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requires benchmarks

Pork industry wakes up to
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RESEARCH & INNOVATION



The Spring 2024 edition of the Canadian Hog Journal is here, and with it, a new look!

This edition features our refreshed, modernized magazine layout, along with hand-drawn cover art supplied by a student artist.

Find coverage of Alberta Pork's wild boar surveillance project, along with reaction to voluntary country-of-origin labelling (vCOOL) in the U.S., in addition to a futures market outlook from h@ms Marketing and an overview of Manitoba Pork's Pork Proud Ambassador Program.

Swine Innovation Porc (SIP) Chair, Arno Schober, provides an update on SIP's new strategic plan, and we have another SIP Cluster 3 research summary, related to pulses for feed. You can also find an article on the cost of nursery mortality, from Zinpro, and two on heat stress mitigation strategies, from Trouw Nutrition and Jefe Nutrition.

The Canadian Hog Journal's unique circulation model means all hog producers registered with their respective provincial pork producer organizations in western Canada receive each edition by mail, along with many more in Ontario, Quebec and the Maritimes. It's Canada's only magazine covering swine topics coast-to-coast from a producer-focused perspective, distributed free-of-charge.

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Pork industry wakes up to counting wild boar

Andrew Heck



Wild boar surveillance and eradication go hand-in-hand. Researchers and partners convened at the Alberta Invasive Species Council's (AISC) Conference in March 2024 to share their work.

UNLIKE COUNTING SHEEP, counting wild boar won't lull anyone to sleep. It's a tedious job, and locating these elusive creatures is often best done at night, when they're most active.

Eurasian wild boar were introduced into Canada in the 1980s as a livestock diversification strategy; however, obvious drawbacks quickly outweighed intended benefits. As these resilient animals escaped or were deliberately released from farms and controlled hunting sites, they quickly became established as an invasive, highly destructive population in local ecosystems. Their ongoing presence jeopardizes crops, livestock and the environment, drawing keen interest from diverse stakeholders.

For hog producers, the primary concern is that wild boar could potentially transmit diseases like African Swine Fever (ASF) and Foot and Mouth Disease (FMD), which, if discovered in Canada, would likely close most foreign markets to trade in Canadian pork, worth more than \$5 billion every year. FMD would impact not only pigs but other ruminants, like cattle, affecting beef trade. Valued partners are

counting on the Canadian pork industry to fend off these diseases, and as a result, support for wild boar control continues to grow, as public awareness increases.

In early 2023, Alberta Pork approached Results Driven Agriculture Research (RDAR) – the Government of Alberta's non-profit agricultural research funding organization – to support a wild boar monitoring project with the University of Calgary. With assistance from Alberta Pork and Alberta Agriculture and Irrigation, researchers and producers across the province have been working together to find out where wild boar are concentrated, how they're interacting with wild and domestic animals, and what kinds of diseases they might be spreading.

While the project is still ongoing, researchers and their partners are eager to share more about the work, why it matters, and what producers, the agriculture industry and the public can do to help.

Getting an accurate tally of wild boar on Alberta's vast landscape is no easy task, but through the use of strategically placed wildlife cameras, researchers are able to get a 24/7 view.

Wild boar home range unknown in Alberta

Getting an accurate tally of wild boar on Alberta's vast landscape is no easy task, but through the use of strategically placed wildlife cameras, researchers are able to get a 24/7 view of crop fields, pastures and bush across many of the province's rural municipalities.

Mathieu Pruvot is an Assistant Professor in the Faculty of Veterinary Medicine at the University of Calgary. Working with graduate students Devin Fitzpatrick, Oshin Ley and Luis Salazar, the group has undertaken various components of research, covering the ecology of wild boar to surveillance and testing for pathogens, which requires collecting and analyzing large volumes of information.

"We're going to learn a lot from the data we gather, in terms of where to look and what to look for," said Pruvot. "There has been a lot of discussion and coordination between the partners on this work, and we're trying to figure out how to sustain this long-term to support the bigger goals, like potential eradication."

Eradication efforts in the province, directed by Alberta Pork and Alberta Agriculture and Irrigation, have been underway for several years, but to optimize those efforts, emphasis on specific areas is expected to help.

"The more you understand about movements, the more targeted you can be with trap placements," said Fitzpatrick. "What we're doing is trying to get information to help make decisions down the line."

Last year, Fitzpatrick used wild boar sighting data to identify areas containing suspected populations, then placed wildlife cameras in those general locations by randomly selecting spots using GIS software. In total, she has 84 cameras spread across 14 clusters, with six cameras each. They're divided between Woodlands County, Lac Ste. Anne County and Yellowhead County, west of Edmonton, and the County of Two Hills, County of St. Paul and Vermilion River County, east of Edmonton. The cameras are located on a mix of private and public land, in different kinds of habitats.

Now that the cameras have been in place for roughly one year, memory cards are in the process of being collected for analysis, while continuing to monitor for another year with fresh cards. As no wild boar density estimates for Alberta currently exist, the researchers are aiming to establish an approximation, followed by 'home range' measurements for the groups, called 'sounders.'

Data from the U.S. Department of Agriculture (USDA) suggests feral swine in the southern U.S. have a home range of less than eight square kilometres, but the researchers are working to establish parameters for Alberta's wild boar population. Further work with GPS-collared wild boar males and females can also shed light on information such as contact within and between sounders, which informs potential disease transmission rates.

When wild boar sounders are captured through eradication efforts, carcasses are sent to a provincial government necropsy lab, then made available as part of this research.

Rooting out the source of disease

Aside from trying to gauge the spread and density of wild boar populations, understanding which diseases they carry has generated valuable insight into the risks they pose to livestock.

Tests performed on samples gathered from wild boar carcasses suggest the same strains of Porcine Circovirus 2 & 3 (PCV2 & PCV3) commonly found in domestic pig production are being discovered in wild boar.

"It's one of the important diseases that's challenging the pork sector and economy," said Ley.

In addition to PCV2 & PCV3, Ley's work involves performing serological tests to determine the strains of Influenza A, Porcine Reproductive and Respiratory Syndrome (PRRS), Mycoplasma and Erysipelas found in samples.

Following serological testing, polymerase chain reaction (PCR) testing of wild boar tissues and sequencing is helping to characterize pathogens, to determine whether transmission is occurring frequently between wild boar and domestic pigs or whether the pathogens are largely spreading within wild boar, in isolation. Wild boar scat, on the other hand, is being analyzed for genetic markers of antimicrobial resistance and whether those genes are being exchanged between wild boar and domestic pigs.

Lab results have also shown the presence of viruses that are suspected to have been contracted from other wildlife species. As opportunistic omnivores, it's speculated that consumption of infected carcasses may be the culprit.

"This isn't very surprising itself," said Pruvot. "There's been a lot of transmission of viruses between wild and domestic animals in the past couple of years in Canada. But this is significant, as it suggests that wild boar are picking up pathogens that commonly spread in other hosts, including livestock. This should not be ignored."

When it comes to concerns over the potential to spread ASF specifically, the team is developing a model to understand how the virus might spread if it were to enter the wild boar population. That information could prove vital in the event it's needed.

Producer support integral to efforts

For producers like Jurgen Preugschas, being involved with wild boar surveillance was a no-brainer.

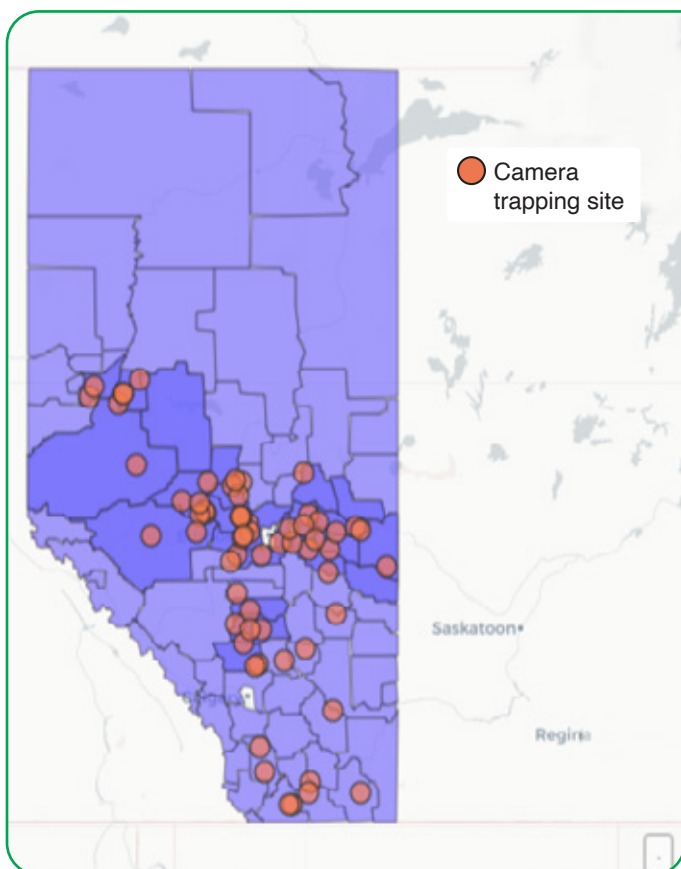
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'COUNTING WILD BOAR' CONTINUED

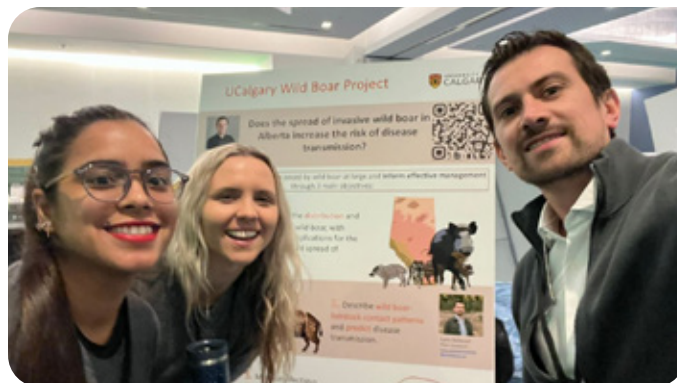
"It's always been worrisome to me, especially when I was a purebred breeder, since health is so important," said Preugschas. "We've been fortunate to experience only limited damage over the years, but we continue to see them."

Preugschas currently operates a medium-sized wean-to-finish operation near Mayerthorpe, in an area where wild boar have long been sighted and are being targeted for eradication.

"Being that nothing was done to control the situation starting in the 1980s, it's developed into a pretty widespread problem in our area," said Preugschas. "Eliminating wild boar from certain areas is going to be really hard. It's going to require government commitment and support from industry."



Participants are spread out across Alberta's rural municipalities, with a focus on areas in the north-central and western parts of the province, where wild boar are commonly found.



Oshin Ley, Devin Fitzpatrick and Luis Salazar presented on wild boar surveillance during Results Driven Agriculture Research's (RDAR) research showcase in January 2024. Salazar has also been attending pork industry events like the Red Deer Swine Technology Workshop and Banff Pork Seminar to talk about the project.

While the problem is clear to commercial producers like Preugschas, he's concerned that alarm bells may not be ringing for some producers.

"The challenge for small-scale producers is to understand that they are part of a connected industry. It may not be a big-ticket item to them, but it can have a massive impact overall," said Preugschas. "Not only diseases like ASF and FMD, but trichinosis could also be a concern for producers with outdoor pigs."

James Tschetter runs a 24,000-head finishing operation near Wanham. He recently completed disinfecting his barn, as a biosecurity measure – a practice used by producers to uphold animal welfare and food safety standards. He has also joined the research project, along with two of his neighbours.

"We've got a lot of wildlife up here, so I think it's important we know where wild boar are," said Tschetter. "It's a big biosecurity issue for us. From my understanding, wild boar are in the county to our south."

Tschetter's eagerness for the project is reflected by Alberta Pork's dedication to addressing the problem.

"They're putting their money where their mouth is," said Tschetter. "It's good to know they're on top of this, making a great team effort."

Small-scale producer engagement needed

As the work continues, the team is eager to spread the word about the project and recruit new producers to participate.

"A lot of this project hinges on collaboration with producers," said Pruvot. "This includes generating observations and reports of wild boar, and most specifically documenting occurrences on farms through the survey we're conducting."

Pruvot reiterated that camera tracking and reported sightings by members of the public are not mutually exclusive; sightings help identify areas to target, which makes the best use of the resources at their disposal and provides greater focus.

The project so far has seen positive support from many of the commercial producers approached; however, opportunity and motivation exist to involve more small-scale producers, especially outdoor productions. Though many of these individuals may

Rather than approaching the efforts as a one-off to satisfy the ends of the project, Pruvot recognizes the need for continued and increased stakeholder engagement, to achieve mutual goals.

consider themselves to be outside of the industry, the need for their participation cannot be overstated.

“They may not have seen wild boar personally, so they think it has nothing to do with them,” said Salazar. “But some of their farms are in the core areas, where most of the sightings are coming from. We want to hear from them, as they’re really our eyes in rural areas.”

For producers who have experienced repeated encounters with wild boar, a more detailed sub-study is taking place to understand interactions with livestock on those farms. Creating this understanding for Alberta matters, as the province’s wild boar population is distinct from those in the southern U.S., along with Europe, where Eurasian wild boar are native.

While a full summary of results is not yet available, Pruvot is confident that the project is moving in the right direction. Rather than approaching the efforts as a one-off to satisfy the ends of the project, Pruvot recognizes the need for continued and increased stakeholder engagement, to achieve mutual goals.

“It’s starting to tell us the story of what’s happening,” said Pruvot. “I think we’re going to learn quite a bit from this, and we’re doing our best to generate information that is directly relevant to the pork industry and our partners in the provincial and federal governments.”

In addition to camera installations, the team is actively running a survey for all hog producers in Alberta – no matter the production size or type, and regardless of whether they have personally seen wild boar on their properties – which comes with the chance to win a gift card, as a little incentive. Producers interested in taking part can access the survey using the QR code found in this article.

Keeping the momentum going

Across North America, concern for the wild boar problem, and the recommended management strategies, differ; however, when it comes to Alberta’s efforts, partnerships between producers, researchers, government and industry have been integral to gaining a handle on the issue.

“We’ve been satisfied with the research so far, and we hope everyone will see the value in it,” said Javier Bahamon, Quality Assurance and Production Manager, Alberta Pork. “We encourage all producers who are interested to help out the researchers.”

Alberta Pork and its partners remain committed to the cause, supporting healthy livestock and ecosystems, and creating assurances among global partners that the pork industry is doing everything it can to protect pigs that are transformed into the high-quality pork on their customers’ plates. 🐷

Alberta producers who are interested in sharing their experiences with wild boar are asked to complete a short survey, which can be accessed through the QR code shown above.



Producer ambassadors enhance public engagement

Joey Dearborn

Joey Dearborn is Communications and Website Coordinator, Manitoba Pork. He can be contacted at 'jdearborn@manitobapork.com.'

Recent data compiled by the Canadian Centre for Food Integrity (CCFI) shows that farmers are considered the most trusted authorities on food.



Pork Proud ambassadors like Michael Waldner (left) are key to Manitoba Pork's community outreach to consumers.

EARNING PUBLIC TRUST in food and farming is a hallmark for commodity organizations like Manitoba Pork. Having the social license to operate allows producers and the entire industry to continue to grow our sector and build livelihoods for people across our province. In Manitoba alone, 55 per cent of all full-time jobs in agriculture and food manufacturing come from pork, equating to around 22,000 people working in the hog sector across the province.

Through this idea, the Pork Proud Ambassador Program was born. Pork Proud is designed to help empower producers and those who work in the industry with the tools to communicate with the public, including consumers and students who may not have the whole story as to where their food comes from.

"Manitoba Pork created this program with the idea to multiply the number of voices who share good news about our sector and also help build educators who can in turn create more public trust,"

said Kristen Matwychuk, Community Engagement Coordinator, Manitoba Pork. "Farmers continue to be the most credible source of information when it comes to our food, and we know that with more Canadians being concerned about the food production and costs, we want to be able to share the great story about Manitoba's hog sector with as many people as we can."

Recent data compiled by the Canadian Centre for Food Integrity (CCFI) shows that farmers are considered the most trusted authorities on food, ranking higher than scientists, the Canadian agriculture sector overall, government agencies, processors and manufacturers. This inherent trust is a key foundation of the Pork Proud program, positioning pork producers and industry experts to provide positive and accurate information about our dynamic industry, while at the same time building public trust. The same CCFI data showed that Canadians are sensitive to misinformation

To become a Pork Proud ambassador, the first step is an in-person introductory course. Training sessions that follow include a mix of required and optional workshops in a variety of subject areas.



Manitoba Pork's Kristen Matwychuk leads the training for Pork Proud ambassadors.

about how food is produced in Canada, which is why they are open to hearing the facts about what they decide to feed their families.

"We want ambassadors to be comfortable with answering questions and debunking misinformation," said Matwychuk. "We know that in the social media age, there are a lot of mistruths out there about how animals are cared for and about how we protect the environment, so we want to be able to convey information in an easily understood way and provide consumers with a holistic understanding of our sector."

To become a Pork Proud ambassador, the first step is an in-person introductory course. Training sessions that follow include a mix of required and optional workshops in a variety of subject areas, including answering tough questions, storytelling through social media, written communications, communicating with decision makers like politicians and media training. Ambassadors also receive a robust information kit with fact sheets, Q&As, relevant training documents and branded items that readily identify their roles.

The first training session was held in March at the Bruce D. Campbell Farm and Food Discovery Centre in Winnipeg. The location is Manitoba's premier agriculture education facility and allowed

participants the ability to practice their skills in an environment frequently used for events with the public.

"Having the ability to showcase the inside of a real working Manitoba hog barn is one of the key pieces of the Farm and Food Discovery Centre," said Matwychuk. "Every year, we host events there with other commodities, so we were able to practice some of the questions our staff get at each event and work through some of the best practices for answering those."

Manitoba Pork takes part in a variety of events throughout the year, including the Royal Manitoba Winter Fair, Discover Ag in the City, Discover the Farm and other community events that allow for in-depth conversations about the hog sector, swapping recipes and cooking tips, as well as handing out fun promotional items like squishy pigs. These opportunities also allow the public to engage one-on-one with a farmer and ask all about life on a Manitoba hog farm.

"I took the Pork Proud training to gain more confidence in dealing with the public at community events and on social media platforms," said Sheldon Dyck, a hog farmer from southeastern Manitoba and a new Pork Proud ambassador. "As hog farmers, we understand the daily routines of what happens on the farm, but it's often hard to

communicate that to someone who doesn't have a full understanding of agriculture. I am looking forward to taking more training and developing new skills."

As the program continues to grow, Manitoba Pork hopes to attract new ambassadors from across the value chain, which could allow the organization to broaden the number of community events they participate in each year.

"Everyone who works in agriculture has a story to tell about why they love working in our sector, and empowering people to share that story is why this program is so exciting," said Matwychuk. "Hearing those stories allows people to connect deeply with where their food comes from and that couldn't be a better advertisement for our sector's positive impact in Manitoba." 🐷



Several Manitoba pork producers were eager to take part in the first Pork Proud ambassador training session this year.

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Country-of-origin rules complicate pig trade

Andrew Heck

The Canadian and U.S. pork industries have made their opposition to vCOOL loud and clear, and politicians across borders and party lines have a duty to listen.



Canadian weaners, market hogs and cull sows head to the U.S. every day, but country-of-origin labelling could destabilize businesses on both sides of the border.

INTEGRATION AND COOPERATION ARE FUNDAMENTAL to many livestock industries in Canada and the U.S. For the Canadian pork sector, pigs are shipped every day to destinations south of the border, where they're raised to market weight on farms or sent directly to processing facilities for slaughter. It makes sense for both sides: Canadian producers are afforded a broader choice of marketing options, while U.S. producers and processors receive much desired supply.

Starting in 2021, discussions around country-of-origin labelling re-emerged in the U.S. after several years of hiatus. Driven by increasingly protectionist sentiments, the idea has support among some livestock sectors, politicians and consumers but ignores many of the practical realities that allow the Canadian and U.S. pork sectors to do business freely. The return of country-of-origin labelling

threatens not only our positive international relationship but could complicate pork availability and result in price hikes at retail.

While the latest country-of-origin rules proposed for meat, poultry and egg products are 'voluntary' (vCOOL), many in Canada and the U.S. expect labelling could have a similar effect to the 'mandatory' (mCOOL) conditions that were imposed in 2008 and eventually struck down in 2015. Incoming vCOOL rules were announced in March 2024, and the 'Product of USA' or 'Made in the USA' label will once again be eligible for generic use on qualifying products, starting in January 2026.

As the clock ticks toward the return of regulatory burden, Canadian and U.S. partners have been brought back to the unfortunate and avoidable position of conflict with legislators.



The World Trade Organization (WTO) previously ruled in favour of Canada and Mexico, during the ‘mandatory’ country-of-origin labelling (mCOOL) dispute, in 2014. Image © Jeanne Menjoule

Fear of competition is bad for business

mCOOL was first proposed in the 2002 Farm Bill presented to U.S. Congress, but after some implementation delays, the 2008 Farm Bill was where it officially got off the ground. Sensing competition from the Canadian and Mexican beef markets, U.S. beef producers advocated for greater clarity around beef origins: cattle from Canada, finished and slaughtered in the U.S. – they claimed – should not be considered fully American. U.S. Congress agreed and set forth regulations requiring retailers to package fresh beef, pork and lamb with indicators of where animals were born, raised and harvested.

Following mCOOL implementation, the Canadian red meat industry’s position was that the legislation unfairly discriminated against imported livestock. Under the terms of the North American Free Trade Agreement (NAFTA), signed in 1992, there existed provisions for partners in the deal to oppose technical barriers to

trade, with the World Trade Organization (WTO) responsible for resolving such disputes. After a six-year, costly battle between the U.S., Canada and Mexico, the WTO sided with Canada and Mexico.

While mCOOL appeared open and shut, again in 2021, cross-border competition began to worry the U.S. beef sector, and vCOOL conversations heated up. Tom Vilsack, Secretary, U.S. Department of Agriculture (USDA) was the official under whom the 2008 Farm Bill was passed, during President Barack Obama’s first term. Vilsack was reappointed to the position with the election of President Joe Biden.

As under NAFTA, the updated Canada-U.S.-Mexico (CUSMA) or U.S.-Mexico-Canada (USMCA) Agreement includes trade dispute resolution mechanisms through the WTO. And, once again, Canadian industry and government stakeholders are preparing for round two of defending the interests of Canadian producers.

Lawrence MacAulay, Minister, Agriculture and Agri-Food Canada (AAFC) and Mary Ng, Minister, Export Promotion, International Trade and Economic Development Canada issued a joint statement in response to the finalization of vCOOL rules.

“The meat and livestock sectors in Canada and the United States work closely together, supporting food security as well as local and regional food systems,” the statement reads. “Canada remains concerned about any measures that may cause disruptions to the highly integrated North American meat and livestock supply chains.”

The Canadian Pork Council (CPC) was also quick to respond.

“This regulation will force division into an aligned industry that will only increase costs for producers, for processors and ultimately for consumers,” said René Roy, Chair, Canadian Pork Council (CPC). “We are pleased the Government of Canada has already indicated it will be looking at options to correct the protectionist nature of these proposed regulations.”

The U.S. National Pork Producers Council (NPPC) worries that the industry’s hard work to overcome labelling concerns in years past could be undone with the latest ruling.

“It’s something we’ve fought against for over a decade, and we were successful in repealing mandatory country-of-origin

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labelling after the WTO ruling,” said Maria Zieba, Vice President of International Affairs, NPPC. “Our biggest concern then, as now, is the impact on trade.”

With the stage set for much deliberation and debate ahead, it’s worth exploring why vCOOL matters to the industry and why it should matter to consumers.

Canadian pigs come in peace



The U.S. National Pork Producers Council's (NPPC) Maria Zieba is concerned the U.S. industry could face retaliation, as a result of the incoming vCOOL implementation.

While live pigs cross the Canada-U.S. border for various reasons, three types of U.S. buyers of Canadian pigs stand out: producers across the Midwest looking to fill barns with weaners for finishing to market weight, small- and medium-sized processors in the sparsely populated northern U.S. interior looking for hogs to slaughter, and processors in the concentrated Minnesota-Iowa-South Dakota meatpacking heartland looking for cull sows.

For the past decade, the U.S. has received more than 4.5 million Canadian pigs annually. Manitoba alone is responsible for three million of those. Altogether, live pig and pork exports to all foreign countries, not just the U.S., represent 90 per cent of Manitoba’s production. Across Canada, the total amounts to around 70 per cent of production.

“When this comes into effect, it’s going to cause a discount on live animals going to the U.S.,” said Cam Dahl, General Manager, Manitoba Pork. “Barriers to trade cost everybody in the system.”

Manitoba’s proximity to major pork-producing U.S. states situates it ideally for cross-border movements; however, this also makes the province especially vulnerable to political decisions outside of Canadian control.

Supply chain communication could prove vital as businesses begin to make decisions in advance of implementation.

“Right now, if an isowean from Manitoba is shipped to Iowa, finished in Iowa and processed in Iowa, large retailers buy that pork and sell it in Canada as ‘Product of USA,’” said Dahl. “My concern is that big brands are simply going to say, ‘We’re not going to change our supply chain and label. Producers and processors are going to have to comply.’”

Supply chain communication could prove vital as businesses begin to make decisions in advance of implementation.

“It’s going to depend on how it gets rolled out. It’s voluntary, and it’ll be up to the retailers to assess whether it makes economic sense,” said Zieba. “Retailers may have a product they want to differentiate in the marketplace, but it’s up to producers and processors to explain their added costs and ask retailers whether it’s in their best interest.”

While much of the potential impact of vCOOL depends on retailers’ decisions around how to apply it, political polarization itself likely cannot be blamed for how it transpired.

“It doesn’t matter which policy controls U.S. Congress or the White House. I think these concerns aren’t party-dependent, and that’s not just the case for the U.S. but also Canada,” said Dahl. “The pandemic accelerated the ‘us first’ approach.”

In terms of next steps, the WTO’s past ruling on the matter could still hold weight in the argument, which undoubtedly worries NPPC.

“Both the Canadian and Mexican governments have made strong statements,” said Zieba. “We’re trying not to take an antagonistic approach on this.”

But words need to be backed with action. For the Canadian industry, that means holding leaders accountable and continuing to pressure for support.

“We need to have a strategy and approach from our government. We’re looking to have a strong push back on this – from both federal and provincial governments,” said Dahl. “Not just because of country-of-origin labelling, but we have to push back on this protectionist mindset.”

Sticker shock could surprise consumers

As food price inflation rates in Canada and the U.S. have left consumers unsettled in recent years, further pressures to price – such as reduced supply – will almost certainly fuel the fire.



While pork remains more affordable than some proteins like beef and chicken, price pressures have already been seen at retail in the U.S. Even in Canada, 'Product of USA' pork is sold by some retailers.

Underscoring the political will for vCOOL is perceived consumer support for transparency surrounding where their food comes from, based on a survey conducted by the USDA in 2023 that showed 65 per cent of respondents were in favour of the regulations.

For U.S. consumers of pork that originated with Canadian-born pigs, is it food safety or quality concerns that have stoked division? The Canadian Food Inspection Agency (CFIA) and USDA are both recognized as two of the top food safety regulators globally, and many agri-food products are freely exchanged between the two countries.

In terms of pork quality comparisons between Canada and the U.S., feed ingredients, medicines and other production implements

are often shared, highlighting just how deep integration goes. The Canadian Pork Excellence (CPE) program in Canada and Pork Quality Assurance® Plus (PQA) program in the U.S. are designed to train and certify producers on many of the same principles, and these programs are respected by overseas buyers of Canadian and U.S. pork.

Most importantly, integration between the Canadian and U.S. pork industries has allowed both countries to remain limber and responsive to domestic and global pork demand – a key achievement in the battle for increased food security and affordability.

Canada, with roughly one-tenth the population of the U.S., overproduces pigs for domestic pork demand. While the U.S. also relies on exports, its domestic market is much larger, fueling high demand. In recent years, the U.S. has been Canada's top export destination for fresh pork, averaging around 400,000 tonnes annually. On the flip side, the U.S. exports more than 200,000 tonnes of fresh pork to Canada annually, in addition to many processed products, like sausages, deli meat and bacon.

Partnership matters over politics

Given the history and ongoing nature of the Canada-U.S. relationship in pigs and pork, any threat to its stability is not in the interests of pork producers, processors, retailers or consumers.

As political discourse becomes increasingly populist in nature, and as voters align themselves to ideologies that have the potential to challenge economic development and trade, humble agriculture – the very heart of food production and distribution – is inevitably caught in the crossfire.

While protectionism has become increasingly entrenched, well-intentioned defense of national industries sometimes has the effect of disrupting supply chains against the will of key stakeholders. The Canadian and U.S. pork industries have made their opposition to vCOOL loud and clear, and politicians across borders and party lines have a duty to listen. 🐷



Closer relationships between the Canadian and U.S. pork industries benefit both sides



Forward contract profitability requires benchmarks

Paul Marchand

Editor's note: Paul Marchand is Senior Risk Management Analyst, h@ms Marketing Services. He can be contacted at 'paul@hamsmarketing.ca.'

This article does not reflect the official position of the h@ms Marketing Services management team. Observations and personal opinions on market developments do not guarantee future events and should not be considered financial advice. Producers should always consult with their trusted professionals before making any financial decisions.

When deciding when to take price protection, producers should consider their costs of production, benchmarks to assess value in the forward contract and how futures contracts are performing against historical cash seasonality.

SINCE THE BEGINNING OF THE YEAR, lean hog futures – the commodity underlying Canadian forward contract values – have been trending upward. While we were of the view the upside potential was, and is, limited, the general tone in the marketplace was that the trajectory higher would be maintained and that the 'top' had been yet to be determined.

That all changed on April 10. On that day, the futures market sold off about three per cent, which is a huge one-day move. On April 12, another more than three per cent drop in lean hog futures developed with the June contract reaching the daily limit low and halting the trading of that contract for the day. Sow supplies are tightening. Export volumes remain excellent. The net value of the cutout was approximately 25 per cent higher than year-ago, as of this writing. Cash is trending above last year too. What gives?



The Consumer Price Index (CPI) remains elevated, creating impacts across supply chains.

Inflation continues to create pressure

External market factors pressured almost all asset classes on April 10 as investors finally came to grips with the idea that the U.S. Federal Reserve will not be lowering interest rates anytime soon.

That was triggered by a slightly higher Consumer Price Index (CPI) relative to expectations in the U.S. The 3.5 per cent March CPI was only 0.1 per cent higher than expectations but clearly moving in the wrong direction and almost certainly taking the widely debated interest rate cut in June off the table. The net result was a sell-off in many investment classes, including lean hogs.

But aren't the fundamentals supposed to be strong as noted above? Yes; all those things are true, but as we have been suggesting in the 'Hog Market Outlook' (our daily producer newsletter), there is (or was) a lot of institutional investing in lean hog futures and the moves lower on April 10 and 12 almost certainly proved it. Lean hog futures had risen in the weeks leading up to April 10 almost in concert with 'Managed Money' traders increasing their long positions (a buy activity). While this was happening, key technical resistance levels were being reached: the market became overbought for days on end (a technical term, not an opinion of value), technical chart resistance was being met (Fibonacci retracement), new life-of-contract highs were being reached, and all investors needed to take profits was a reason.

The reaction to the March CPI number provided that reason, and the market corrected lower. Even with the Canadian Dollar falling about one cent over two days (it too came under pressure), the net result in a forward contract price was a loss of approximately \$7 CAD/kg for a summer month contract by the end of the week. It is a constant reminder that markets can and do change rapidly – oftentimes without warning – and sometimes it has absolutely nothing to do with hogs or pigs, supply or demand.

Year-over-year improvements provide optimism

March 2024 Hogs and Pigs Summary					
	avg. est.	y/y Change	USDA	dif. to 1y	dif. to est.
All hogs and Pigs	101.3	1.3	100.6	0.6	-0.7
Breeding	97	-3	97.9	-2.1	0.9
Marketing	100.4	0.4	100.8	0.8	0.4
<50 lb.	101	1	101.5	1.5	0.5
50-119	100.5	0.5	101.5	1.5	1.0
120-179	99.6	-0.4	100.3	0.3	0.7
180+	99.9	-0.1	99.4	-0.6	-0.5
Dec - Feb pig crop	101.3	1.3	101.9	1.9	0.6
Dec - Feb PPL	103.3	3.3	104.6	4.6	1.3
Dec - Feb farrowings	98.2	-1.8	97.4	-2.6	-0.8
Mar - May intentions	97.9	-2.1	99.1	-0.9	1.2
Jun - Aug intentions	98	-2	98.3	-1.7	0.3

Source: USDA Quarterly Hogs and Pigs Report

Better productivity may help explain why U.S. sow liquidation is being offset by higher hog numbers this year.

It is very admirable to be optimistic in this industry, but sometimes we shouldn't let opinions cloud better judgement. As of mid-April, there was still good value in Canadian forward contracts, albeit not at the highs.

While a deep dive on input costs will not be discussed here, we know, anecdotally, that feed costs have decreased compared to last year, or even months ago. Producer margins have improved, and the producers who are willing to share their motivations for locking in prices during March and April cite higher profit margins compared to previous years as rationale. This is an example of classic risk management. Locking in at a profitable margin is one way to decide to hedge. But we all want to capture the best possible price, so what about the other market watchers who say hog futures could be above the \$120 USD/cwt range this summer? The July contract on April 12 was approximately \$104 USD/cwt at the close. That is massive speculation in this author's opinion.

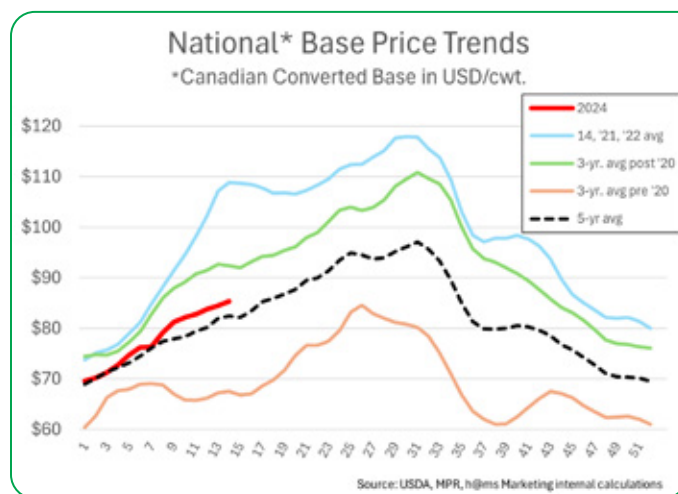
On March 28, the U.S. Department of Agriculture (USDA) published the 'Quarterly Hogs and Pigs' report – a much-anticipated update on live hog numbers in the U.S. which, occasionally, can change market sentiment in the lean hog futures. While the focus is on hog numbers in the U.S., Canadian producers are very interested in the report because of the way market hogs are priced north of the border. That is, the price for hogs in almost all of Canada is based off regional U.S. prices through its 'Mandatory Price Reporting' (MPR) cash price and the CME Group lean hog futures for Canadian forward contracting. The 'Quarterly Hogs and Pigs' report is a supply-side estimate which inevitably is one half of the fundamental picture. As such, it has the potential to change marketing dynamics and price outlooks in the U.S. and Canada for months at a time.

Some hog numbers, particularly 'All Hogs and Pigs,' 'Kept for Marketing' and the 'December to February Pig Crop,' were higher than year-ago, up 0.6 per cent, 0.8 per cent and 1.9 per cent,

respectively. This seemed counterintuitive to the relatively aggressive and ongoing sow liquidations that began months earlier. How can we get more pigs from fewer sows? The U.S. hog industry is in contraction with sow liquidation presently at the second-highest year-to-date pace on record. Ultimately, more pigs can come from better productivity, and that is the underlying assumption supporting higher hog numbers for 2024. Multiply the present farrowing (and intended) population by the present 'Pigs Per Litter' estimate (11.53 in the most recent report), and you will get slightly more pigs than last year. It's just math.

Whether one agrees with the March 'Hogs and Pigs' report or not is irrelevant, and the futures market will respond one way or another. What we are attempting to do is map out an objective marketing strategy that attempts to mitigate against speculation (the Funds' record long position), opinions on the 'Hogs and Pigs' report (or China) for example, and external market shocks like a high CPI that triggered the selloff in April. Markets are unpredictable, occasionally volatile, and there are no guarantees.

Are the futures in your favour?



Considering 2014, 2021 and 2022, this year's outlook is less exciting, but lower feed costs could make the difference.

When deciding when to take price protection, producers should consider their costs of production, benchmarks to assess value in the forward contract and how futures contracts are performing against historical cash seasonality.

Costs of production are very farm-specific. No two producers are alike. Some of the more-efficient producers will have lower costs of production while other operations will be higher. Determining an accurate cost of production for your operation is critical. If you already know it, great! If you do not, make it a priority. A high hog price does not necessarily mean an operation will be profitable, and we only need to look at the 2022 marketing year as an example of squeezed margins amid high hog prices.

After production costs have been established, the next step is to determine if there is 'good value' in a forward contract. This is a bit trickier because market views vary, and two out of the past three years

have seen incredible cash market performance leading some in our industry to expect the same sort of price profile in subsequent years. Producers who attend h@ms Marketing meetings already know that we consider the 2021 and 2022 marketing years to be outliers, and that we do not expect those higher levels to represent a trend moving forward. To be clear, we do expect higher prices relative to pre-2020 seasonal histories, and even last year, but a revisit to price levels immediately following the two post-pandemic marketing years is a very ambitious position to take. The 2023 marketing year proved that, when a post-Easter lull in cash pricing developed for the first time in three years.

This year, that pull-back has not (yet) materialized, and with the cutout about 25 per cent higher compared to the same marketing week last year on April 12, we think cutout supports cash and a steadier trend higher is possible. But will it outpace forward contract values presently offered? All that matters is that producers pick achievable benchmarks, and to that end, we would suggest the three-year cash average which does include 2021 and 2022 in its calculation.

The final step is to observe current lean hog futures values to historical cash seasonality. We do this to determine if there is good value in the futures. Isn't that the same as the previous step? Yes and no. In the previous step, the intent is to determine how Canadian forward contract prices are performing relative to Canadian cash histories, because it contains Canadian dollar exchange values in the calculation. In this step, we are looking at U.S. cash historical seasonality and comparing it to the lean hog futures spreads. And we do this by observing the percentage of movement in the current lean hog futures compared to the per cent moves in USD/cwt cash base prices.

In this sense, we can see that even though 2014, 2021 and 2022 cash and futures were much higher than present values on a dollar basis, seasonal cash per cent changes remained intact. The difference in value between the July and October National cash base in USD/cwt in 2014, for example (-20.9 per cent), was very similar to the five-year average per cent change over the same timeframe (-19.5 per cent); last year, cash moved 27 per cent lower between July and October.

Therefore, if the futures are pricing in a premium or discount relative to the historical spreads, we can determine if the futures market is bullish or bearish relative to history. If the futures are outperforming the historical spread, that could also be a hedging signal. Less optimistic futures may imply it could be better to wait for the next opportunity.

Hog price versus production cost: keep it simple

If an operation locks in a price that is higher than production costs, the Canadian forward contract is outperforming the Canadian cash history, and the current futures in USD/cwt are performing better than historical cash seasonality, this is considered a good hedge.

It does not mean it is the highest price one can achieve (and which we only know in hindsight), and it does not guarantee that the forward contract will be 'in the money' when the contract concludes. But it is an objectively determined approach to hedging against volatility, like was seen this past April, and another tool producers can use to effectively manage profitable margins in a market rife with rampant speculation. 🐷

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News & Views



Swine Innovation Porc's (SIP) Swine Cluster 4 will invest up to \$20.1 million in combined industry-government funding to support the research priorities of pork producers.

Swine research receives funding renewal

Swine Innovation Porc (SIP) received an investment of more than \$10.6 million from the Government of Canada in late February, to support research activities under Swine Cluster 4, which will drive innovation in the Canadian pork sector until 2028. SIP funding is also supported by the Canadian Pork Council (CPC), along with provincial pork producer organizations across Canada. Over the next five years, Swine Cluster 4 will invest up to \$20.1 million in combined industry-government funding.

"Through this substantial investment, SIP and our partners can spearhead the research needed to deliver science-based solutions for the benefit of Canadian pork producers, processors and exporters," said Arno Schober, Chair, SIP. "With industry, government and academia united around shared priorities, we're driving targeted research to help move our sector forward."

Research priorities for Swine Cluster 4 were established in consultation with stakeholders across the Canadian pork sector. Research priorities include climate change and the environment, sector resilience, economic growth, and communications and knowledge transfer. 🐷

Canadian researchers named to prestigious committee

The University of Manitoba's Martin Nyachoti and Laval University's Marie-Pierre Létourneau-Montminy have been named to the U.S. National Academy of Sciences, Engineering and Medicine's (NASEM) committee tasked with develop the 12th edition of the *Nutrient Requirements of Swine*: an authoritative resource on swine nutrition first published in 1944. The 11th edition was published in 2012.

"This resource is one of the most important references in the pig field and recognized internationally. It's a great honour have been chosen," said Létourneau-Montminy. "I will have the chance to work alongside renowned researchers while making this work benefit from the research that I have been carrying out for several years."

The 12-person committee formerly included just one Canadian representative, but for the first time now includes a second Canadian, along with a representative from Europe. The remaining nine committee members are American.

Nutrient Requirements of Swine was originally conceived to provide a common reference point for formulating swine diets, sensing that this work is more credible and efficient when developed by committee rather than separate jurisdictions and institutions. New editions are generated as pig nutrition knowledge increases, including ingredient nutrition profiles.

All of the information included in the final report must be based on refereed literature to ensure a high standard of information; however, the committee has already made the novel decision to consider energy and nutrient values for ingredients generated by private labs. 🐷



Martin Nyachoti and Marie-Pierre Létourneau-Montminy are the two Canadians named to a committee to develop the next edition of a longstanding U.S.-based swine nutrition resource.

Indo-Pacific agri-food trade office opens



René Roy, Chair, Canadian Pork Council (CPC) and Lawrence MacAulay, Minister, Agriculture and Agri-Food Canada (AAFC) were in Manila for the opening of a new trade office.

Agriculture and Agri-Food Canada (AAFC) officials and industry representatives visited Manila, Philippines in late February for the opening of Canada's newly established Indo-Pacific Agriculture and Agri-Food Office.

"We're thrilled to see the years of work from the team at AAFC and from the agriculture industry bear fruit with this announcement," said René Roy, Chair, Canadian Pork Council (CPC). "This milestone will help all of us in Canadian agriculture expand our presence in the region, and we look forward to many years of promoting our products more directly in the Indo-Pacific."

The Canadian pork industry exported 108,000 tonnes of pork worth more than \$300 million to the Philippines in 2023, a substantial increase over 2019, when the country purchased only 53,000 tonnes worth \$118 million. This makes the Philippines one of Canada's fastest-growing foreign markets for pork and the fifth-largest overall by volume, behind the U.S., Japan, China and Mexico.

"This office will permit us to deepen relationships that further enrich trade for our sector with the Indo-Pacific region," said Chris White, CEO, Canadian Meat Council (CMC). "Minister MacAulay continues to prioritize collaboration to strengthen reciprocal market access for Canadian red meat, and we are grateful for his leadership to reinforce our global presence." 🇵🇭

Foreign animal disease prep ramps up

Animal Health Canada (AHC) received more than \$1.5 million in federal funding in early March to continue its collaborative work to enhance national preparedness for foreign animal disease outbreaks, especially for African Swine Fever (ASF) and Foot and Mouth Disease (FMD).

"We know that emergency preparedness never stops," said Erica Charlton, Emergency Management Division Director, AHC. "Thanks to contributions from our federal government partners, we will continue leading these collaborative networks to support the prevention and control of a foreign animal disease outbreak."

AHC has been leading coordinated actions to prevent and control ASF in Canada since 2019 through joint industry-government working groups, such as the ASF Emergency Management Board. Participation includes representatives from the Canadian Pork Council (CPC) and provincial pork producer organizations across Canada, among others, and covers various threats, including the potential spread of ASF through wild boar.

Close to \$1 million from Agriculture and Agri-Food Canada's (AAFC) ASF Industry Preparedness Program will support preparedness planning, while nearly \$700,000 from the Canadian Food Inspection Agency's (CFIA) Federal Assistance Program will support the production of a framework for an integrated emergency response plan for FMD, including resources for an FMD vaccine. Emergency response planning exercises for hypothetical outbreaks of either disease will be further supported, including the involvement of industry partners. 🇵🇭

ASF continues to spread in Europe

Albania, located in southeastern Europe, discovered African Swine Fever (ASF) in two Eurasian wild boar carcasses in late February, making it the 28th out of 44 countries in Europe to report a case to date. Every country from Russia in the east and Estonia in the north, to Germany in the west and Greece in the south has reported at least one case so far, saturating the map of eastern Europe.

Last year, Sweden reported ASF for the first time, and in the past two years, new cases have continued to be discovered in Germany and Italy, mostly in wild boar and on small farms. Germany, a major global exporter of pork, has felt tremendously negative financial impacts as some markets have closed to its products; however, frozen pork bellies from Germany have continued appearing in Canadian supermarket coolers, demonstrating the importance of international zoning agreements.

According to the World Organisation for Animal Health (WOAH), more than 80 countries globally have reported ASF since 2005, with more than nine of those countries having reported their first case since January 2022.

ASF is a WOAH-listed disease. It is therefore mandatory for national veterinary authorities to notify WOAH of any ASF case in a timely manner. Countries may also self-declare the absence of ASF from their territory on a voluntary basis. 🐷



Albania is the latest European country to report ASF. Germany reported its newest case in late 2023. Despite this, German pork products have been spotted being sold in Canada recently, thanks to zoning agreements that promote international cooperation.

Ontario Pork names new Chair, Vice Chair

The Ontario Pork board of directors welcomed Tara Terpstra as its incoming Chair in early April, taking over from John de Bruyn, who served in the capacity for the last 13 years. Incoming Vice-Chair Bruce Hudson has also joined the board, along with Philip Van Raay, TJ Murray and Eric Schwindt, who join current directors Karen Sanders, Tanya Terpstra, Arno Schober and Jolanda Van Den Broek.

“I’m deeply honoured and excited to embark on this journey,” said Terpstra. “Serving as Chair of Ontario Pork offers a unique chance to champion the needs of pork producers in animal care, risk management, processing and other areas. I look forward to working with pork producers and industry on fostering collaboration and unity within the pork sector, as we navigate the challenges ahead and seize the opportunities to create a thriving, sustainable future for all involved.”

Ontario Pork’s governance structure is based on producer representation from zones across Ontario. In each of these zones, producers are responsible for electing board members. 🐷

Prop 12 likely behind higher pork prices

The U.S. National Pork Producers Council (NPPC) reported in late March that fresh pork prices in California increased significantly in the latter half of 2023, while wholesale purchases fell.

The U.S. Department of Agriculture’s (USDA) Office of the Chief Economist (OCE) found that pork ribs and bellies have seen an average 20 per cent price increase in California since Prop 12 was implemented in July 2023, with loin prices averaging 41 per cent higher. Pork not covered by Prop 12 – such as cured and pre-cooked products – has not seen a significant price increase, suggesting that the lack of available Prop 12-compliant pork could be to blame.

In the early days following Prop 12 implementation, reports of empty meats coolers in California supermarkets appeared on social media. Looking at wholesale pork sales data, the economists found Prop 12-compliant products accounted for less than four per cent of total pork sales in the U.S., whereas California alone is typically expected to account for upwards of six per cent of total sales. 🐷

KWS Seeds Canada adds livestock feed consultant

Laura Eastwood joined KWS Seeds Canada in mid-April as Livestock Feed Consultant. Eastwood brings more than 17 years of experience in the industry, having completed her degrees at the University of Guelph and University of Saskatchewan.

Eastwood's research focused on improving animal performance and health through dietary modifications, including her Master's program, which researched the value of flaxseed meal for swine. She furthered her expertise by completing her PhD on the role of omega-3 to -6 fatty acids in sow and piglet diets.

Most recently, Eastwood served as Provincial Swine Specialist with the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). In this role, she developed strong relationships with stakeholders across the industry. Her expertise in swine nutrition, combined with her understanding of the Canadian agricultural landscape, positions her perfectly to contribute to KWS Seeds Canada's work on developing new solutions using hybrid rye seeds to improve livestock production, health and sustainability. 🌱



Ontario Pork partners with Kitchener Rangers

Ontario Pork's commitment to the community was on display in mid-February when the organization partnered with the Ontario Hockey League's (OHL) Kitchener Rangers to host a record-setting food and fund drive to help restock food bank shelves.

"The Food Bank of Waterloo Region was the real winner," said John de Bruyn, past Chair, Ontario Pork. "With help from the community, we were able to do a great job collecting cash and food donations that will really go a long way to help those facing food insecurity."

In total, more than 500 kilograms of food was collected, along with more than \$4,500 in cash donations during a game against the visiting Guelph Storm. The food and funds collected will provide more than 10,000 meals for those in need.

"Seeing the food donation bins overflow, seeing people make financial donations, it really warms my heart," said Kim Wilhelm, CEO, The Food Bank of Waterloo Region. "We often think about donating at the holidays, but the reality is food insecurity happens 365 days a year, so year-round events like these are important to help remember the more than 58,000 people living right here in Waterloo Region who are struggling to put food on the table."

Fans at the game were also able to purchase copies of the Ontario Pork cookbook, 'The Whole Hog,' featuring recipes, stories and tips on how to cook pork that come directly from people who work across the pork supply chain. All proceeds from its sale go to Feed Ontario, the province's food bank network. 🌱



Ontario Pork took a slap shot at hunger in the Waterloo region by hosting a record-setting food and fund drive.

Restaurants Canada show includes producer reps



Provincial and national producer representatives connected with chefs and restaurateurs to promote the virtues of pork at RC Show 2024 in Toronto.

Restaurants Canada's RC Show 2024 took place in Toronto in early April, and this year, included a booth for the Canadian Pork Council (CPC). The booth was manned by a cross-country selection of representatives from CPC, Alberta Pork, Ontario Pork and *Éleveurs de porcs du Québec*.

The goal of attending the event was to speak with foodservice industry members, including chefs and restaurateurs, to answer their questions about Canadian pork production, and to reinforce the quality and value of offering Canadian pork to their customers.

Recent reports suggest 62 per cent of Canadian restaurants are operating at a loss or barely breaking even. This is highlighted by a notable uptick in restaurant closures in 2023, with bankruptcies up 44 per cent – the highest annual figure in a decade.

Pork stands out as an increasingly affordable protein option that can improve margins for foodservice business owners. While Health Canada recommends cooking pork to 160 degrees-Fahrenheit, cooking pork to this 'well done' temperature often leaves it dry and less flavourful. Chefs are encouraged to consider their patrons' doneness preferences when preparing pork in their restaurants. The U.S. Department of Agriculture (USDA), for instance, recommends cooking pork to 145 degrees-Fahrenheit, with a short rest to follow, which results in 'medium' doneness.

Restaurants Canada is the national association that serves the unique needs of the foodservice industry. Its members include regional and national chains, and independent operators, such as restaurants, bars, caterers, hotels, food trucks, convenience stores and other emerging business types. 🐷

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Richard Slayman was in good spirits after receiving a pig kidney transplant – the first of its kind.

Pig kidney successfully transplanted to U.S. man

Richard, Slayman, a 62-year-old man living with end-stage kidney disease, successfully received a gene-edited pig kidney in late March, following a four-hour surgery at Massachusetts General Hospital in Boston. After a brief recovery, he was discharged in early April.

“This moment – leaving the hospital today with one of the cleanest bills of health I’ve had in a long time – is one I wished would come for many years. Now, it’s a reality and one of the happiest moments of my life,” said Slayman. “I want to thank everyone at Massachusetts General Hospital who cared for me before and after my historic transplant.”

The pig kidney was gene-edited using CRISPR-Cas9 technology to remove harmful pig genes and add certain human genes to improve its compatibility with humans. Additionally, scientists inactivated porcine endogenous retroviruses in the pig donor to eliminate any risk of infection in humans.

“The success of this transplant is the culmination of efforts by thousands of scientists and physicians over several decades,” said Anne Klibanski, President & CEO, Mass General Brigham. “Our hope is that this transplant approach will offer a lifeline to millions of patients worldwide who are suffering from kidney failure.”

This successful procedure in a living recipient is a historic milestone in the emerging field of xenotransplantation – the transplantation of organs or tissues from one species to another – as a potential solution to the worldwide organ shortage. Kidneys are the most common organs needed for transplant, and end-stage kidney disease rates are estimated to increase between 30 and 70 per cent in the U.S. by 2030. 🐷

Ro-Main passes torch to next generation

Serge Labrecque, co-founder & CEO, Ro-Main, transitioned his role after 25 years in mid-April to Jacquelin Labrecque, a second-generation member of the family that owns the company. Serge has now assumed the role of Executive Vice President.

“I am proud of what we have accomplished at Ro-Main over the years,” said Serge. “I am convinced that Jacquelin is the best person to guide the company to new heights. His leadership, passion for innovation and in-depth understanding of the market ensure a promising future for us.”

Jacquelin previously served as Chief Technology Officer and Chief Product Officer. His expertise in high technology, his strategic vision and his achievements over the last 13 years have helped to position the company as a major player in the field of cutting-edge technologies applied to precision livestock farming and are valuable assets in guiding Ro-Main towards the future. 🐷

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Producer-oriented research moves forward

Arno Schober

Editor's note: Arno Schober is Chair, Swine Innovation Porc (SIP). For more information, contact 'mmcmullen@swineinnovationporc.ca.'

Guided by our new strategic plan, SIP is supporting the sector to tackle national strategic priorities, such as disease management, feed efficiency and environmental sustainability.



Outcomes from research projects serve as building blocks for future innovative solutions that can be applied on-farm.

THE EVER-CHANGING NATURE of the Canadian pork sector is something that producers across our country need to consider and adapt to. Research and innovation provide us with important insights to make informed decisions on our farms as well as down the value chain to support continued growth and advancement. Investment in research and innovation has paved the way for sustainable practices, enhanced productivity and elevated us to the third-largest exporter of pork products globally.

Future challenges and opportunities to create real value for Canadian pork producers and the broader industry rely on our collective ability to foster research and innovation. By working together across producer organizations, research institutions, industry and government, we can unlock exciting research advancements that will have a significant and lasting impact on the resilience of our sector.

I have seen first-hand the positive impact of coordinated and collaborative research through my involvement with Swine

Innovation Porc (SIP). Since 2010, SIP has provided effective oversight of three successful research clusters, and now with the launch of Swine Cluster 4 in February 2024, we are spearheading innovation that will drive further progress within the Canadian pork industry.

These successes have given us a strong foundation to build from. With continued organizational development and partnership with our members, we can enhance efforts to deliver meaningful results for the benefit of the sector.

On the road to 2028

Last year, SIP completed a strategic planning exercise to build a roadmap taking us to 2028. This consultation process was focused on gaining knowledge and feedback from our key stakeholders including provincial pork producer organizations, researchers and industry partners to ensure a collaborative and inclusive approach.



SIP's new strategic plan focuses on four key priorities: partnerships, communication, funding and excellence.

Through this process, the transformative strength of collaboration and partnership has shaped our strategic plan. These principles are not only integral to achieving our priorities but also in driving the continuous advancement to build a strong and sustainable future for the Canadian pork industry.

Based on the insights shared during the consultations, our strategic plan focuses on four key priorities: partnerships, communication, funding and excellence.

Guided by our new strategic plan, SIP is supporting the sector to tackle national strategic priorities, such as disease management, feed efficiency and environmental sustainability, while sharing knowledge and expertise with producers and industry.

Swine Cluster 4 has successfully secured a joint government-industry investment of \$20.1 million over five years. This funding will bolster 18 comprehensive research and knowledge transfer initiatives, engaging more than 50 researchers across 13 institutions. Furthermore, the recent support from the Pork Promotion and Research Agency (PPRA) promises to serve as a catalyst for collaborative research, driving forward our sector's key priorities.

With industry, government and academia united around shared priorities in Swine Cluster 4, targeted research is underway to help move our sector forward. Research activities in the cluster are investigating the development of new vaccines and antimicrobial alternatives, sustainable management practices, productivity-enhancing feed

strategies, enhanced genetics, improved meat quality and much more.

As we move into year two of Swine Cluster 4, our team is focused on getting research updates, findings and practical applications in the hands of pork producers and the broader industry. We are committed to working closely with provincial pork producer organizations and industry partners to ensure you receive the information and research insights you need to make decisions on your farm through timely and efficient communications channels.

We understand that much of the research projects in our past Swine Cluster programs have laid foundational groundwork, with practical applications yet to fully materialize. However, it's essential to recognize that the outcomes from these projects serve as building blocks for future innovative solutions. Our hope is that in the not-too-distant

future, these advancements will directly impact your farm operations and enable our industry to navigate challenges more effectively, ultimately ensuring the efficient delivery of our nutritious, high-quality pork products to markets here at home and around the world.

Keep up with the latest

Stay tuned! We are looking forward to sharing more exciting updates, findings and practical applications from the research projects in Swine Cluster 4, from past cluster research and through the support provided by PPRA.

To learn more about SIP, we invite you to visit our website, swineinnovationporc.ca. To keep informed on the latest research outcomes and insights, follow us on Facebook (@SwineInnovationPorc), X (@SwineInnovation) and LinkedIn. 🐷

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Preventing nursery mortality can reduce losses

Alyssa Cornelison

Editor's note: Alyssa Cornelison is Research and Technical Services Associate, Zinpro Corporation. For more information, contact 'tcory@bader-rutter.com.'

As we think about the massive cost nursery mortality has on an operation, we need to consider if we're using nutrition as a tool to prevent it.

KEEPING A BUSINESS HEALTHY AND THRIVING is a priority for any swine production system. When improving the performance of your nursery pigs, nutrition plays a critical role. But when faced with rising feed costs, new regulations and supply chain volatility, it becomes even more vital that you make feed investments that yield better performance results.

To make strategic feed investments, having an intimate understanding of the different factors impacting the success of your production system will allow you and your nutritionist to better prioritize feed decisions.

Which factors contribute to swine farm profitability?

From a high-level view, there are many factors that can influence the profitability of your operation. However, there are three specific factors that we can zero in on and use to understand 98 per cent of system variation: the cost of gain by weight, the price of pork by weight and the cost per weaned pig.

As we think about making smart feed investments, cost of gain by weight is the factor that you can directly influence with pig diet costs. The key metrics that influence cost of gain by weight are ingredient cost, feed budget execution, amount of feed waste and livability.

All four of these metrics are key influencers of cost of gain by weight, but only one of these can be more easily influenced through the diet: livability. As you improve livability in your nursery pigs, you'll positively impact your cost of gain by weight as well.

How does livability affect your nursery phase production goals?

Just a one per cent change in mortality can mean the difference between making a profit or loss. On the other hand, a one per cent increase in marketed pigs out of the nursery can make an even greater contribution to your bottom line.

In today's market, the average cost of mortality is a direct cost of \$0.77 CAD per marketed pig and an opportunity cost of \$2.75 CAD per marketed pig. In nursery flows managing through severe health challenges and seasonal pressures, the direct cost per marketed pig could be as high as \$27.54 CAD per animal. These challenges are why nutritional choices must drive results that benefit your pigs and the financial health of your operation.

Zinc: a tool for health and livability

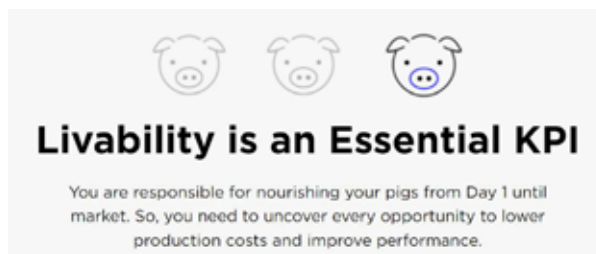
As we think about the massive cost nursery mortality has on an operation, we need to consider if we're using nutrition as a tool to prevent it. Thinking about health, immunity and stress mechanisms, zinc is a trace mineral that can make noticeable differences in your swine herd.

To gain the benefits of zinc, choosing an easily absorbed, bioavailable source is key and can help you raise healthier, faster-growing pigs more cost-effectively, helping you achieve your production goals.

Recent research revealed that *E. coli*-challenged pigs fed an amino-acid complexed zinc displayed improved health and livability while increasing early post-weaning feed intake compared with the animals fed an alternative form of zinc. These pigs continued eating more and kept putting on more weight during the 42-day growth phase and

experienced additional performance improvements including 2.7 per cent reduction in mortality, 5.4 per cent reduction in medical interventions and 20-gram daily improvement in early feed intake.

With these results, incorporating the right zinc into the ration can improve your profitability by \$2.19 CAD per pig or more and reduce your cost of gain by \$0.15 CAD per kilogram. Work with your nutritionist to incorporate amino acid-complexed zinc for the best and most consistent performance results in the nursery. By doing so, you can reduce your cost of gain by weight and improve pig performance, ensuring your feed investments provide maximum value throughout and ultimately help your balance sheet. 🐷



Improving your bottom line starts with addressing issues in the nursery. Choosing easily absorbed, bioavailable sources of zinc can support greater livability.

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**ADVANCING
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Heat stress creates feed intake challenges

Maude Richer-Lanciault

Editor's note: Maude Richer-Lanciault is Monogastric Nutrition Manager, Trouw Nutrition. For more information, contact 'lauren.dawson@trouwnutrition.com.'

As heat stress reduces a sow's feed intake, it can subsequently depress milk production, leading to reduced piglet body weight gain.

WITH EARLIER AND WARMER temperatures during the summer, heat stress is a concern across Canada. Warm and humid weather can create sow performance issues in barns. With modern hyperprolific sows, this can be a real puzzle to solve. Weather cannot be controlled, but there are some solutions to help manage the impact of heat stress in sows.

Why are pigs sensitive to heat stress?

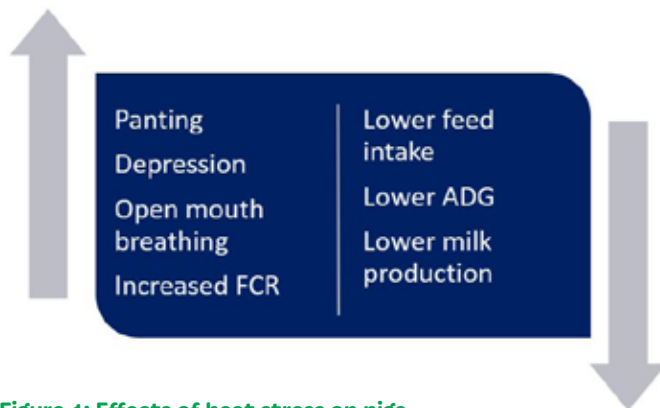


Figure 1: Effects of heat stress on pigs

Pigs are particularly sensitive to heat stress because they do not sweat. To lower their body temperature, pigs will send more blood from the intestines to the skin surface to dissipate heat out to the environment. This can cause damage to intestinal cells due to a lack of oxygen. Thus, nutrient absorption decreases and the pig becomes more susceptible to pathogens, known as 'leaky gut syndrome.' With this, their feed intake and performance will decrease (Figure 1).

The genetics and physiological composition of domesticated pigs have changed considerably in recent years, and we have seen a significant decrease in fat deposition. From 1991 to 2001, the body lean tissue rate increased by 1.55 per cent. This increase of lean muscle increased metabolic heat production by 14.6 per cent. In turn, the increase in body heat production requires an adjustment to barn ventilation to remove this extra heat.

The thermoneutrality zone is the temperature zone in which pigs perform best. The ideal temperature for sows is 18 degrees-Celsius. At temperatures above 23 degrees-Celsius, sows begin to experience

Room temp.	Relative humidity												
	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
35°C	Heat stress emergency												
34°C	Heat stress emergency												
33°C	Heat stress emergency												
32°C	Heat stress emergency												
31°C	Heat stress emergency												
30°C	Heat stress emergency												
29°C	Heat stress emergency												
28°C	Heat stress emergency												
27°C	Heat stress danger												
26°C	Heat stress danger												
25°C	Heat stress alert												
24°C	Heat stress alert												
23°C	No heat stress												
22°C	No heat stress												
21°C	No heat stress												

Figure 2: Heat stress index for pigs

heat stress and their feed intake will start to be affected. Between 20 degrees-Celsius and 30 degrees-Celsius, feed intake will be reduced by 23 per cent. Ambient temperature is not the only factor that causes heat stress; humidity also plays a role. Depending on relative humidity, the apparent temperature may be different and is what the sow will feel. For example, a barn with high humidity of 80 per cent will be in heat stress danger at 26 degrees-Celsius, whereas another barn with similar temperature and 70 per cent humidity will be on heat stress alert (Figure 2). It is important to control the environment in your barn.

What can we do to support our sows during a heat stress period?

To support sows experiencing heat stress, the environment in the barn should be monitored and adjusted appropriately, with consideration given to ventilation, cooling systems and heat pads for piglets. Drip cooling, by applying water on the pig's skin, can have a cooling effect, potentially in combination with higher air speeds. Air movement is essential with this cooling technique due to the increase of moisture in the room. It is important to keep the sows and piglets comfortable. Care should be taken to avoid a draft on piglets, since newborn piglets have higher thermoneutrality than sows. Air quality should be assessed for the welfare of both animals and workers.

The quality and quantity of water is extremely important for sows; it should always be readily available and be of good quality. Water quality assessments to determine mineral composition and



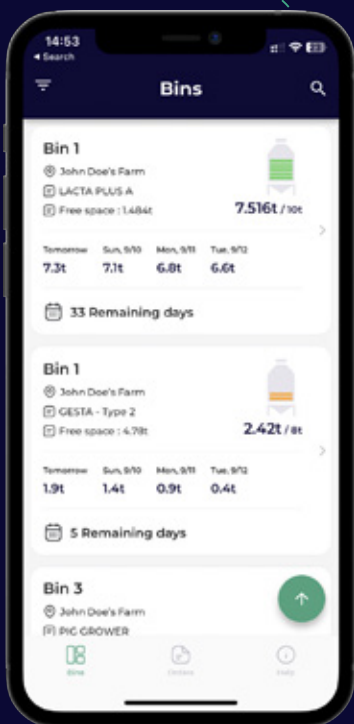
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microbiology should be performed before the summer. Water flow at multiple points should be verified. The barn should have enough water drinkers for the sows in the group housing section. Cool water will help the sows to better manage a high temperature.

If you see a change in the sows' feeding patterns, match this pattern to your feed allocation program. Lactation feed should be available during cooler periods of the day, during early morning and late night, and feed should be kept fresh and clean to stimulate intake.

Using nutrition to combat heat stress

As heat stress reduces a sow's feed intake, it can subsequently depress milk production, leading to reduced piglet body weight gain. Your nutritionist can work with you to find the best strategy for summer management in your barn. Many options are available, including solutions like adjusting the feeding program, the use of specific additives or changes in diet formulations.

Many tools can be used to adjust your feeding program during heat stress. For example, Trouw Nutrition's NutriOpt Sow Model can determine the target feed intake according to different temperatures and evaluate the best density for your feed and customize the program according to your environment, genetics, performance and management.

An adjustment of the density of the feed can also support a lower feed intake during summer. For instance, a specific adjustment of amino acid ratios with energy, protein level, fibre and other nutrients can keep the feed balanced with higher density. Altogether, the goal should be to support sows' needs and create less heat during the digestive process. It is also important to keep the feed very palatable to stimulate feed intake, as sows have excellent taste perception.

Oxidative stress impacts high-producing animals, especially under challenging conditions like heat stress. Antioxidants reduce the damaging effects of oxidative stress. The addition of an antioxidant package to the feed can support your sows during the heat stress period.

	Control	Polyphenol additive
Litter wean weight, kg	61.51 ^a	64.01 ^b
Litter ADG, kg/d	2.859 ^a	3.021 ^b
Piglet ADG, g/d	244 ^a	253 ^a

Table 1: A diet with a polyphenol blend additive improved sows' reproductive performance.

In a research trial, the addition of a mix of polyphenols – Trouw Nutrition's Selko POMix flavour blend – increased sows' reproductive performance, compared with a control group that only received Vitamin E. Polyphenols reduce lipid peroxidation before and during heat stress by decreasing malondialdehyde (MDA) production (Table 1). The addition of the flavour blend containing polyphenols increased lactation feed intake, increased the number of piglets weaned and increased litter weaning weight. Therefore, based on the results of this study, the use of polyphenols may increase the antioxidant capacity in sow diets to improve piglet performance while maintaining cost per piglet produced.

Several other additives are available on the market. For example, for leaky gut syndrome, adding antioxidants and osmoregulatory compounds, such as betaine, helps prevent the negative effects of heat stress in pigs. It is better to select the additive that will have the best return on investment and fit with your needs.

Heat stress impacts performance on multiple levels and can have large impacts on sow farms. It is best to adopt multiple strategies to reduce its negative effects. Farm strategies include ensuring water quality and availability for all pigs and adjusting the environment for the correct temperature and humidity in the barn. Feeding strategies include keeping your feed palatable and fresh, adding an antioxidant package or other additives, and adjusting the feed density. Your nutritionist can help evaluate these factors and recommend strategies to reduce the impacts of heat stress on your farm. 🐷



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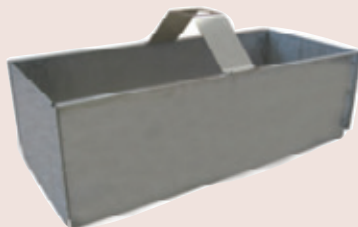


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Protein quality, digestibility differ among pulses

Although scientists can now make some credible assumptions about changes in nutrients across pulses or within a pulse category, there is more work to be done.

Swine Innovation Porc

Editor's note: This article is a project summary prepared for Swine Innovation Porc, as part of a series of articles covering SIP's work. For more information, contact 'mcmullen@swineinnovationporc.ca.'

GIVEN THE VOLUME of feed required on-farm, especially for growing and finishing pigs, scientists are investigating new options to diversify the ingredient supply and methods for getting the most from nutrients in pig diets. To give producers the greatest return on their investment, those ingredients must be high-quality and able to maximize pig performance.

As part of Swine Innovation Porc's (SIP) Cluster 3 research activities, Kate Shoveller from the University of Guelph worked with a PhD student, Cara Cargo-Froom, and Dan Columbus at Prairie Swine Centre to characterize the nutrient content of Canadian-grown pulses for inclusion in swine diets, including two varieties of field peas, as well as lentils, chickpeas and faba beans.

Assessing protein quality and digestibility

To evaluate the overall quality of protein-dense feed elements, a digestible indispensable amino acid score (DIAAS) was created for each ingredient, which uses amino acid digestibilities measured at the end of the small intestine to provide an accurate measure of the amounts of amino acids absorbed by the body (*Table 1*). The higher the DIAAS score, the greater the protein quality of an ingredient. The project also measured the digestibility of amino acids in the tested ingredients. Since pigs are unable to synthesize all amino acids required for optimal performance, feed plays a key role.

The researchers also aimed to understand how pelleting and extrusion under different conditions affect the nutrient content of the ingredients. Pelleting is the process of converting finely ground mash feed into dense, free-flowing pellets. Pelleting a diet makes it

	Faba bean	Lentil	Pea
Indispensable amino acids			
Arginine	89.52 ± 3.23	88.62 ± 3.23	89.83 ± 3.34
Histidine	92.80 ± 2.21	89.98 ± 2.21	89.25 ± 2.36
Isoleucine	91.19 ± 2.79	91.26 ± 2.79	85.19 ± 2.96
Leucine	93.62 ± 2.27	91.68 ± 2.27	88.65 ± 2.45
Lysine	93.42 ± 1.77	91.99 ± 1.77	89.91 ± 1.91
Methionine	94.66 ± 3.56	95.87 ± 3.56	95.79 ± 3.68
Phenylalanine	92.79 ± 2.08	92.55 ± 2.08	88.67 ± 2.26
Threonine	91.46 ± 4.69	89.77 ± 4.69	85.34 ± 4.95
Tryptophan	59.42 ± 14.20	61.42 ± 14.20	41.44 ± 15.75
Valine	89.87 ± 3.30	90.00 ± 3.30	83.51 ± 3.52
Dispensable Amino Acids			
Alanine	93.87 ± 2.47	91.70 ± 2.47	87.84 ± 2.64
Aspartate	91.63 ± 2.78	90.13 ± 2.62	87.64 ± 2.62
Cysteine	82.99 ± 6.20	88.42 ± 6.20	83.49 ± 6.50
Glutamate	94.28 ± 1.66	93.45 ± 1.66	90.75 ± 1.76
Glycine	70.30 ± 8.76	68.45 ± 8.76	69.05 ± 9.30
Proline	-8.54 ± 45.84	-40.23 ± 47.22	-26.69 ± 47.22
Serine	92.02 ± 3.18	91.37 ± 3.18	87.51 ± 3.38
Tyrosine	92.58 ± 2.36	89.46 ± 2.36	87.88 ± 2.57
Amino Acid Scores			
Histidine	1.47	1.26	1.29
Isoleucine	0.92	0.84	0.76
Leucine	1.03	0.93	0.92
Lysine	1.03	0.94	1.01
Threonine	1.30	1.15	1.17
Tryptophan	0.30	0.58	0.27
Valine	1.19	1.12	1.03
AAA*	1.82	1.66	1.70
SAA*	1.26	1.24	1.51
Digestible Indispensable Amino Acid Score			
	30.00	57.83	27.27
	(Tryptophan) [†]	(Tryptophan) [†]	(Tryptophan) [†]

Table 1: Comparing the protein quality and digestibility of the pulses tested.

easier to handle feed and helps reduce feed waste, while supporting optimal performance. Research has demonstrated that pelleted feed supports a roughly seven per cent increase in feed efficiency. Extrusion, which involves applying heat, moisture and pressure to an ingredient, can improve energy and protein digestibility for pigs, and the heat treatment increases the storage life of pulses by reducing water content.

Overall, however, there were no extreme detrimental effects of processing on nutrient content of the pulses, specifically in relation to protein and amino acid content.

Though it was not part of the official study, researchers also observed the pigs' eating behaviours. They noted that while every pig consumed all of the diets provided, there was a clear preference, based on the enthusiasm with which they ate. Pea and faba bean diets seemed to be more popular than lentil options.

Initial results provide much to consider

Although scientists can now make some credible assumptions about changes in nutrients across pulses or within a pulse category, there is more work to be done. A better understanding of how processing can affect each category of pulse – and the varieties within the category – can provide much needed insight on the specific varieties of interest.

For nutritionists and producers, these results may help inform their choices on alternative feed ingredients. Additionally, different processes, such as extrusion, can be considered to improve nutrient digestibility and availability. 🐷

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Feed additives fight summer strain

Chris Gwyn

Chris Gwyn is Sales Director – Canada & Ruminant Sales Development Manager – North America, Jefo Nutrition. He can be contacted at 'cgwyn@jefo.ca.'

AS SUMMER APPROACHES, the consequences of heat on pig health, productivity and reproduction become a major concern for farmers. With weather getting hotter around the world, do not wait until the thermometer hits 30 degrees-Celsius to implement changes, as heat stress can occur at temperatures as low as 23 degrees-Celsius if the humidity exceeds 75 per cent. Finding ways to help pigs to stay cool and healthy is more important than ever.



Along with preventative maintenance in your barn, supplementing feed with vitamins and enzymes can help maintain performance and health for pigs under heat stress.

How does heat stress affect pigs?

On hot days, animals tend to eat less, drink more and reduce their activity. Inadequate nutrition weakens the immune system, making pigs more vulnerable to infections and diseases. When pigs are exposed to high temperatures, their metabolic rate increases and, to dissipate heat, the body diverts energy away from growth, consequently reducing weight gain and increasing time to market.

Heat stress can also significantly impact reproductive performance as it can disrupt normal estrous cycles in sows, leading to irregularities in heat detection and conception rates. Heat-stressed boars may exhibit reduced libido and semen quality, further complicating breeding programs and potentially affecting genetic progress within the herd.

Preventive maintenance Is key

For an efficient farm operation, checking ventilation, cooling and water systems is essential. Accumulated dust can significantly reduce air circulation efficiency, increasing energy consumption by more than 30 per cent. Defective sprinklers can reduce the capacity to control the temperature in the barn, and uncleaned water lines with biofilm or mineral deposits are a risk to animal health. Furthermore, reducing stocking density is another way to promote a healthier barn environment, potentially improving overall well-being.

One of the best ways to help your animals to deal with the heat is by including special additives with their feed, which may include nutrients in both liquid and powder formats.

Liquid supplements to the rescue

One of the best ways to help your animals deal with the heat is by including special additives with their feed, which may include nutrients in both liquid and powder formats.

To compensate for lower feed intake, liquid blends of vitamins can boost their health and maintain their performance despite high temperatures. There are many advantages to adopt nutritional supplementation of drinking water during critical life stages. Liquid supplements allow for precise dosage control and uniform distribution among animals, are easy to use, minimize waste and optimize nutritional intake. They can also be quickly adjusted to diets based on pigs' changing nutritional needs.

Enzymes can help

Another excellent strategy is using enzymes alone or combining several of them to create a synergistic effect on swine health and production. Three enzymes in particular – xylanase, beta-mannanase and protease – are noteworthy.

Xylanase breaks down complex carbohydrates found in plant cell walls into smaller sugars, increasing the digestibility of plant-based ingredients like wheat, barley and corn, commonly used in swine diets, and making more energy available.

Beta-mannanase complements the action of xylanase by contributing to the energy utilization from feed ingredients such as soybean and palm kernel meal. The combination of beta-mannanase and xylanase helps compensate energy intake for the reduced feed intake typically observed during heat stress.

Protease hydrolyses proteins into smaller peptides and amino acids, improving protein utilization from ingredients like soybean meal, which may contain anti-nutritional factors that hinder protein digestion. This allows for the reduction of crude protein levels in feed and helps pigs reduce heat production associated with protein digestion. From an economic standpoint, reducing protein content in feed cuts overall costs, while from a health and performance standpoint, it promotes growth and gut health by reducing undigested proteins that could otherwise feed harmful bacteria.

Effectively managing heat stress on pig farms demands a strategic approach to feeding, ensuring that animals receive essential nutrients in the most readily available form for optimal absorption. By addressing the challenges of reduced feed intake during heat waves with liquid supplements and enzymes, farmers can support overall health and performance of their herds. This synergistic strategy enables farmers and animals to achieve more with less. 🐷



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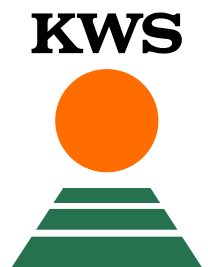
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