carolina	390,000	31%	\$9.3 Billion

SOURCE: U.S. CHAMBER OF COMMERCE

This chart shows the significant economic ramifications of a potential American withdrawal from NAFTA.

Marc Bruxelles/istock/Getty Images Plus photo



almost 30 per cent from last year's US\$16.6 billion.

What would those numbers look like if we did not have NAFTA?

"While modernizing the 23-year-old NAFTA makes sense, withdrawing from the agreement would be a blow for the United States – one that would hit some states particularly hard," said John G. Murphy, senior vice-president for international policy of the U.S. Chamber of Commerce, on the Chamber's website.

"Ironically, those likely to suffer the most would be Midwestern industrial states, heartland farm states, and border states like Texas and Arizona – nearly all of which voted to elect President Trump."

American agriculture is particularly dependent upon NAFTA, as it provides a lot of export markets for agricultural products. Without it, U.S. farmers would experience a significant decline in sales and revenue.

The North American pork industry, for example, may be adversely affected if the trade deal is scrapped. Some pork producers might ask: "If it isn't broke, why fix it?"

Indeed, the United States is Canada's largest pork export market. In 2016, the U.S. imported 408,000 tonnes of pork valued at CAD\$1.4 billion. Mexico is Canada's fourth largest market. In 2016, Canadian pork exports to Mexico totalled 314,000 tonnes, valued at over CAD\$587 million.

American pork exports to Canada have also increased. Canada is the fourth largest market for the United States and Mexico is the second largest. In 2016, the U.S. exported US\$799 million worth of pork to Canada and US\$1.36 billion to Mexico.

Scrapping NAFTA would cost the United States the Mexican pork market, which would equate to a 5 per cent loss in U.S. pork production and a 10 per cent reduction in the U.S. live hog market. The cumulative impact would

be a US\$1.7 billion loss for the American pork industry.

In January 2017, American beef, pork and soybean producers were disappointed when President Trump signed the first executive order to withdraw from the Trans-Pacific Partnership (TPP), as this trade was expected to yield US\$63 billion annually for U.S. producers.

A "modified" TPP agreement increases concerns about American market access in Japan for pork. The eleven remaining members of the TPP recently announced plans to move forward with a modified trade agreement, known as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

If this agreement is implemented without American participation, it will create significant tariff rate advantages for competitors of U.S. pork.

Market analysts expect NAFTA renegotiations to continue well into the year. Hopefully, the outcome will benefit the North American pork and agricultural industry, and not make farmers fret any more than they have to, given the other uncontrollable factors of weather and disease. **BP**

*Maurizio "Moe" Agostino is chief commodity strategist with Farms.com Risk Management. Abhinesh Gopal is a commodity research analyst with Farms.com Risk Management. Risk Management is a member of the Farms.com group of companies. Visit RiskManagement.Farms.com for more information.*



by  
**RICHARD  
SMELSKI**

# SOLUTIONS DON'T NEED TO BE DIFFICULT

This tale of legendary escape artist Harry Houdini reminds us to try a different approach to solve problems.

allansward/iStock/Getty Images Plus photo



The biggest barrier we face is the one we make for ourselves.

How many times have we spent the evening stressing about a problem that never occurred or dwelling on an issue that was so simple to resolve if we would only try to actually tackle it?

In most of cases, worry and the accompanying stress are inconsequential distractions. These feelings are often based mainly on ego gratification, rather than on actual life improvement. This challenge of unnecessary worry is perhaps best exemplified by a folklore story of Harry Houdini, who lived from 1874 to 1926.

Houdini is considered one of the world's greatest escape artists and he performed globally. He could not be confined by straightjackets, jail cells or coffins.

Often, before his show date, Houdini dared the local jailer to lock him in a cell. If Houdini couldn't best

the jailer, Houdini would pay him \$1,000. The feat was intended to help drum up ticket sales for Houdini's shows.

The situation unfolded differently, however, in the town of Preston, Lancashire, legend says. After receiving the usual challenge, the local jailer dutifully ushered Houdini into a cell. As soon as the door clanged shut behind him, Houdini began searching for a way out.

But he could not find an escape route.

After the allotted hour, Houdini remained in the cell, frustrated with his failure.

The twist to the story? The jailer accidentally left the door unlocked – which meant Houdini had missed the simplest solution. He could have just walked out the door!

Have you ever been challenged to a similar point of no return and worried yourself sick over the problem?

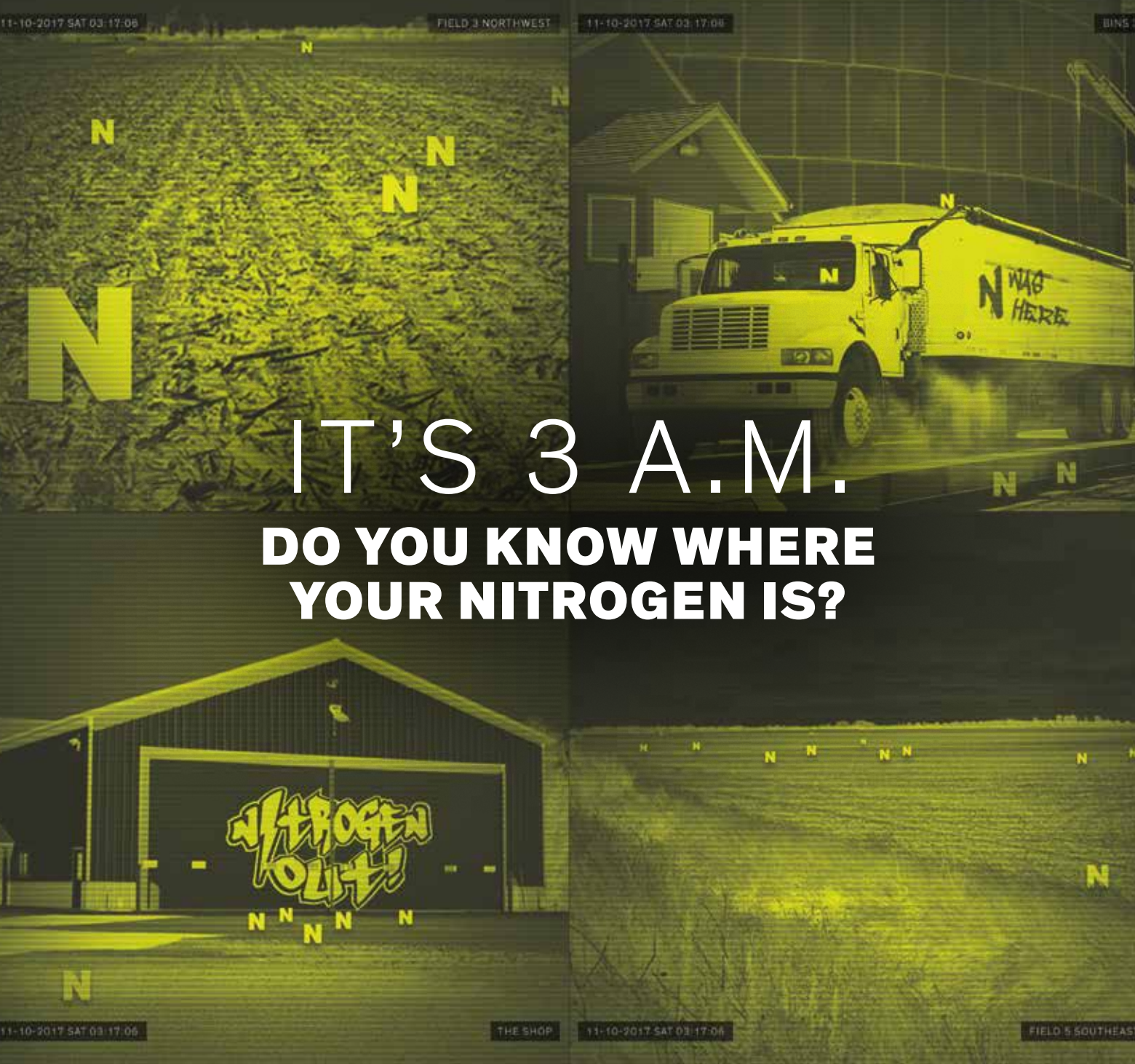
Test your memory: try to recall what you were worrying about one year ago today – or even one week ago.

The biggest barrier we face is the one we make for ourselves. How many times have we failed because we did not consider the simple or unexpected answers to our problems? Our minds were made up before we tried to resolve the problem.

Next time you are faced with a stressful situation, think of this quote from author Mark Twain: "I've had a lot of worries in my life, most of which never happened." **BP**

*Richard Smelski has over 35 years of agribusiness experience and farms in the Shakespeare, Ont. area.*





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