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CANADIAN HOG JOURNAL

Canada's national hog magazine • Summer 2025

Pork partnerships still crucial despite trade challenges

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Pork partnerships still crucial despite trade challenges

Todd Thurman

Editor's note: Todd Thurman is Founder & CEO, Swine Insights International. He can be contacted at 'todd@swineinsights.com.'

Group of Seven (G7) world leaders, including Prime Minister Carney and President Trump, met in Alberta in June. Trade between Canada and the U.S. continues to be strained despite efforts to find common ground. Image © Government of Canada

As 'Trade War II' rages on and global commerce is reshuffled, the North American trade bloc stands out as one of our most powerful collective assets *(Figure 1)*. The geographic proximity and characteristics of Canada, the U.S. and Mexico make this union ideal for creating secure, efficient and resilient supply chains. This is true across industries but especially food and agriculture.

As an American who does business internationally, I believe strengthening this relationship should have been our number-one geopolitical and economic priority. It is both surprising and disappointing that it has instead become a flashpoint in global tensions.

Integration, cooperation have been a historical benefit

For decades, the North American pork industry has been bolstered by cross-border integration and cooperation. The industry has operated as a continental system: live hogs flow south for finishing, American feed grains move north and finished pork products flow both ways. It's a model of efficiency that has served us all well.

The recent imposition of steep U.S. tariffs and Canada's retaliatory measures contradict the strategic goal of strengthening this union. I've been delaying my writing of this article in the hope I could share more encouraging news of an announced deal. As of writing, however, the August deadline

Figure 1

Figure 2

imposed by the Trump administration has expired, and Canada is facing 35 per cent tariffs – an increase from the 25 per cent tariffs on all imports not covered by the U.S.-Mexico-Canada Agreement (USMCA), also known as the Canada-U.S.-Mexico Agreement (CUSMA). Additional responses by Canada are being discussed, but nothing concrete has emerged.

Fortunately, most pork industry impacts have, so far, been limited. Pork and live pig exports from Canada to the U.S. are included in the CUSMA compliance exemption, provided paperwork is in order. In fact, the Bank of Canada estimates 95 per cent of all Canadian exports to the U.S. are exempt. While some U.S. pork products are technically included in the retaliatory Canadian tariffs imposed in March, the actual impact has been minimal. Slight reductions have been noted in U.S. pork exports to Canada in recent months but most can be attributed to non-tariff related issues. Still, the uncertainty is troubling, and the broader issues may impact input costs for producers and affect pork demand. Producers on both sides of the border worry that escalation could drag pork directly into the fray.

If live pigs and pork were included in the current tariff regime, the effects would be serious. The pipeline of more than six million Canadian feeder pigs moving south annually cannot simply be turned off. U.S. finishers depend on them, so demand tends to be steady. Costly workarounds would likely limit the impact on volume in the short term, but ultimately, Canadian producers would be forced to offer steep discounts, straining margins to a degree that might become unsustainable.

Meat, a more substitutable commodity, would experience a more rapid and direct impact. Traders, unwilling to absorb a 25 to 35 per cent price hike, would force product to be diverted into other global markets or onto the domestic market. Considering the U.S. and Canadian industries are heavily export-dependent – 26 per cent and 70 per cent of pigs and pork produced leave each country, respectively – this would be a massive problem for both. North American trade represents a significant proportion of total exports. Between 2018 and 2022, Canadian exports to the U.S. averaged 35 per cent by value, and U.S. exports to Canada were 15 per cent *(Figure 2)*.

Our industry is now at a crossroads. What happens next depends mostly on whether this trade dispute ends up being a brief spat or a permanent change in the North American trade climate. By looking at multiple scenarios and considering the implications, two possible, simplified outcomes stand out.

Scenario 1: Quick Resolution

In this optimistic scenario, a political compromise is reached within the next three to six months, tariffs are rescinded, the integrated system snaps back quickly, and the pork industry is never directly dragged into the conflict. Canadian live pig exports continue, and Canadian and U.S. pork quickly regain traditional share of the respective markets. Exactly what the re-adjustment would look like obviously depends on the terms of the agreement, but something resembling a return to the status quo is likely.

Crucially, the incentive to make costly, long-term investments in redundant capacity – such as building new packing plants in Canada – fades in this scenario. The episode would serve as a lesson in our mutual dependence, but it would ultimately reaffirm the logic and efficiency of our continental model. It is important to acknowledge, however, that damage has already been done to the relationship between Canada and the U.S., and trust has eroded; it will take time to repair that damage.

Scenario 2: Prolonged Stalemate

This is a more pessimistic but plausible scenario where tariffs persist for the next three to five years and pork is directly or indirectly included, forcing permanent adaptations. Some models – like the one developed by agricultural economist Sebastien Pouliot – suggest Canadian feeder pig exports to the U.S. could plummet by 36 per cent, and slaughter hog exports would virtually disappear in the face of 25 per cent tariffs.

For Canadian producers, this path is fraught with difficulty. It means a painful contraction of the industry or an aggressive, high-stakes pivot to expand slaughter capacity and find new overseas markets. While it's true the pain would be greater for Canada, this is not a win for the U.S. It forces the American industry into a slow and expensive process of expanding its own sow herd to replace the reliable Canadian pig supply. Alternatively, the U.S. might choose to simply cut overall

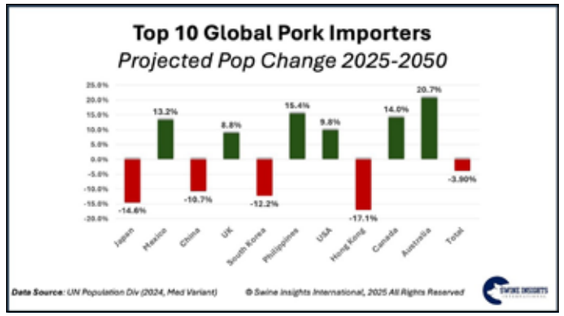


Figure 3

production, leading to an oversupply of shackle and finishing space, thereby straining packer margins and the well-established contract production system.

This leads not to victory for one side, but to a fundamental reconfiguration into two less efficient, more siloed national systems. Furthermore, it is critical to understand that this internal fragmentation would be happening at the worst possible time. Our analysis forecasts rather weak global pork demand over the coming decades, driven by a combination of demographic and economic headwinds that are particularly challenging for pork.

East Asia provides perhaps the clearest example. For example, China has been a primary engine of global pork import demand for years, but that era is likely over. With its rapidly improving domestic production efficiency and significant demographic challenges like population aging and decline, China cannot be relied upon for future growth. Japan, South Korea and Hong Kong – all major pork importers – face similar challenges. Of the top-10 pork importers in 2024, four are expected to lose population in the next quarter-century *(Figure 3)*. Collectively, the group will lose almost four per cent of its population, which will also continue to age rapidly.

To replace weakening demand elsewhere, many industries will look to the last remaining areas of rapid population growth – Africa and parts of the Middle East – which will add around one billion people altogether in the next 25 years. This creates an opportunity for massive market growth if economic stability and governance goals can be achieved (a big if), but 52 per cent of this population growth is likely to be Muslim: an obvious problem for the pork industry.

So, in a cruel twist of fate, many of the same areas experiencing the greatest demographic challenges are also the areas with the highest levels of pork imports and the areas with the most potential growth are a challenge for the pork industry.

Friends, not foes

The implications of the current trade dispute are stark: with global demand slowing overall and reversing in key markets, the export market will become fiercely competitive. A unified Canada-U.S. pork industry – leveraging its scale, efficiency and

Real people and businesses have been caught in the current mess. Standing together provides our best chance at continued long-term success.

complementary strengths with Mexico – is far more competitive on the world stage than any of us can be alone. A self-inflicted weakening of our partnership now is a grave strategic error that undermines our collective ability to compete in the challenging decades ahead.

This dispute is more than a line item on a balance sheet; it is causing financial pain, impacting real people and businesses. If it spreads, it threatens to permanently fragment our efficient North American system and dangerously weaken our collective strength right when global competition is set to intensify.

The choice before our leaders is clear: continue a self-defeating internal conflict or restore the partnership that provides our single greatest advantage in global trade. The challenges ahead are global in scale and will require our absolute best. Our integrated North American pork and broader agriculture system gives us an edge no other region can easily replicate. Restoring that partnership and focusing our collective energy on winning in a tougher global market is not just the best option, it is the only one that makes strategic sense.

PRRS-resistant pig eyes international approval

Pig Improvement Company

Editor's note: This article is a summary prepared for PIC. For more information, contact 'GraceG@lookeast.com.'

For decades, hog producers have battled Porcine Reproductive and Respiratory Syndrome (PRRS): a disease that plagues pig farms of all sizes and scales around the world. This disease costs the Canadian pork industry approximately $130 million per year, not to mention its devastating consequences for animal welfare and producer morale.

But if we could eliminate the challenges from PRRS, we could have pork with improved animal welfare, reduced need for antibiotics and a reduced environmental impact.

So, PIC collaborated with University of Missouri and The Roslin Institute to identify a solution to the devastation: the PRRS-resistant pig.

Removing PRRS reduces resource use

PRRS negatively impacts the sustainability of raising pigs, because it can increase the need for resources like water, feed, land, and ultimately, it can increase greenhouse gas emissions.

"Addressing PRRS can allow us to improve animal welfare and reduce the environmental impact of raising pigs," said Banks Baker, Senior Director of New Product Strategy, PIC. "For example, recent research indicates that PRRS increases the need for antibiotics by more than 200 per cent."

But if we raise pigs that are resistant to the PRRS virus, we could decrease the environmental impact. In fact, a recent lifecycle assessment found that eliminating PRRS could reduce greenhouse gas emissions by up to nine per cent in North America.

"Each of these benefits are exactly what the pork value chain is telling us they want," said Baker. "From the producer all the way down to the consumer."

Gene-editing, not GMO, creates PRRS resistance

To breed pigs that are resistant to PRRS, PIC used gene-editing to precisely delete a portion of the gene that allows the PRRS virus to infect the pig. Without the binding site, the virus

Porcine Reproductive and Respiratory Syndrome (PRRS) is one of the more destructive yet relatively common afflictions of hog operations in many countries, including Canada.

cannot make the pig sick. Nothing foreign was added, and no genes were inserted, which means PRRS-resistant pigs are not genetically modified organisms (GMOs).

The original gene edit was made in a founder population of pigs seven years ago. Since then, just as humans inherit eye color from their parents, generations of pigs have inherited the PRRS-resistant trait through traditional breeding.

Most consumers unconcerned about gene-edited pork

Where do consumers stand on gene-editing and using it to solve some of society's toughest challenges? And what do consumers think of the PRRS-resistant pig? What motivates their purchase likelihood of gene-edited products?

"It's important to ensure we are citing the most up-to-date research, as familiarity of gene-editing is growing drastically," said Baker. "To ensure we are getting the most accurate understanding of consumer perception of gene-edited pork, we partnered with independent research expert, Circana – the world's leading advisor on the complexity of consumer behaviour."

Circana surveyed more than 1,000 shoppers and found that, compared to more than 6,000 other food products they've tested, pork from PRRS-resistant pigs received a high purchase likelihood, at 87 per cent, especially when they heard about the taste and safety of the product. That does not mean that 13 per cent of consumers are unlikely to buy pork from PRRS-resistant pigs; rather, it means that an individual is 87 per cent likely to purchase the product when they go to the grocery store.

Notably, after reading about the benefits of the product, women indicated they were 91 per cent likely to purchase pork from PRRS-resistant pigs. And in Canada specifically, more than 85 per cent of respondents indicated neutral, positive or very positive sentiment toward gene-edited pork.

"The findings of our research have been re-affirmed by other recent studies from Mintel, The Food Industry Association and Pairwise," said Baker.

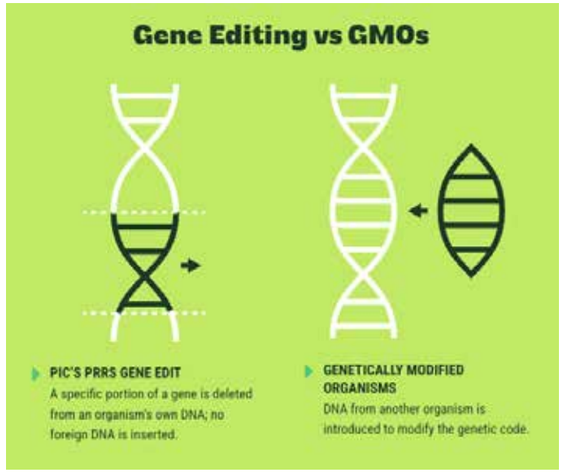
In late 2024, Stuart Smyth, a researcher at the University of Saskatchewan who has specialized in biotechnology regulation, noted: "The public's very supportive of gene editing when you provide context on how it contributes to sustainability."

Regulatory approval sought in Canada

In early 2025, the U.S. Food and Drug Administration (FDA) approved the gene edit used to breed the PRRS-resistant pig, determining that the technology is safe and effective.

Additionally, the governments of Colombia, Brazil, Argentina and Dominican Republic issued favourable regulatory determinations for PRRS-resistant pigs, meaning these countries have recognized they are not GMOs and will treat them the same as any other pigs.

PIC is working to secure approval for the gene edit used in the PRRS-resistant pig in Canada, Japan and Mexico, along with other pork-producing countries.



GMO versus gene editing matters a great deal for regulatory approval globally. Many jurisdictions do not approve genetic modification of animals but tend to have fewer reservations with gene editing.

When it comes to taste, familiary and safety, most consumers are willing to be open-minded about pork from PRRS-resistant pigs.

"We are committed to the responsible and intentional introduction of the PRRS-resistant pig around the globe," said Matt Culbertson, Chief Operating Officer, PIC. "Gaining approvals is an important step in this process, and we are working with additional countries to protect global trade prior to initiating sales and delivery."

Producers are invited to learn more at PRRSResistantpig.com.

Food lab cooks up niche and novel innovations

Andrew Heck

NAIT's Centre for Culinary Innovation is a state-of-the-art commercial kitchen that hosts a large assortment of equipment. Image © NAIT

Innovation is a complicated word. While few can define it with absolute confidence, it doesn't take a scientist to recognize it in our lives.

Nevertheless, the researchers at NAIT Applied Research are partnering with food manufacturers to create made-in-Alberta products, using local ingredients, that appeal to today's increasingly diverse consumer tastes. And they're doing it inside the Centre for Culinary Innovation by fundamentally transforming ordinary inputs – including pork – into value-added items that respond to modern demands.

"I love the psychology of food," said Linda Ho, Applied Research Chair in Agri-Food Sustainability, NAIT. "Why do people consume what they consume? And for a product like pork, how can we get them to consume more of it?"

The Northern Alberta Institute of Technology (NAIT) is a trade- and technology-based polytechnic located in Edmonton. It offers a range of certificate, diploma and degree programs that prepare students for the workforce in many of the province's key industries, including food and agriculture.

Ho's professional experience includes a balance of academic and private-sector positions, including a background in meat microbiology. Since joining NAIT in 2022, she has led the Centre

The Northern Alberta Institute of Technology (NAIT) opened its Centre for Culinary Innovation in 2019, designed to bring food ideas to life through research and commercialization. Image © NAIT

for Culinary Innovation alongside a rotation of student helpers and fellow food scientist Christopher Song.

"People come to us and say, *'My grandma's sauce is so amazing, and I want to scale it up and sell it,'*" said Ho. "Most often, these recipes are *'a little of this, a little of that,'* but we help quantify the ingredients in a precise way."

While everyone knows that *love* is the real secret ingredient in grandma's sauce, food chemistry plays an important role in product creation. And at the intersection of art and science – where creativity meets commercialization – is where you'll find the NAIT research team working hard to deliver results for budding entrepreneurs.

Research kitchen provides the platform

NAIT's 2,000-square-foot research kitchen is a fully customizable space for bench-top food and beverage product development, characterization of new food ingredients and recipe development. It features 12 dedicated food-prep stations, along with equipment like a meat grinder, freeze dryer, thermocirculator (sous-vide machine), vacuum-packing devices and more.

While the Centre for Culinary Innovation is relatively new, the notion of a post-secondary food lab has deep roots in other places, such as the internationally renowned Wageningen University in the Netherlands, where value-added food processing exports contribute significantly to the country's GDP. In fact, the Netherlands is ranked second globally in food and agriculture exports. Canada, by contrast, historically, has opted to export raw materials, including pork primals. While that reality is unlikely to change, Ho thinks that manufacturers and the industry at large would benefit from pursuing ideas that add value to products. And NAIT is poised to support the transition.

"We are building the same ecosystem here," said Ho. "It's readily available – just whether innovators want to tap into it."

Since opening in 2019, the centre has helped dozens of clients take their ideas from concept to creation. After completing their projects, clients retain the intellectual property. This type of business 'incubation' is one of NAIT's strengths and has ample appetite across Canada.

Recently, the centre began working on a project with Alberta Pulse Growers to experiment with miso: a fermented paste typically made from soybeans, common in Japanese cuisine.

"Alberta doesn't really have soybeans," said Ho. "But we do have plenty of other crops that can work for this purpose."

Using pastes from Alberta crops like chickpeas, field peas and faba beans, naturally occurring bacteria consume the carbohydrates found in these ingredients, creating enzymes that break down the proteins. The results, given the experimental nature of the process, can create unique and unexpected flavours.

> ***"Consumers today are looking for accessible proteins. That's true whether it's pork or any protein."*** — Linda Ho

Alberta- grown and -raised products – including pulses, as shown here – are at the heart of research taking place at NAIT's Centre for Culinary Innovation. Image © NAIT

"We did a test with consumers and found that they were tasting notes of strawberry and chocolate," said Ho. "That's really interesting, because we didn't predict that, and these flavours are difficult to replicate without actual strawberries and chocolate."

While strawberries and chocolate aren't the concern of hog producers or pork processors, the experiment highlights some opportunities for the sector. Notably, Ho believes that some of the compounds being created in the miso-like mixture could speed up the process of wet-aging – a technique that involves vacuum-sealing and refrigerating pieces of meat for several days or even weeks. The technique relies on enzymes to tenderize tough cuts and concentrate flavours. Using these cuts not only eliminates food waste, but it represents sustainability for everyone in the value chain.

"Consumers today are looking for accessible proteins," said Ho. "That's true whether it's pork or any protein."

Shelf-stability, versatility and ease of preparation are having a heyday right now, as consumers increasingly seek out convenience products but still want to save money. Whether through wet-aging, further processing or through other means, pork stands out as an ideal candidate.

Not just in pork or even agriculture, but across Canadian industry sectors, adding value to raw materials improves value-chain profitability, stimulates the economy and provides jobs. Image © NAIT

Pork provides value-added opportunities

With the recent announcement that Canadian pork exports to Japan have overtaken U.S. pork exports for the first time ever, Japan provides further insight into the possibilities for Canadian pork closer to home.

The Canadian pork industry is committed to the highest standards of food safety, animal care and environmental sustainability. Federally regulated feeding and processing facilities ensure consistency that Japanese buyers have come to expect. Canadian consumers, on the other hand, have potential for further education.

"Think about wagyu beef," said Ho. "People love it, and they pay a lot for it. The product is a result of so much love and care for the animals."

'Wagyu' refers to cattle raised in Japan that have been specially bred with high fat content and intense marbling. Authentic wagyu cuts can cost more than $300 per kilogram, at retail, and there is no shortage of North American imitators that have tried to get a piece of the action through further cross-breeding with domestic cattle. And while wagyu has gained widespread recognition and intrigue, pork really has no immediate equivalent – not because of a lack of quality, but a lack of appreciation.

"Pig breeding has come a long way, and the genetics and handling of animals today creates less stress and allows for better pork," said Ho. "Through introducing consumer to new ways of cooking and eating, though innovation, we can show that it's possible to cook pork to a lower finished temperature, for example, which preserves flavour."

The current tariff-challenged business environment also underscores the importance of Canadian collaboration. As provinces express renewed interest in supporting interprovincial trade, businesses could take advantage of selling products with national reach.

Additionally, while consumers themselves are often implicated for a lack of knowledge, producers, too, are encouraged to consider the bigger picture.

"Farmers are focused on growing pigs, which makes sense, but what about the end product?" said Ho. "Ultimately, farmers produce food – not just animals – and it's important to think about what that means. How do you balance growth performance and meat quality?"

Research provides the pathway

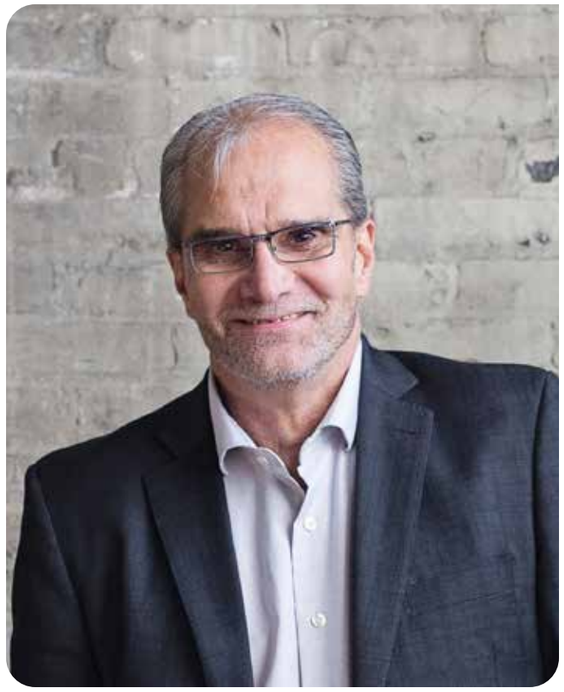
The journey from farm to fork is a long one – not so different from taking an idea and seeing it come to fruition, through research. On a day-to-day basis, hog producers and pork consumers seldom have the chance to connect with each other. For consumers, interacting with pork in the restaurant, grocery store and at home – and its value-added products – is what stands out.

Canadian pork value chain partners should consider what research can do to benefit business. Be it pork- or plant-based product development, NAIT's Centre for Culinary Innovation has attracted entrepreneurs from all walks of life who are trying to cater to underserved demographics, to achieve results that attract sales. That's a potential win for everyone, from producers and processors to retailers and consumers.

Analysis paralysis can leave farmers stuck

Gerry Friesen

Editor's note: Gerry Friesen is a former hog farmer from southwestern Manitoba. He can be contacted at 'gerry@signaturemediation.ca.'



From feed costs and market factors to family dynamics and everyday life on the farm, Gerry Friesen empathizes with those who suffer from indecision when the weight of the world feels heavier than it's possible to bear.

Farming has changed dramatically over the years, and hog production is no exception. When I first started raising pigs, the system was relatively simple. Most of the process was within my control. I chose the genetics that suited my operation, kept the pigs comfortable, made sure they had feed and water, and adjusted ventilation as needed to handle Manitoba's wild temperature swings. When the pigs were ready, they were marketed through a single desk system. It was straightforward and familiar.

But slowly, that simplicity began to erode. One decision turned into many. Risk management became a key factor in the bottom line. Markets opened up, and where I marketed pigs made a difference. Feed pricing strategies mattered more than ever. Each choice had to be carefully calculated – often not just to profit but simply to survive.

At the same time, more and more variables appeared that were completely out of my hands. I experienced record-high prices in the mid-1980s, countered by record-low prices in 1998. I lived through countervail duties and country-of-origin labeling. For a while, our low Canadian Dollar made the industry profitable, only to see the dollar hit parity with the U.S. Dollar, and the profits disappeared. Today's producers deal with an even more unpredictable landscape: ongoing trade tensions, threats of tariffs, disease outbreaks and supply chain breakdowns. Uncertainty seems to be the only constant.

And while stress levels in farming are never low, these kinds of unknowns take it to a whole new level. When every decision feels like it carries the weight of your future, the pressure can be paralyzing. That's what we call analysis paralysis: a state where the fear of making the wrong decision leads to making no decision at all.

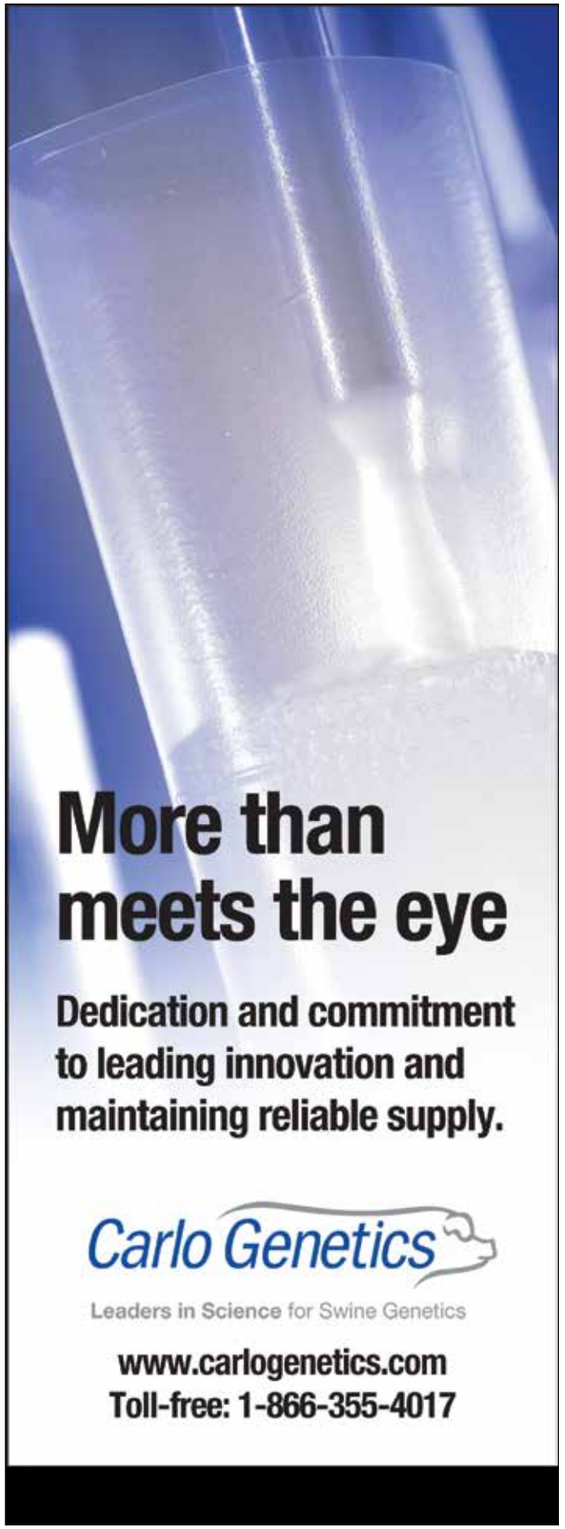
The steep cost of standing still

These trade barriers and unknowns are making an already demanding industry even harder to navigate. And for many farmers, that leads to a frustrating and exhausting condition which leads to analysis paralysis.

This paralysis isn't just inconvenient, it's debilitating. It's the fear of making the wrong call when every option seems risky. And in an industry where margins are razor-thin, even a small mistake can have lasting consequences. That pressure builds, and suddenly, making any decision feels impossible.

I remember a time when I was still farming, and hog prices had taken a nosedive. Every day, I'd pore over market reports, desperate to predict whether things were going to get better or worse. Should I sell now and lock in a loss or wait and hope for a rebound? Feed costs were rising. Bills were mounting. I was stuck in a cycle of overthinking. I ran every scenario through my head but none of them looked good.

Looking back, I wasn't just weighing my options; I was frozen by them. Each path felt like a gamble, and the fear of choosing wrongly kept me from making any choice at all. Eventually, I realized that there was no perfect answer. I had to make a decision, live with it, and move forward. And while that decision wasn't easy, it was better than standing still.



Stress reduction is key when it comes to making rational business decisions.

Why stress blocks clear thinking

Under constant pressure, the human brain doesn't function at its best. Chronic stress impacts our ability to think clearly, process information and make sound judgments. Instead, we start to overanalyze, second-guess ourselves and fall into the trap of inaction.

This isn't just theory – it's backed by research. A 2017 study by Farm Management Canada found that stress directly impairs farmers' ability to make rational business decisions. In other words, the more stress we carry, the harder it becomes to manage our operations effectively.

Worse still, we may shift into reactive decision-making, choosing whatever seems immediately easiest, rather than what aligns with our long-term goals. It's a survival instinct, but in farming, short-term fixes can lead to long-term problems. When we let stress steer the ship, we risk locking in losses rather than seeking out opportunities.

Strategies to move forward

We can't eliminate trade disputes, policy changes, or global market swings, but we can find ways to manage our stress and approach decisions with more confidence. Here are some tools that helped me, and that I believe can help others in agriculture who feel stuck:

1. Focus on what you can control

You can't control tariffs or global politics – but you can take ownership of your budgeting, planning and on-farm management. Focusing on the parts of your business that are in your hands helps restore a sense of stability and control. There are times when seeking help from a third party assists in putting together a plan; it's a reality check.

2. Talk about it

We tend to isolate ourselves when the going gets tough. Always know you are not alone. Having a network of fellow producers, friends or family to talk to can make all the difference. Sometimes, just talking through a problem with someone you trust can bring clarity. You may not find a perfect solution, but you'll likely find a good enough one.

3. Set decision deadlines

Overanalyzing keeps you stuck. If you're waiting for the perfect time to act, you'll be waiting forever. Set a deadline for your decisions, gather what information you need, and move forward with the best choice you can make at that moment.

4. Take care of yourself

Managing stress isn't just about strategy; it's about wellness. Physical activity, rest and time away from the decision-making grind can help your brain reset. You can't make good decisions if you're running on empty. Every choice carries some risk. Accepting this reality shifts your mindset from perfectionism to resilience. You may not control the outcome, but you do control your ability to adapt.

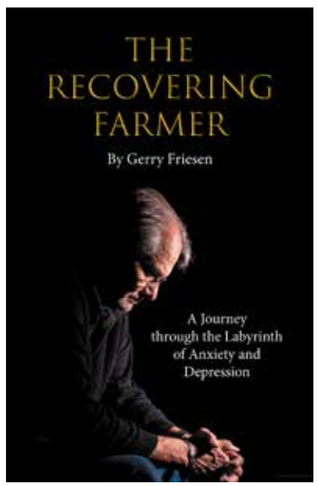
5. Reach out for professional support

Sometimes the weight of uncertainty is simply too much to carry alone. Talking to a counsellor – especially one who understands the realities of agriculture – can provide new tools, insights and emotional relief. Most provinces have farmer wellness programs that offer confidential, free support for farmers and their families. Reaching out isn't weakness; it's an indication of strength.

From stuck to strength

Farming is tough, and today's challenges make it even tougher. But staying stuck in analysis paralysis won't change the realities we face. What can change is how we respond.

Stress is real, uncertainty is real, and so is fear – but so are resilience, support and hope. The key is to acknowledge the stress, manage it and keep moving forward, one decision at a time.



Friesen published his memoir, ***The Recovering Farmer***, in 2024, chronicling his journey through anxiety, depression and addiction to a place of improved mental health – and even, sometimes, happiness.

Summit brings together wild pig experts

Joey Dearborn

Editor's note: Joey Dearborn is Communications Manager, Manitoba Pork. He can be contacted at 'jdearborn@manitobapork.com.'

Across the Canadian pork industry, surveillance plays a crucial role. Surveillance is used to monitor diseases, track animal welfare and ensure that both production-limiting and foreign animal diseases are kept out of barns and out of herds. The same premise applies to wild pigs, and across the country, provinces are utilizing methods of surveillance to keep the threat of wild pigs at bay, and to protect hog producers from disease outbreaks, including African Swine Fever (ASF).

In April 2025, Animal Health Canada and Squeal on Pigs Manitoba partnered to host the second annual Wild Pigs Summit, bringing together experts from across the country to share progress in preventing, managing and removing invasive wild pigs on the landscape. The summit is one of several initiatives supporting the Pan-Canadian Action Plan on ASF to enhance national prevention, preparedness and response planning.

The primary focus of this year's summit was surveillance. Wild pigs are hard to find, making it crucial to track and trap them as soon as possible, to remove the threat from the landscape.

Manitoba's Squeal on Pigs campaign helps raise public awareness of the wild pig issue.

Tracking, tracking and eliminating wild pigs

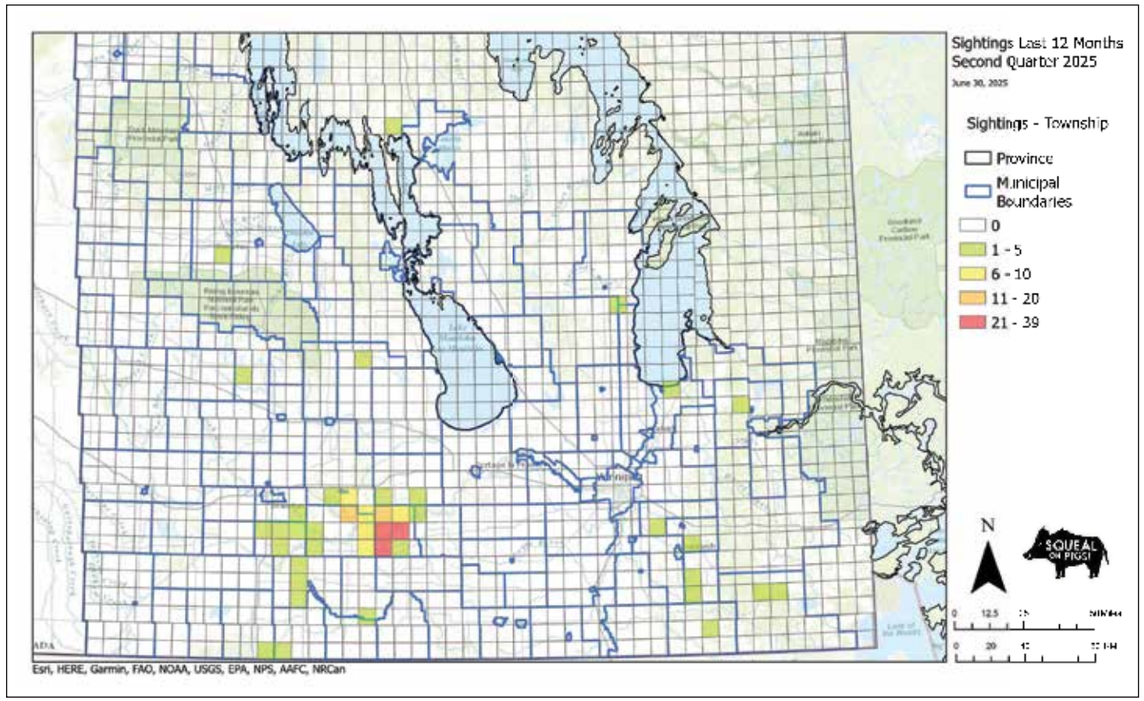
Wayne Lees, Program Coordinator, Squeal on Pigs Manitoba is a leader in the national approach to the issue of wild pigs.

"Finding wild pigs is the single biggest issue that we face in the control programs, as the Eurasian wild boar types typically hide from humans and are often nocturnal," said Lees. "We have relied on publicly reported sightings as a first clue in where to look harder for wild pigs, but that requires the pig and the person to be at the same place at the same time. We are now starting to ask people to report signs of pig rooting, which adds another layer of public education, but these signs are more persistent".

Squeal on Pigs Manitoba uses a variety of methods to find wild pigs. That includes trail cameras set up both on Crown and private land, thermal-imaging drones that allow for analysis using artificial intelligence, and through a partnership with Assiniboine College in Brandon, environmental DNA sampling of bodies of water. Field technicians meet regularly with landowners to both foster support for the program and to further expand the surveillance network to reach more areas of the province. Squeal on Pigs staff operate an average of 100 trail cameras and 30 traps per month on private land. In 2024, that led to 140 wild pig sightings and 204 wild pigs removed from the landscape.

Wayne Lees is Squeal on Pigs Manitoba's program coordinator.

Field-level data from Squeal on Pigs Manitoba has shown that trapping remains the single most effective method for the removal of wild pigs, and that hunting is rarely successful as it tends to scatter pigs over a larger geographic area. A key piece of surveillance for the program has been working with local hunters to get them involved in the program, working to manage traps and bait sites, to eradicate wild pigs on a more permanent basis.



Wild pigs can be found across Manitoba, with the highest concentration of sightings to date found east of Brandon.

Disease response planning mitigates risk

Coming out of the summit, further discussions were held to create a disease response plan to mitigate the risk of a foreign animal disease incursion that involved wild pigs. While the industry is deeply invested in preparation and planning around a foreign animal disease in domestic pigs, more work is required to determine the scope and tactics needed in the event of a wild pig outbreak. Going forward, a working group will be developing a wild pig disease response template that can be adapted by each province.

> ***"We are confident that with perseverance, invasive wild pigs can be eliminated from the landscape"*** – Wayne Lees

"Wild pigs can serve as reservoirs for diseases that threaten both wildlife and livestock, with African Swine Fever being the most significant concern," says Erica Charlton, Director, Emergency Management Division, Animal Health Canada. "This event provided another opportunity to create a coordinated national effort to manage this invasive species and reduce the risk of diseases like ASF impacting Canada."

The success of programs across the country, like Manitoba's Squeal on Pigs campaign, is due to the partnerships created among the many stakeholders, including with provincial departments of agriculture and natural resources, Parks Canada, livestock and crop producers, First Nations communities, environmental and wildlife interest groups, and outdoor enthusiasts. This is a multi-faceted, multi-stakeholder issue that crosses many jurisdictional boundaries, so developing a holistic, collaborative approach to the problem is the key to achieving progress.

"We are confident that with perseverance, invasive wild pigs can be eliminated from the landscape," said Lees. "Collaborating with partners across the country is vital, and while our challenges may be unique, we share a common goal of protecting both our landscape and our hog sector from the threat of wild pigs."

News & Views

Canada becomes top pork supplier to Japan

Japan's Ministry of Finance reported in early June that Canada ranked first by volume in pork imports to Japan in 2024, at a combined 245,355 tonnes of chilled and frozen pork, surpassing the U.S. at 225,982 tonnes. Canada's 2024 tonnage represented just over one-quarter of the Japanese market share.

"This achievement is truly the result of tireless efforts of the entire Canada Pork team and strong support from Japanese consumers," said Kenshi Kimura, Japan Marketing Director, Canada Pork.

Canada shipped nearly four times more chilled pork than frozen pork to Japan in 2024, while an overwhelming proportion of European and Latin American pork arrived frozen. The U.S. had been Japan's main supplier by volume since 1996, followed by Denmark, then Canada. Canada surpassed Denmark for the first time in 2007.

The Canadian pork industry's relationship with Japan goes back more than five decades. Canadian pork's firm texture and flavour profile are a natural fit with Japanese cuisine.

For the first time ever, Canada is the number-one pork supplier to Japan, edging out the U.S.

Supply management bill approval fast-tracked

Bill C-202, ***An Act to amend the Department of Foreign Affairs, Trade and Development Act*** (supply management), was tabled in the House of Commons in late May by Yves-François Blanchet, Member of Parliament (MP), Beloeil-Chambly (Quebec) & Leader, Bloc Québécois.

The intention of the bill is to protect supply-managed commodities, including dairy and poultry, when Canada negotiates international trade deals. In less than one month's time, the bill passed all three readings in the House of Commons and Senate.

The Canadian Agri-Food Trade Alliance (CAFTA), to which the Canadian Pork Council (CPC) belongs, criticized the bill's expedited passage in mid-June.

"This remains a flawed piece of legislation that sets a troubling precedent, undermining Canada's longstanding commitment to the rules-based international trading system," CAFTA's statement reads. "At a time when Canada must be demonstrating leadership and consistency in defending predictable, rules-based trade, this bill sends the wrong message, both to our global partners and to Canadian exporters."

Bill C-202 is identical in name and text to Bill C-282, which was tabled in 2021 and stalled after second reading in the Senate in November 2024, prior to the Christmas break and calling of the latest federal election.

FMD vaccine bank takes next step

Last year, the Agriculture and Agri-Food Canada (AAFC) announced the creation of a national vaccine bank for Foot-and-Mouth Disease (FMD) – a move widely embraced by the Canadian livestock sector.

FMD is a highly contagious and severe disease that affects cattle, sheep, swine, and other cloven-hoofed animals. If FMD were to be discovered in Canada, it could devastate pork production and processing by shutting down access to export markets, triggering major backlogs of domestic pigs and pork.

"The FMD vaccine bank is an important investment in protecting Canadian livestock and livestock producers from this disease," said René Roy, Chair, Canadian Pork Council (CPC). "The federal government's support is further proof the cooperative relationship between government and industry in Canada works for producers and processors. We look forward to continuing this partnership on other challenges."

In mid-June, following a competitive procurement process, contracts were awarded to Boehringer Ingelheim Animal Health and Biogénesis Bagó SA to supply multiple types of vaccine products and develop the vaccine bank.

Collaboration between producers, industry and government plays a key role in Canada's FMD prevention and preparedness plans. These efforts – combined with Canada's existing strict import requirements, on-farm biosecurity measures and disease surveillance – continue to protect the Canadian livestock sector.

North American pork industries strengthen ties

The Canadian Pork Council (CPC), U.S. National Pork Producers Council (NPPC) and National Pork Producers Association of Mexico (OPORMEX) met in Niagara-on-the-Lake, Ontario in early July to discuss shared priorities, including animal health, trade, sustainability and regulatory alignment.

"This was an opportunity for pork industry representatives to exchange ideas and explore areas of common interest," said René Roy, Chair, CPC. "This foundation includes the adoption of new approaches and methods demonstrated by sound science to provide the best possible care and handling of our pigs."

The organizations reaffirmed their commitment to strengthening collaboration and advancing a competitive, resilient and sustainable pork sector.

"The North American pork industries are strongest when we collaborate, share challenges and solutions, and learn from one another," said Duane Stateler, President, NPPC. "This important trilateral meeting accomplishes just that."

The leaders recognized the shared expectation that pigs are raised in a manner that respects animal welfare while using antimicrobials prudently.

"From an animal health perspective, it is a strategic region with great potential to continue supplying global demand," said Heriberto Hernández Cárdenas, President, OPORMEX. "The exchange of experiences and analysis of the environment allows us to take coordinated action in each of our countries."

Producer group leaders gathered to discuss challenges and opportunities that exist across the integrated North American pork industry.

Producers, politicians celebrate Ribfest

Ottawa Ribfest took place in late May on Sparks Street – a popular pedestrian mall just two blocks away from Parliament Hill. The free, family-friendly event invited guests to enjoy a variety of food vendors, serving up tasty meat treats and opportunities for conversation.

"We are pleased to support Ottawa Ribfest as a sought-after culinary and community event," said Stephen Heckbert, Executive Director, CPC. "The Canadian pork sector contributes over $7 billion annually to our economy, supports over 100,000 job across the country and exports to some 75 countries. Ottawa Ribfest is a natural extension of our mission to connect locals with an industry that helps feed the country from coast to coast."

The Downtown Ottawa Business Improvement Area (BIA) acknowledged CPC and the Canadian Meat Council (CMC) for their support.

"Events like this are part of our broader effort to bring more visitors and locals downtown, and to support local business," said Kevin McHale, Executive Director, Downtown BIA. "Food brings people together, and we are grateful for our agriculture sponsors."

Staff and board directors with the Canadian Pork Council (CPC) rubbed elbows with politicians on both sides of the aisle during the annual celebration of pork.

Plant expansions and closures announced

Olymel's La Fernandière plant is getting a major makeover and will have added capabilities once renovated.

Olymel announced a $142-million expansion of its ***La Fernandière*** plant in Trois-Rivières in mid-June, following the purchase of plant in 2016. The plant, which is currently used for sausage production, will be converted into an integrated facility where products can be fully processed and packaged on-site.

"Having this state-of-the-art plant will create new possibilities for expansion and significantly improve our efficiency, which is central to our company's performance," said Yanick Gervais, CEO, Olymel. "The project is perfectly aligned with our strategy of capitalizing on the creation of value-added products made with meat of superior quality that's produced by local farmers."

Alongside the announcement of ***La Fernandière's*** expansion, Olymel also announced the closure of its ***Anjou*** and ***Cap-de-la Madeleine*** facilities. All employees will be offered positions in neighbouring plants, including ***La Fernandière***.

Pig Code consultations continue

The National Farm Animal Care Council's (NFACC) ***Code of Practice for the Care and Handling of Pigs*** outlines recommendations and requirements for various aspects of Canadian hog production, including herd health management, humane treatment and disease response.

Starting in September 2024, regularly timed revisions to the code began. Between May and June 2025, NFACC invited the industry, general public and all other interested individuals to submit top-of-mind thoughts on the welfare of pigs.

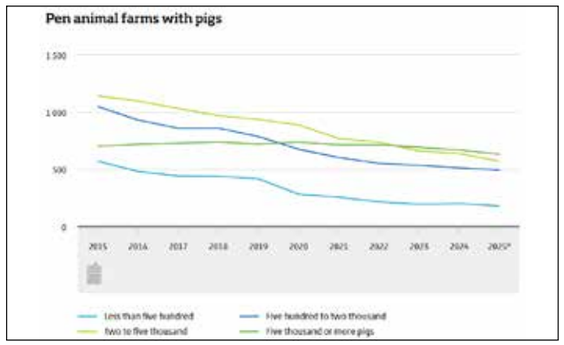
The latest revisions are part of the code's regularly timed, five-year update. Chief among the considerations are requirements for spacing and housing. Currently, more than two-thirds of Canada's more than 7,000 hog producers use open sow housing, and that number continues to climb.

NFACC's membership includes representation from various sectors, including the industry itself, veterinary professionals and animal welfare groups. Work is underway to schedule virtual orientation meetings for all committee members. The first in-person meeting will take place in the coming months.

Dutch pig herd drops to half-century low

Statistics Netherlands reported in late July that the country's pig herd has dropped below 10 million head for the first time since 1979. Compared to 2015, the total number of farms with pigs has been cut nearly in half, with medium- and especially small-scale producers disproportionately exiting hog production. Meanwhile, large-scale producers' herds have grown by about half in the past decade.

The decline in pigs follows the trend in dairy, as the country's herd size and number of farms in that sector continue to fall. In recent years, the Dutch government and the country's farmers have been at odds primarily over emissions reductions mandates for agriculture and other challenges.



The Dutch pig industry continues to shrink and consolidate. Graph © Statistics Netherlands.

Golf tournament raises funds for charity

Topigs Norsvin hosted the Partners in Progress golf tournament in late July, bringing together more than 150 representatives from across Manitoba's pork sector while raising $30,000 in support of the CancerCare Manitoba Foundation. All proceeds directly support cancer patients and their families in Manitoba.

Manitoba Pork served pork on a bun to hungry golfers at Topigs Norsvin's Partners in Progress tournament.

'Save Our Bacon' Act addresses Prop 12

Representative Ashley Hinson (Republican) of the Iowa State House of Representatives introduced the *Save Our Bacon Act* in late July to address threats to Iowa's pork sector.

"California's Proposition 12 and Massachusetts' Question 3 pose a major threat to family farms and food security – both in Iowa and across the country," said Hinson. "The *Save Our Bacon Act* reaffirms livestock producers' right to sell their products across state lines, without interference from arbitrary mandates."

If left unchecked, a wave of contradictory farm regulations could create far-reaching and harmful impacts for both hog producers and pork consumers in the U.S.

"We sincerely appreciate Representative Hinson for consistently engaging with family farmers and championing legislation that provides the certainty we need to pass along our farms to the next generation," said Duane Stateler, President, U.S. National Pork Producers Council (NPPC). "Without legislation to shield America's 60,000+ pork-producing family farms from heavy-handed, multi-state regulations, many producers otherwise would be faced with business-crushing decisions."

NPPC estimates that Prop 12 and similar legislation could increase costs for producers by as much as 15 per cent on each pig marketed. Data from the U.S. Department of Agriculture (USDA) suggests retail pork pricing in California has increased by as much as 41 per cent on certain products since Prop 12 came into effect two years ago.

Knowledge is our Power
Science is our Tool

Swine Innovation Porc

Who we are Swine Innovation Porc drives national research for Canada's pork sector, coordinating industry, academia, and government to foster innovation.

Swine Innovation Porc Programs

Since 2010:

$71 Million invested in research

150 researchers

136 financial partners

75 research projects

Strategic Research Investment

Used to leverage

$1 = $12

From Producer Organisations

From other funding sources (Government+Industry)

Swine Cluster 4

Swine Cluster 4 is the current Canada-wide collaborative research program, focused on fostering continued sustainability, resiliency, and growth in the Canadian pork sector.

Swine Cluster 4 At A Glance

50 **Researchers**

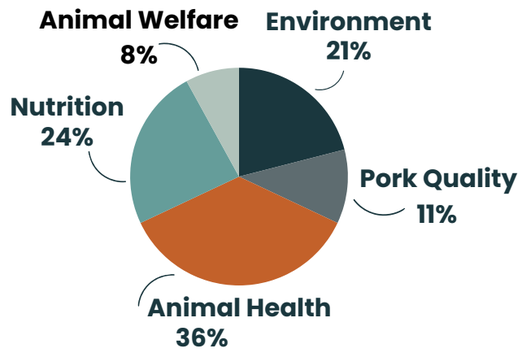
13 **Research Institutions**

36 **Industry Partners**

15 **Large Scale Projects**

Project Breakdown

Combined government and industry investments in this program total 20.1 million supporting 5 research areas.



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Sedative effectiveness evaluated for welfare

Swine Innovation Porc

Editor's note: This article is a summary prepared for Swine Innovation Porc. For more information, contact 'cchristensen@swineinnovationporc.ca.'

Alongside food safety and traceability, animal care is utmost in the Canadian pork industry. Finding the most effective sedative for use during euthanasia has the potential to benefit pigs and producers alike.

On a list of pork sector values, animal care is a top priority. Pig comfort and well-being are always top-of-mind, especially during stressful events like euthanasia. To help ease the strain, Swine Innovation Porc (SIP) undertook the study, 'Evaluation of tranquilization or anesthesia to enhance the quality of carbon dioxide euthanasia of piglets.'

"CO_2 [carbon dioxide] is used to euthanize piglets and nursery pigs," said Hollyn Maloney, a veterinarian with Prairie Livestock Veterinarians at the time of this project. "This approach can be taxing for the animal, however, so we wanted to explore sedative options prior to administering CO_2."

The project was led by Nigel Caulkett, veterinary anesthesiologist with VCA Western Veterinary Specialists, Altano North America and adjunct professor at the University of Calgary. It was also supported by Maloney, who was a co-principal on the study.

"Nigel initiated the question around sedatives, especially in the case of complete depopulation due to PED [porcine epidemic diarrhea] or ASF [African Swine Fever]," said Maloney. "We wanted to compare azaperone, the most commonly used sedative in swine today, with a stronger anesthetic called alfaxalone."

For producers and their animals, a more effective sedative means less stress and more peace of mind, and has a real impact on animal welfare.

Alfaxalone, marketed by Zoetis-owned Jurox as 'Alfaxan,' is currently available for use by companion animals but not livestock in Canada.

Dare to compare

To ensure their results reflected real world conditions, they ran the study at an actual sow barn. When the need arose to euthanize piglets due to injury, illness or failure to thrive, the procedure was carried out in one of three ways: CO_2 alone, CO_2 with azaperone, and CO_2 with alfaxalone.

Using a GoPro camera, researchers recorded the process each time. One person was then designated to review the videos and score each one on a range of criteria such as movement frequency and perceived quality of euthanasia. Researchers also ran blood tests on the animals post-mortem, measuring cortisol – the body's main stress hormone – and lactate to gauge overall stress levels.

> ***For producers and their animals, a more effective sedative means less stress and more peace of mind, and has a real impact on animal welfare.***

Based on the scoring and test results, the project offered insights on this critical area of livestock production.

"Overall, we found there was no statistically significant difference on any of the measures between the group that received azaperone prior to CO_2 and the ones that were given CO_2 alone," said Maloney. "We did, however, find a difference between alfaxalone and azaperone, and between alfaxalone and CO_2 by itself."

While azaperone is readily available and affordable for producers, these findings suggest it is not an effective sedative for use with CO_2 euthanasia.

"Whether you are conducting euthanasia on a day-to-day basis as needed, or as part of mass depopulation, it appears azaperone does not improve the euthanasia experience for piglets," said Maloney.

What the science said

For researchers, a key goal was providing science-based insights that could inform industry best practices.

"To ensure that pigs are properly sedated prior to euthanasia, alfaxalone may be your best option," said Maloney.

So, end of story? Well... not quite. Alfaxalone is not currently licensed for use on food animals in Canada, and the only form available is restricted to dogs and cats.

"Now that we have findings that support the efficacy of alfaxalone for piglets, the challenge is to garner support for licensing of the drug for food animals in this country," said Maloney.

The company who developed the drug – Jurox – was considering its use for food animals, but Jurox was subsequently bought out by Zoetis.

"Thanks to the buyout, Zoetis now has the rights to alfaxalone," said Caulkett. "It is a big task to get a food animal drug to approval, so they would only do it if there was a significant market. The drug has real potential for food animals because it is very rapidly cleared from the system and there is no similar drug licensed, but it would need industry on board to show the market potential."

> ***"Our industry cares deeply about animal health and well-being, and, as part of that, euthanasia is a critical tool for producers to ensure proper care at a critical time."*** – Hollyn Maloney

'Since SIP-backed research is all about finding practical solutions for industry, cost is another key focus going forward. As it's a product geared towards companion animals, alfaxalone is currently more expensive than azaperone. This means that beyond licensing, scaling alfaxalone's manufacturing and reducing its cost for producers will be another important factor for adoption.

"To make a real impact, we must develop a finished product that is designed for food animals versus dogs and cats, and is affordable for farmers," said Maloney. "If the ultimate answer is not alfaxalone, we will look at other products, such as xylazine, in future research projects."

Xylazine is a non-opioid pain reliever commonly used by vets as a sedative and muscle relaxant for animals.

Though animal welfare has always been of utmost importance to producers, the current focus of consumers makes this a timely study indeed.

"Animal care appears more and more these days in ag conversations," said Maloney. "Our industry cares deeply about animal health and well-being, and, as part of that, euthanasia is a critical tool for producers to ensure proper care at a critical time."

Important work ahead

For farm workers, mass euthanasia can be hard on the psyche and a prime source of stress. Having an effective means of sedation for the livestock in their charge would promote both animal and human welfare.

"The study simply would not have happened without SIP," said Maloney. "Their funding enabled our research team to come together with the right personnel, products and veterinary resources to achieve our goals and support producers."

This project was funded in part by the Government of Canada through Agriculture and Agri-Food Canada's (AAFC) Canadian Agricultural Strategic Priorities Program (CASPP).

Genetics database supports disease resilience

Treena Hein

Genomics is the study of the structure and function of an organism's complete DNA. Image © Marco Verch

Hog producers will be excited to learn that much progress has been made towards reducing the impact of common diseases that affect commercial pigs – among them, Porcine Circovirus Associated Disease and Porcine Reproductive and Respiratory Syndrome (PRRS).

Achieving improved disease resilience, however, defined as being minimally affected by disease or being able to rapidly return to normal after infection, isn't straightforward. While genes affecting a pig's degree of disease resilience have been identified, breeding selection on the basis of these genes alone doesn't necessarily produce more resilient pigs.

Genes can be affected by the environment and also interact with other genes, so if one selects genes for greater disease resilience in a breeding program, that might negatively affect growth rate or other critical metrics. Therefore, the whole genome must be considered, as explained by Michael Dyck, professor of animal biotechnology at the University of Alberta.

It was more than 10 years ago that PigGen Canada first approached Dyck and other scientists with the intention of lessening the impacts of diseases through improving disease resilience. PigGen Canada is a non-profit organization formed by Canada's pig breeding companies that aims to maximize the potential of genomics on the sector.

Achieving improved disease resilience, however, defined as being minimally affected by disease or being able to rapidly return to normal after infection, isn't straightforward.

First, Dyck and his colleagues tested several biological and genomic markers already flagged as promising indicators of disease resilience. This testing involved challenging pigs with pathogens in a controlled environment. The genes that contributed most to disease resilience became apparent, and then the team honed in on genomic markers that could be used to maximize overall pig health in breeding programs.

Eight years, 4,000 pigs' worth of data

To further understand this research, Dyck said we need a close look at the natural disease challenge model he and his collaborators created. He described it as "a groundbreaking research framework" that enables disease resilience in pigs to be studied under real-world conditions, mimicking the complex disease pressures pigs face in commercial barns. In this approach, pigs are exposed to multiple pathogens in a specific way – pathogens that include the PRRS virus, Mycoplasma hyopneumoniae, Influenza A virus, Streptococcus suis and others.

The researchers' natural disease challenge model represents one of the most comprehensive efforts to improve pig health through genomics ever.

"Instead of using artificial inoculation, we introduce pigs into environments where infection spreads naturally, simulating the conditions of commercial swine production," said Dyck. "This is done using 'seeder pigs' from commercial farms that carry various pathogens, mixing them with healthy pigs in a controlled nursery setting. Pigs are monitored for clinical signs of illness, growth performance, feed and water intake, and treatments. Blood samples are collected at multiple time points to analyze immune responses."

DNA is analyzed with the aim of carrying out genomic testing on each animal, using single-nucleotide polymorphism (SNP) analysis on each animal. SNPs are tiny variations in the gene sequence where one nucleotide on the DNA strand is different than another. This occurs naturally across the entire genome of any species. SNPs can be used to select for important traits but are particularly useful for low-heritability traits – in this context, immune response, recovery speed and response to infections.

"SNPs help uncover genomic regions associated with resilience indicators like changes in body weight or health scores during disease exposure," said Dyck. "Even small-effect SNPs can be combined to identify pigs less likely to succumb under disease pressure."

Dyck provided an example: the SNPs in what's called the 'major histocompatibility complex' region of the pig genome have been linked to both growth and disease traits. In total, Dyck and his colleagues studied the genomes of more than 4,000 pigs between 2015 to 2023 using the natural disease challenge model. This makes the research "one of the most comprehensive efforts to improve pig health through genomics" ever conducted.

PigGen Canada's members can access PigDB to find genomics data that supports disease-resilient breeding.

Information sharing enhances industry progress

This project has also contributed to the development of PigDB, short for Pig Database. PigDB is a suite of resources used by researchers and breeders that enables the storage and organization of genome sequencing data. Samples contributed by PigGen members are pooled and serve as a vast resource for other members.

"It was developed at the University of Alberta in response to the vast amount of data that was being generated and needed to be managed for our project," said Dyck.

PigDB enables members to compare traits and gain insight into thorny questions at a level that's not possible with individual herd data. And with today's artificial intelligence systems, any large dataset can be subject to analysis of many variables at a time, enabling advances in understanding to proceed at an unprecedented rate.

Dyck also explained another important characteristic of PigDB, which is that it protects the genetic information that breeding companies have contributed. Data includes information on gene expression, quantitative trait loci and whole genome association studies.

"We can control which data individual users have access to," said Dyck. "Some individuals can have access to all the data, while others only have access to data that they need to be involved in for their purposes. This allows for the ability to manage data that could be considered to be proprietary."

PigDB is enabling not just exciting individual company breeding improvements but also industry-wide pig health improvements in terms of the disease resilience angles. PigDB is also evolving, like any valuable database should. Samples can be continually added, enabling even more powerful analysis and expanding what can be learned.

It's therefore no surprise that the project has drawn interest far and wide. Researchers in Europe have already requested permission to use the dataset – mostly researchers from companies that have been looking to access gene expression data – believing it will help them identify biomarkers for disease factors.

"It's deeply satisfying to reflect on the journey that began over a decade ago, when PigGen Canada approached us with the challenge of improving disease resilience in pigs," said Dyck. "What followed was an incredible collaboration involving a talented team of researchers and dedicated industry partners, driven by shared curiosity and a commitment to progress."

Dyck stressed the importance of relationships throughout the lengthy project.

"With strong support from funders like Genome Alberta and Genome Canada, we've been able to push the boundaries of what's possible in animal genetics," said Dyck. "Today, seeing our research applied within the pig industry and making a real-world impact is profoundly rewarding. It's a testament to what can be achieved when science, collaboration and vision come together."

Organic trace minerals offer added benefits

Gavin Boerboom

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The grow-finishing period in commercial hog production represents the phase with the longest timeframe, ranging from 80 to 180 days. This timeframe is, therefore, the greatest opportunity to improve pig health and welfare, as they are tightly correlated.

Improving the health and resilience of grow-finishing pigs improves overall efficiency, ensures a more homogenous herd and lowers the need for antibiotics. As feed intake is also highest in this period, improvements to feed conversion offer producers the best value.

Minerals can play a very important role here, given their involvement in inflammatory responses and the antibacterial effects they can have. Zinc, for example, is involved in more than 300 enzymes and 2,000 transcription factors, and has the greatest impact on growth rate of all micronutrients. Nearly every metabolic pathway is zinc-dependent. Pigs' requirements for trace minerals are defined by internal factors, including age, health status and sex, along with external factors, including humidity, disease pressure and stocking density. Heat stress in particular affects pigs' requirements for minerals, as there is an increased need for electrolyte balancing and oxidative responses.

Trace minerals are often included in a pre-mix that is added to complete feed. The most commonly used trace minerals are inorganic – coming from a sulphate or oxide form – as these are cheaper than better-quality minerals but less bioavailable, when consumed. The drawbacks of feeding inorganic trace minerals include lower nutrient efficacy, vitamin stability and phytase

Feeding a mixture of trace minerals from an improved source, such as IntelliBond™, can help pigs make better use of all nutrients included in the diet.

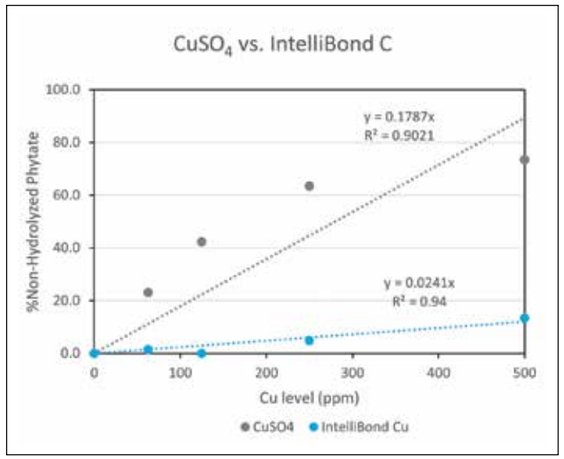

Figure 1

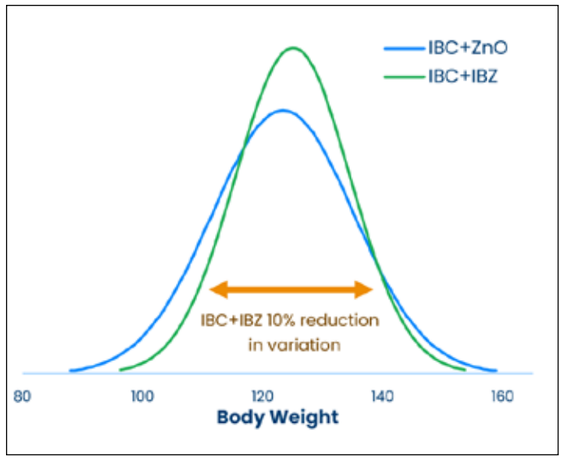

Figure 3

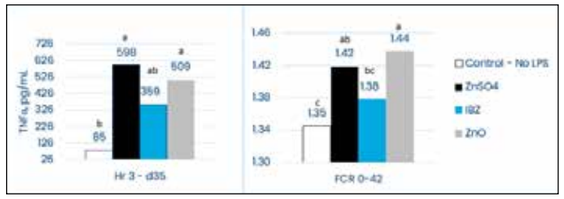

Figure 2

activity. This is due to the unstable nature of the inorganic trace minerals, especially sulphates. Sulphate trace minerals are comprised of weak ionic bonds that are more soluble in water, increasing the presence of reactive free minerals.

> ***Minerals can play a very important role here, given their involvement in inflammatory responses and the antibacterial effects they can have.***

Free minerals can then negatively affect other essential nutrients, like vitamins, lipids and phytate, hampering their availability *(Figure 1)*. These effects are experienced most strongly with copper, as copper is one of the more reactive minerals in swine diets.

Feeding a mixture of trace minerals from an improved source can help pigs make better use of all nutrients included in the diet – not only minerals – and allow them to better respond to any stressors they may experience. Examples of these types of mineral sources are organic or hydroxy trace minerals.

Organic trace minerals are attached to organic ligands, creating more stable bonds and reducing the likelihood of interaction with other feed ingredients, while ensuring proper availability. The strength of the bond determines the consistency of the availability. Hydroxy trace minerals have a similar type of bond as the organic trace minerals but also have a metal complex present in a crystalline structure, which further reduces the chances of reactivity, especially in neutral-pH water. As a result, the in-feed stability of essential nutrients such as vitamins can be improved, as well as the efficacy of phytase in feeds containing vitamin E.

In some recent trials, results showed that the use of hydroxy trace minerals can lead to increases in individual pig performance but can also improve overall uniformity of the herd.

A trial comparing hydroxy copper, manganese and zinc to sulphate mineral sources demonstrated that hydroxy minerals – in this case, IntelliBond™ – decreased the expression of serum pro-inflammatory cytokines following an acute (LPS injection) immune challenge *(Figure 2)*. This led to a lower impact on performance, leading to a more uniform herd *(Figure 3)*. Altogether, using hyroxy trace minerals ensures that performance is sustained and economic uncertainty is reduced.

Strong Start

A strong start at birth lays the foundation for top-performing finishers. Robust birth weights and improved overall health contribute to consistent growth and easier management throughout production.

Offspring of the **TN Duroc** terminal boar are born ready to perform.

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