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Cover Photo

Carcasses at Mościbrody Meat Processing Plant, **Poland**



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Message from the editor

The Winter 2022 edition of the Canadian Hog Journal is here!

I am relatively fresh off of a trip to Poland as part of the European Union's (E.U.) 'Meat with European Quality' study tour, intended to give journalists from Canada and the U.S. an inside look at the country's meat industry. I was invited to take part in the tour, along with several other magazine editors and freelance writers from across the continent, with diverse backgrounds in food processing, restaurants and hospitality. For me, it was an incredible opportunity to gain insights from an agriculture perspective and wave the flag for our own national industry.

How do the Canadian and Polish meat sectors stack up, especially as it relates to managing African Swine Fever (ASF)? And how do these countries' foodservice sectors compare, with a focus on CO-VID-19 impacts and cultural exchange? I have tried to tackle both topics in this edition, which was a lot of fun to write and hopefully just as interesting to read.

How will ASF affect pig and pork pricing in the event it arrives in North America? Whether the virus is found in Canada or the U.S., strategies will be needed to defend the industry from financial collapse. Learn more about what some of the possibilities are and how they can be achieved.



Following a successful virtual event last year, the Porc Show - which usually takes place in-person in Quebec - replicated its digital format again this year, with a focus on market development, controlling on-farm costs and animal welfare issues. As expected, the event went off without a hitch, delivering the best experience possible for participants.

How can producers manage risk in the coming year? Hub International - a global agri-business insurance brokerage - sheds some light on what to expect.

In research, learn about emerging concerns connected to the spread of Streptococcus suis and how promoting sow health can prevent the development of intra-uterine growth-restricted piglets.

Are you reading this magazine at the Banff Pork Seminar? If you are, track me down and say hello! And if you are not at the Seminar, not to worry - we will have coverage in our next edition, published in March.

If you are unable to find me at the Alberta Pork booth, or in the Banff Springs buffet line, or at a table in the Irish pub downtown, consider sending me an email at andrew.heck@albertapork.com. I am always willing to listen to your ideas and work to find a fit in the magazine.



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Poland's lessons for Canadian pigs and pork

Andrew Heck

From the widespread destruction of the Second World War to decades of forced isolation and repression behind the Iron Curtain, Poland has suffered through miserable times more than once in the past century alone. But now, this onceclosed country has pulled back the drapes for business in many sectors, including meat.

Since joining the European Union (E.U.), in 2004, just 15 years after the country formally transitioned to democracy, in 1989, Poland has come a long way to developing its principal industries, especially agriculture. What was once driven by the need to fill production quotas to satisfy the power appetite of a strict government has grown into a blossoming, innovative and global system eager to integrate and compete with the world.

But with African Swine Fever's (ASF) continual spread between Eurasian wild boar and farms of varying size, the Polish hog sector continues to face ongoing threats to production, processing and export. COVID-19 has created additional setbacks, and lingering political turmoil is always a threat.

To the west, Germany sets the hog price, and to the east, Russia remains an important but complicated pork-buying market. A dark and tragic past still haunts Poland, and to this day, it would seem that larger, more imposing forces still have a major role to play in the country's trajectory - even in agri-food.

Unlike Poland, Canada does not have to carry so much historical baggage when it comes to doing business, even at a time when many Canadians are reexamining certain aspects of how our nation came to be. However, much like Poland, Canada has always been required to punch above its weight when it comes to being recognized on the world stage.

So how do the Polish and Canadian pig and pork industries stack up? A side-byside look at the two countries reveals some crucial insights into where Poland has been and where Canada could be go-

Polish producers find themselves in a tight spot

The Polish Union of Producers and Employers of Meat Industry (UPEMI) represents the country's hog farmers before the E.U. Since 2005, the organization has grown into a full-scale advocacy group representing producers and managing their national quality assurance program. One could liken the group to the Canadian Pork Council (CPC), with a broader scope to cover multiple livestock commodities.



No longer the daunting, forbidding country it once was, Poland's meat industry is geared toward increasing production and developing emerging markets for its pork. Warsaw's 'Old Town,' seen here, is actually a complete reconstruction after the city was levelled, in 1944.



During the 'Meat with European Quality' study tour, in November 2021, Polish government officials met with Canadian and American journalists at the federal agriculture ministry's offices in Warsaw.

"ASF and avian flu are the biggest challenges for us," said Wieslaw Rosanski, President, UPEMI. "The number of hog farms in Poland has been cut in half since 2014, when ASF first arrived here. Many smaller farmers are unable to recover and restart their operations after ASF forces them to depopulate."

While the number of hog farms in Poland has rapidly decreased, the hog herd continues to grow, thanks to the rise of increasingly larger farms. But farm expansion, for many, is limited by certain factors. As a result, the sense in the Polish industry is not entirely positive for producers, who see too many threats that are not translating into opportunities.

"Hog prices are good, but that is not enough," said Rosanski. "If farmers feel like they can be shut down at any moment, the risk is not worth it."

Government financial support is available to compensate producers for losses due to ASF culling activities, but loss coverage alone is not enough to support long-term operational sustainability.

"We have an algorithm, and it is used to determine how much should be paid to a farmer, based on current market conditions," said Ryszard Bartosik, Secretary of State, Polish Ministry of Agriculture and Rural Development. "This can be difficult for us when farmers have poor accounting, but we do as much as we can. Our government also supports farmers in ASF zones who are not positive but are affected anyway and are unable to sell their hogs."

For Polish producers, the market value of culled hogs is determined using an average of three calculations: one created by a government-appointed estimator and two by third-party auditors. However, in 2018, nearly 20 per cent of ASF-affected Polish farmers did not receive compensation, due to biosecurity non-compliance. In 2019, that number actually doubled to 40 per cent of otherwise-eligible farmers.

In the event ASF were to break in Canada, affected Canadian producers would have similarly justified concerns when it comes to compensation, along with an expectation that necessary biosecurity protocols are in place to stem the spread of disease.

In Alberta, a calculator is being developed to address costs related to destruction and disposal, as a way to effectively

and efficiently allocate resources in an outbreak. For instance, if only one farm experiences an outbreak, that may be relatively easy to contain, assuming the disease is detected early enough. But if 10 farms are affected, a whole new set of considerations and prioritizations may be in order.

"The calculator is being designed so that it can be used universally by producers of all sizes and production types," said Javier Bahamon, Quality Assurance and Production Manager, Alberta Pork. "We are developing this tool independently, to get ahead of any potential problems or delays if ASF arrives in Canada, which would be an incredibly stressful situation for many reasons."

In Poland, the typical methods for performing euthanasia are electrocution or lethal injection, though the E.U.'s preference is the use of gas, which is being employed in Germany, currently. Hogs culled on-farm are transported to a central disposal plant, which incinerates most carcasses or uses burial sites in the case that an outbreak is too large to handle through the plant. The entire process from start to finish is overseen by government officials, with secondary support provided by UPEMI.

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Whole-herd culling in an ASF outbreak places considerable financial strain on any affected producer.

In Canada, the Pan-Canadian Action Plan on ASF is supported by national and provincial stakeholders and contains four main pillars, including 'Preparedness Planning,' under which a depopulation and disposal working group operates. As part of this collaborative effort, Alberta Pork has been providing ongoing training to producers. The training involves teaching the basics of incident response, along with how to use captive bolt guns to perform euthanasia. The guns are provided free-of-charge by Alberta Pork. Nearly 80 of the province's 300 commercial farms have received training so far, with plans to increase that rate to cover as many premises as possible.

"Equipping producers to handle a culling situation is very important for us," said Bahamon. "By providing them the tools and knowledge to prepare for this circumstance, we are trying to build the confidence that they are ready to react to a disease issue."

Getting ahead of any potential outbreaks seems prudent, especially when considering what is driving the spread of ASF in Poland: wild boar. Canada, too, has a wild boar problem, which could encourage disease transmission here as well.

Poland's love-hate wild boar saga

Wild boar hunting has long been an important sport tradition in Poland. The country's abundant forest coverage creates the perfect habitat for boars to thrive, and carefully coordinated, controlled hunts are still an attractive activity in the country. Despite this, direct contact between Poland's wild boar population and mostly small farms has proven responsible for the devastating spread of ASF there and in certain countries mostly to the south and east but, since September 2020, in Germany as well.

In Canada, the growing problem of invasive, non-native wild boar at large has been plaguing farmers and landowners for some time, and it is getting worse. Wild boar were originally imported for game farming and fenced hunting purposes. Unfortunately, that plan backfired, and our country now has on its hands a truly complicated situation. Whether native or a pest, wild boar and their hybrids with domestic pigs can serve as an effective vector to spread disease.

Some prominent industry stakeholders believe that wild boar, in addition to

international transport, could combine to bring ASF to North America. It may be only a matter of time, which is why swift action is needed. The goal of eradicating wild boar in North America is an attempt to protect not only livestock and crops but also to prevent widespread environmental degradation.

"Last year, our board of directors committed \$400,000 to wild boar eradication in Alberta," said Brent Moen, Chair, Alberta Pork. "We have seen just how destructive wild boar can be, and we want to do everything we can to support the total eradication of wild boar in Canada."

The situation in Poland represents a need for ecological balance, given that the species is a part of the natural environment. However, industry stakeholders are wary of attempts by animal activists to prevent the implementation of measures used to safeguard farms against wild boar.

"Some people are very concerned about how we manage wild boar," said Jolanta Ciechomska, Manager, Quality Assurance for Food Products (QAFP), UPEMI. "But we have to protect our farms. Before any uninfected farm sends pigs to a slaughterhouse from within an ASF control zone, our government's veterinary inspectors must verify that the herd is healthy."

Poland's QAFP System, overseen by UP-EMI, can be compared to the Canadian Quality Assurance (CQA) and Animal Care Assessment (ACA) programs, or the incoming Canadian Pork Excellence (CPE) program. On-farm, the QAFP System stipulates standards for feed rations and welfare, namely. However, unlike on-farm programs in Canada, Poland's QAFP also covers poultry and animal transport, in addition to hogs.

Government veterinary inspectors play an important educational role, in addition to a regulatory one, for farmers and truckers. Veterinary inspectors ensure biocontainment measures, such as farm fencing, are adequate. E.U. regulations adopted in the last decade have aimed to bring all members states up-to-speed



At the Dwór Mościbrody hotel restaurant, a former hunting lodge, this Eurasian wild boar trophy proudly adorns the wall. In Europe, these animals have been responsibly pursued as game for ages, but in North America, the practice adds to their number and spread, making the problem worse.



At Warsaw Chopin Airport, signage instructs travellers not to bring foreign animal-based food products into Poland. In Canada, the 'Don't Pack Pork' campaign has a similar goal for people arriving here.

with modern, international expectations of meat production, which includes a critical food safety component. Not only government inspections, but regular audits by importing officials from countries like Germany and France, confirm that Polish pork exports are free of ASF.

CanSpotASF is the Canadian surveillance program that tests farms and packing plants on a risk-based level, rather than a regularly scheduled or randomly prescribed basis. No such program exists in Poland; however, the country's veterinary officials must provide a daily report to the World Organisation for Animal Health (OIE) to indicate any new ASF cases. OIE is responsible for defining ASF infected zones globally. For Canada, zoning agreements with foreign partners are key to ASF preparedness before the situation potentially becomes desperate.



On the side of a road near Gródek, biocontainment signage warns: 'Attention! African Swine Fever Affected Area.' Image © Mikołaj Grycuk.

Since 2014, more than 500 on-farm cases of ASF have been discovered in Poland, with more than 100 occurring in the past year. While very alarming on its own, it is unsurprising, given that the country has detected tens of thousands of cases in its wild boar population over the same span of time. Even if industry facilities are not actively tested for ASF, carcasses of deceased wild boar are gathered to test for the virus, and the number climbs frequently.

Canada's battle with wild boar is well underway, but critics of eradication or those who doubt the severity of the problem should seriously heed Poland's example of how these creatures can wreak havoc on the entire sector. If the Canadian industry can avoid repeating this lesson, no price is too high, and no measure is too extreme.

Polish processors eye market expansion

Just prior to ASF entering Poland, in 2013, the country sent more than 20,000 metric tonnes of pork to China, but that market has been closed since 2014. In contrast, Canada normally sends 10 times that amount to China annually. While Poland may not be on the same footing as Canada in that regard, it is widely acknowledged within the global pork industry that China holds the keys to a lot of market influences. And, for Canada, the hypothetical, long-term closure of the Chinese market in the event of ASF should be considered a red flag, especially following the situation experienced starting in mid-2019, when a dispute over veterinary certificates – largely fuelled by political tensions – caused the Canadian industry to hemorrhage money for several months.

For Polish processors, Asian marketplaces are much less important than those inside the E.U.

"Our preferred markets are Germany and Italy. We send primals and further-processed products there," said Adrian Moskwiak, Director, Mościbrody Meat Processing Plant. "We have some advantages and disadvantages for our business, but we are working hard to expand our operations."

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The Mościbrody Meat Processing Plant performs all activities from slaughter to primary processing to further processing of packaged smoked sausage products sold by national distributors under the company's own brand and under private grocery labels.

Like Mościbrody, in Canada, most major pork packers have recently announced significant building projects, optimizations or acquisitions. Examples include HyLife's construction of new barns, Maple Leaf Foods' construction of new plants, Olymel's restructuring of plant shifts and Sofina Foods' purchase of foreign subsidiaries.

However, a major sticking point for any meatpacking company's success, whether in Canada or Poland, is the availability of labour. As in Canada, Polish packers rely on a steady stream of reliable workers from abroad to fill their needs. Given political ties and labour market trends, many of Mościbrody's workers arrive from neighbouring Ukraine and Georgia (a small country south of Russia).

In addition to the technical components of operating safely during COVID-19, packers are at the mercy of hog prices, which are set by the German market. In Canada, federally inspected packers rely on data from the U.S. Department of Agriculture (USDA) to develop pricing formulas, using a combination of whole carcass and cut-out values.

"We consider the Polish market important too, of course," said Moskwiak. "For Polish retailers, products from certain countries have better reputations than others. German products are often avoided, but products from the U.K. are favourable. This includes pork. We would like Polish people to buy Polish pork, but poor consumer education means that many people are unsure of where their meat comes from."

'Eating local' may be relatively easy in Poland versus Canada, in some ways, but price and protein availability continue to wield the most power over consumers.

Pork is king on the plate in Poland

Poland loves pork. Not only in the sense of utility - as an accessible, affordable, nutritious and tasty protein - but also in the sense of national pride. Most Polish culinary delicacies involve pig products one way or the other, served up in the form of soups, stews, sausages and dumplings, with plenty of rye bread, potatoes, mushrooms and - yes, vodka - to cleanse the palate and keep dinner conversations interesting.

Unlike Poland, if ASF were to arrive in Canada, it is almost impossible to see how we could 'eat out way out of the problem.'

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'Goodvalley' brand sausages are distributed in Poland, Ukraine, Russia and Denmark, aimed at sustainability-conscious consumers. Seen here at SPAR in Warsaw, an independently owned grocery store belonging to a Dutch chain. The packaging includes a QR code that conveys information related to traceability.

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While supermarkets have become the dominant manner of selling pork to home consumers in Poland, some still frequent local butchers for highend domestic and imported products. This store, Befsztyk, also accepts online orders, for delivery.

With 70 per cent of all Canadian pigs and pork produced ending up on the export market, it would be a monstrous task to think that the Canadian public could put a dent in the stockpile of pork that would result if our foreign markets suddenly closed their doors.

Currently, Poland exports close to 30 per cent of its produced pork, about 80 per cent of which ends up in other E.U. states. Given domestic demand, Poland remains a net-importer of pork. This is a major advantage to overcoming the constraints of ASF zoning, which differs greatly from the situation in Canada.

Today, Canada has a population of just over 38 million, while Poland sits closely at just under 38 million. The average Canadian currently consumes less than 20 kilograms of pork per year, while the average Pole consumes about twice as much. While Poland already has ASF, the country's strong pork-eating culture leaves the industry with some options when export market options are curtailed. It would be incredibly optimistic to believe Canada has the same cards in our hand to play. Poland has an additional supplementary benefit, which is funding from the E.U. to promote the consumption of European food products.

"While Canada's pork export markets are certainly a hallmark of our success, we are also working with our provincial hog producer boards to increase the proliferation of Canadian pork at the domestic retail and foodservice levels," said Jeremy Yim, Director, National Marketing, Canada Pork. "As time goes on, Canadians are becoming more interested in creative ways to use pork, which is driving Canadian end-users to provide new offerings and experiences for customers."

Much work has been done by Canada Pork for the last three decades to support the competitiveness and sustainability of the Canadian pork value chain, including the promotion of domestic pork consumption. But despite

these worthwhile efforts, it is almost certainly not enough to counter-balance any potential trade disruptions and domestic over-supply of pork if ASF were to break.

Essentially, while Canada and Poland are similar in size and can lay claim to having robust pig and pork sectors, one is poised to effectively 'live with' the ASF situation (Poland), while the other is seriously threatened by the thought of it (Canada). Increased globalization both helps the industry flourish financially and has the capacity to end it altogether.

Poland and Canada's connected

The Polish and Canadian pig and pork sectors share some notable features but are also distinguished by some vast differences. All in all, both jurisdictions are working hard to gain muchdeserved global recognition.

When it comes to managing swine disease, Poland's ASF crisis may not appear

nearly as bad as it is. Remarkably, the Polish industry has been able to quietly continue operating under what has basically become an endemic situation for ASF in that country. Surely, if Canada were to face the same conditions as Poland, a much different result would be the consequence.

For Canada, the industry has operated under a free market economy since the beginning, and Canadians have long been fortunate to enjoy certain rights and freedoms that Poles, at one time, could only dream about.

Nevertheless, both the Polish and Canadian industries have demonstrated their willingness to work with partners across the value chain, even if some hiccups cause occasional problems. For Poland and Canada, strong, ambitious pig and pork sectors have plenty of chance to thrive, and the coming years should spell room for growth.



Warsaw's bustling financial district is the backdrop for the former 'Palace of Culture and Science,' commissioned by Joseph Stalin, in 1952, completed in 1955, when Poland was under Soviet influence. The country has changed dramatically since then.







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Porc Show covers markets, farm costs and more

Andrew Heck

The Porc Show's virtual format returned for three consecutive weeks on Nov. 23. Nov. 30 and Dec. 7, 2021, welcoming nearly 1,000 guests tuned in from around the world. It was the eighth edition since the event's inception and the second one held virtually, in light of COVID-19 concerns. The event was held in-person in Quebec City from 2014 to 2020.

"It's a very dynamic sector, and in the last five years, we've seen great growth... But sometimes, if we take a closer look, we can see there's been trouble as well." said André Lamontagne, Minister, Quebec Agriculture, Fisheries and Food. "There are issues on the farm but also at the processing level. We can hope to see progress in the short term."

While the event's stunning location was greatly missed again this year, each day of the Porc Show featured multiple presentations on a variety of compelling topics, from pork market development, to managing on-farm costs, to promoting pig health and more.

Pork markets at the mercy of the pandemic, politics

Zhan Su, Professor & Chair, International Business, University of Laval believes that China will continue to be a thorn in the side of international pork traders. A reported rapid herd recovery from African Swine Fever (ASF) is looked upon dubiously by many porkexporting countries, including Canada, but larger geopolitical considerations could continue factoring into the market's ebb and flow.

While China would love to become more self-sufficient and curb its reliance on foreign pork, imports have surged in the last decade, now composing 10 per cent of the total volume of pork consumed domestically. Prior to 2008, China was a net exporter of pork. That year, the country imported less than 500,000 metric tonnes, and by 2020, it was importing more than 4.5 million metric tonnes. Even if ASF recovery happens



For the second year in a row, the Porc Show's quests will not be treated to the beautiful sights and sounds of Quebec City, but the programming has remained as high-quality as ever.

as the Chinese government reports, pork from the Americas, Europe and Australia should remain desirable for years to come.

Rob Murphy, Executive Vice President, J.S. Ferraro - a Toronto-based meat and livestock market analysis firm - takes a less optimistic position on the Chinese market.

"Some time in the summer of 2021, the Chinese hog price dropped below the cost of production and has stayed there ever since," said Murphy. "They will still be importing pork, but it won't be nearly as strong as the height of the ASF problem in 2020."

Murphy also thinks the U.S. hog herd could shrink in the first quarter of 2022, reducing hog availability and increasing hog prices for farmers, but numbers are expected to rebound in the second and third quarters, which could drive prices significantly lower.

"On average, for 2022, we end up with a cut-out in the mid- to lower-\$80 value, which isn't bad, historically, but it's still quite a bit lower than the past year," he added.

COVID-19 has a role to play on the processing side as well, as government-issued income supports for meatpacking plant workers may have collectively, artificially inflated incomes beyond the pre-COVID-19 growth trend, which has pulled some workers away from the sector altogether, adding to the existing problem of labour shortages, labour cost inflation and food price inflation for consumers farther down the value chain. However, these same income supports, taken together with foodservice restrictions, have driven pork demand at retail in the U.S., as more consumers are cooking at home, and as chicken and beef prices soar.

For Jan Peter van Ferneij, Senior Animal Protein Analyst, French Technical Institute of Pork (IFIP), global pork supply and demand may reduce in step with each other in the coming year. European Union (E.U.) exports to China dropped dramatically in 2021 compared to the past two years, but a projected decline of hog production in the U.S. could result in tighter inventories.

"For Canada, the consequences are the same. This year, China will not main-



The Tianzow breeding farm is a 'hog hotel' in China's Sichuan province. A desire to recover from African Swine Fever (ASF) and reduce pork imports is driving rapid infrastructure expansion in the country.

tain the same demand as last year," said Van Ferneij. "For now, we're not seeing Russia much on the international scene, but things are developing in a sustained manner. Russia is suffering from ASF, and this is going to jeopardize their export ability, but if there is demand, Russia will develop exports. We will see this production uptick."

In addition, Van Ferneij believes ASF's expansion to new countries, social pressures, labour shortages and changing consumption patterns will play a role in the markets going forward.

Managing on-farm costs for better returns

The skyrocketing relationship between cost of production and its direct link to feed costs has dominated the discussion for producers in the past year. Of all the proposed solutions, Daniel Leblond, General Manager, Groupe Porc LV Inc. a 1,200-sow farrow-to-finish operation southeast of Quebec City - believes the most credible solutions are found within producers' own operations.

"You need fixed points that allow you to look at the data and react accordingly," said Leblond. "Risk management is a work tool within the business, and it will become more accessible for everybody. We used to need complicated math, but now we have tools that allow it to be done on a smaller scale. You need to understand your production costs. Accounting should look at a range of three to five years."

Underscoring the importance of forward thinking, Leblond reminds producers to be patient and thoughtful toward

the bigger picture, rather than seeking short-term gain.

"The day you know your production costs, you can see your weaknesses and strengths," he added. "It's not just risk management, but when you know those costs, the risk manages itself. Making a profit of \$10 per pig for 10 months is better than making \$20 per pig for just two months."

The often-unseen or less considered aspects of production costs include everyday equipment maintenance. If an ounce of prevention is worth a pound of cure, farm loss prevention expert Jean-Claude Fecteau, President, In-Prev Inc. believes neglecting to fix minor issues within a barn can transpire into much larger problems down the road.

Electricity is the main cause of fires and losses in agriculture, which is why it is important to ensure work is being done properly, with attention paid to waterproofing and rodent-proofing especially. As an example, in winter, mice crave the heat generated by electrical panels and will make a home on the inside if there are gaps in the panel cover. This can go unnoticed if the panel is not being regularly checked. Generators, too,

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Understanding cost of production is key to keeping margins positive for producers, according to Daniel Leblond (right). But a true understanding takes a commitment to properly gathering data over multiple years.

can be an ignored source of overheating and fire. Annual or bi-annual inspections by professionals are recommended, along with heat alarms for electrical panels.

Heating equipment itself can also become damaged over time and with the change in seasons. Proper suspension of equipment from barn walls and ceilings is necessary so that corrosion does not result in critical failures that send objects crashing onto the floor.

Promoting pig health and welfare

As feed represents the most significant consideration in cost of production, sow feeding may be worth a fresh look, according to Bruno Silva, Professor, Pig Nutrition and Environmental Adaptation, University of Minas Gerais (Brazil).

"Heat stress is the first limiting factor for feed intake. But, in reality, feed intake is just one of the factors related to metabolism," said Silva. "If I let the sow decide how she wants to eat during gestation, how will she?"

Feeding sows a very starch-heavy diet, manually, only once a day can lead to

what we as humans understand as the "McDonald's effect" - the feeling of lingering hunger and increased agitation despite having eaten a large quantity of food. On the contrary, sows fed precisely calculated diets, using free-access systems, have lower cortisol levels (indicating less stress) than sows fed in certain conventional ways, such as using troughs positioned next to gestation crates. Lower stress equals better nutrient absorption. The use of group sow housing has an inherently beneficial impact here, and the inclusion of a fibre supplement can also slow the metabolism of glucose, which helps sows feel fuller longer.

"You will have some sows that fall within in an ideal range, some with metabolic disorders and some that are below potential," said Silva. "Understanding each type will help formulate diets... The way you feed your sow during gestation will affect her feed intake during lactation."

While sows today have a higher metabolism than in years gone by, reducing the overall need for feed intake, it is worth noting that sows do not stop growing themselves until after their fourth parity, and with each parity, a sow must still expend a large amount of energy, on account of lactation. By using best management practices in gestation, energy expense for the sow can be more efficient, which aids in her post-farrowing recovery and can lead to cost savings.

Even as some producers express reservations when it comes to converting to group sow housing, Yolande Seddon, Professor, Swine Behaviour and Welfare, University of Saskatchewan believes the transition has value, recognizing the large capital cost associated with making the change.

"When a producer is familiar with these systems, you can have similar performance between a free-farrowing system and a farrowing crate system," said Sed-

In Europe, where animal welfare is generally considered to be more progressive, support for greater welfare has become an increasingly important demand. In Germany, state-level welfare labelling for animal-based food products at retail is supported by more than 80 per cent of consumers. In Spain, the existing labelling system includes a tiered ranking that considers everything from



While the idea of 'intuitive eating' (what you want, when you want) is becoming popular in human society, allowing sows open access to varied diets can help them process feed more efficiently.

minimum E.U. standards up to additional improvements related to space, pain management and enrichment.

As in Europe, analgesics are required in Canada for pain management in tail docking and castration at any age, but this is not the case in the U.S. For that reason, Seddon believes Canada is better positioned in this regard, as it relates to satisfying modern demands. In most parts of Asia, animal welfare standards are considerably lower or non-existent, but in Brazil, standards are being brought up to match some of the more progressive systems in the world, as a way to secure market access.

"Globally, there is an obligation to provide appropriate care for animals," said Seddon. "The expectation is that good animal care means good food safety. Animal welfare is part of product quality and, therefore, forms part of this trust."

Looking forward to the 'new normal'?

Last year, as COVID-19 fatigue had already set in for many, there was faint hope in-person gatherings could be held again at the same time this year. For some events across the country, this has been the case, but for many others yet, the situation has not improved enough to generate the necessary confidence to make the commitment.

Nevertheless, the Porc Show's organizers have done an impeccable job delivering this major bilingual conference virtually, even incorporating some 'normal' aspects in addition to presentations, such as a digital networking space and recognition for Quebec food.

The Porc Show's 'Cook It' box, available by mail for participants in Quebec and Ontario, featured a delicious-looking pork shaobing recipe for entertaining a party of four. The box was created by

chef Anita Feng, proprietor of a new Chinese eatery in Montreal, J'ai Feng. The box is cleverly designed to bring a taste of hands-on fine dining into the homes of those who chose to order it.

The 'Cook It' box, along with a culinary student competition, brought a muchdesired personal element into the event beyond the conference basics. These efforts do not go unnoticed, especially when guests are left wanting the human connection that is sadly lost with virtual events.

From pork market development, to managing on-farm costs, to promoting pig health and the extra perks afforded by the program, the Porc Show is a reminder for the entire Canadian pork sector to continue the conversations, inspiration and dedication that shape the resiliency of everyone who strives to make the industry great, even during troubled times.



The Porc Show's 'Cook It' box featured all ingredients to prepare pork shaobing - a shallow-fried stuffed bun - at home, in addition to a video tutorial demonstrating the process.

Pricing pigs in a disease crisis

Bijon Brown

Editor's note: Bijon Brown is the Production Economist for Alberta Pork. He can be contacted at bijon.brown@albertapork.com.

The impact of African Swine Fever (ASF) on markets in Asia and Europe continues to be a tale of woe for the global pig and pork industries. With ASF's arrival on the doorstep of the Americas - in Haiti and the Dominican Republic - we are reminded just how close it is to the continental U.S. and Canada.

The discovery of ASF in either the U.S. or Canada would mean significant losses of pigs, pork and, ultimately, profits for the entire industry, including farmers and meat packers. To mitigate these possible economic impacts, we must take a closer look at how our national industries are linked and what some of our options are.

Canadian pig and pork markets are highly dependent on the U.S., as dictated by hog pricing data collected by the U.S. Department of Agriculture (USDA), which informs hog prices paid to producers by export-certified 'federal' packers overseen by the Canadian Food Inspection Agency (CFIA). As of September 2021, Canada had exported nearly 300,000 metric tonnes of pork to the U.S., in addition to nearly four million weaners and more than one million finishers, breeding stock and cull hogs. These cross-border movements have generated more than \$500 million in revenue.

In contrast, just over 150,000 tonnes of U.S. pork made its way to Canada during that same time, and Canada is not a major importer of live hogs. The sheer size of the U.S. market dwarfs the Canadian market, which is why it is even more important for the Canadian industry than the U.S. industry to evaluate its position in response to ASF. This poses an interesting dynamic if ASF enters either of our countries, significantly impacting Canadian producers and packers either way.

What to expect if ASF enters the U.S. first

The U.S. consumes about three-quarters of the pork it produces, and the remaining one-quarter is exported. In the event ASF enters the U.S., the country would still be awash with pork.

The U.S. hog price is quite responsive to the pork export price. Specifically, a one

per cent fall in the price of pork exports is expected to lead to a 2.4 per cent decline in the price of hogs. This, however, is an incremental relationship characterizing the impact of small changes in the export price.

For an abrupt loss of the export market, alternative approaches would be required. Almost overnight, U.S. pork prices could fall by one-quarter, without even considering the price effect of excess supply sitting on the domestic market - unable to be moved outside the country. Hog prices are even more volatile than pork prices, so the shock to the hog price would be even more significant. Nevertheless, this price drop is not expected to be permanent, as producers would adjust to the new pricing signals they face and ease production. In time, domestic demand will take care of some of the excess supply, and markets will stabilize, albeit at a lower price.

Since Canadian packers rely on U.S. prices, it is expected that Canadian hog prices would fall sharply even though ASF had not entered Canada. Such a price drop in the immediate term would be a great benefit to Canadian packers, as they would be able to purchase market hogs at ASF-weakened prices and sell the pork at a premium on the world market. Producers, on the other hand, would be left to bear the immediate burden. However, if such conditions lasted for any length of time, many independent producers would be forced to quickly exit the industry, which would seriously dwindle available hog supply for packers. As such, the medium- to long-term outlook would be bleak for everyone.

What to expect if ASF enters Canada first

If ASF enters Canada before the U.S., our industry picture will be even darker for producers and packers, as our exportdependent supply - representing about



Whether African Swine Fever (ASF) breaks in the U.S. or Canada, the situation would be a disaster. With the discovery of ASF in the Caribbean, U.S. officials are paying close attention to their overseas territories, like Puerto Rico.

Estimated impact of U.S. pork export ban on domestic pork prices

	US Domestic Consumption	Exports	Total	% change
2021 USDA projections (MT)	9,799,000	3,265,000	13,064,000	
Estimated Price per Kilogram ^{a, b}	1.07	2.77		
Estimated Revenue Projected	10,493,749,100	9,044,050,000	19,537,799,100	
Estimated Revenue (No Exports) ^c	13,990,237,600	0	13,990,237,600	-28.4

*LM_PK602 carcass cutout average for 2021 is used as a proxy for the US domestic pork price. *The average 2021 price computed from the USDA FAS database. This not take into account the effect that excess supply will have on domestic pork prices and so the decline in pork prices is expected to be greater than reported.

Source: USDA Livestock and Poultry World Markets and Trade report, LM-PK602, USDA Foreign Agricultural Service

U.S. hog prices would tumble in the event ASF enters the country, which would also have a dramatic impact on prices paid to Canadian producers. Canadian packers, however, may stand to gain.

70 per cent of all pig and pork production in the country - would be left without an end destination. With domestic Canadian pork consumption of around 800,000 tonnes per year, it would take more than two years to get through one year's worth of production. Consumers would need to more than double their consumption of pork to overcome this surplus - completely unreasonable.

Managing the crisis from a pricing standpoint - which is only one part of the much larger puzzle - would require significant adjustments at all levels of the value chain, but especially at the producer level. Supply regulation would be required swiftly, as well as a robust price support program to help the industry navigate the prospect of near-total decimation.

The relationship between U.S. and Canadian hog prices is a one-way street. ASF in Canada would not impact U.S. prices, and the market signal would actually prompt U.S. producers to increase production to fill the gap left by the absence of international Canadian pork exports. Inversely, Canadian producers would need to make substantial cuts to production, in response.

Canada, being an isolated market, would therefore require a domestic price

to reflect the new situation. Currently, there are no mechanisms available to collect domestic pricing information provincially or federally. Without a handle on domestic prices, government support would need to kick in, if producers and packers have any hope of recouping losses. Even so, compensation rates would need to be tied to current market prices, but if there is no way to collect this information, governments would have no basis on which to assess the scale of losses. Urgent attention, therefore, ought to be placed on creating transparent pricing information.

The direct hog price impact is just one angle of the larger financial impact. The shock to the system will increase the anxiety levels of lenders who may want to call outstanding balances to be repaid and cut off existing credit lines. Financing is the lifeblood of many farming operations, and if these supports disappear, it would create substantial difficulties for many businesses.

CONTINUED ON PAGE 20



With 70 per cent of Canadian pigs and pork bound for global markets, a widespread export ban would close international borders immediately.

Sooner than later, price transparency discussions need to take place. Governments already have experience dealing with this kind of mass crisis, given the COVID-19 income support response, but will they be open to talking ASF? It is worth considering that COVID-19 has affected millions of Canadians, while ASF's impact, however terrifying for our industry, would be much smaller in its reach. It is incumbent upon pork industry stakeholders to act now, rather than wait for solutions to fall into place.

Producer-packer risk-sharing may be optimal

Recognizing that few good pricing options exist for the Canadian industry in the event of an ASF outbreak, even in the U.S., our national industries could continue to operate under the existing framework, or employ a risk-sharing model backed by government support for transparent pricing information, or implement a price floor for hogs to prevent a rapid decline that would cripple farmers financially.

If everything stays the same, prices will continue to be based on what happens

in U.S. markets. The only support to producers would be voluntary hog price insurance or business risk management programs like AgriStability. Current hog price insurance premiums are considered prohibitively high, and uptake of hog price insurance has suffered, as a result.

Even if AgriStability were to be triggered, provincial and federal governments may have the option of introducing a price floor, which would soften the blow of losses. Price floors are not new; in fact, they were used in the U.S. during the Great Depression. A price floor in the case of ASF would not require government funding but rather legislation that dictates hog prices cannot fall below a minimum threshold for producers. Importantly, Canadian packers would not suffer from this kind of support to producers, as U.S. packers would be absent on the global market, providing considerable leverage for Canadian exports, which would spell higher pork prices.

But what would be the ideal price floor to protect producers while also ensuring packers can continue to profit? Establishing an effective price floor requires transparent, Canadian-based hog pricing data. By sharing revenue more equitably across the value chain, governments can have confidence that our industry is doing everything it can to defend itself, rather than looking for handouts.

As an alternative to price floor legislation, the industry could, perhaps, come together and solve the problem without government intervention. If producers and packers could agree to share the revenue and risk from pork sales, many of the potential hurdles to insulating the industry against losses in the event of ASF would disappear naturally. Such an arrangement would correct the hog pricing signal mismatch between the linked U.S. and Canadian markets, and it would facilitate more equitable distribution of profits while satisfying government.

Zoning could alleviate some pressures

Zoning is the unsung but somewhat unreliable hero of ASF preparedness. Many efforts are being made to negotiate zoning agreements with Canada's major pork-trading partners – including successful ones with the U.S., European Union (E.U.), Vietnam and Singapore – but notable liabilities still remain with important countries like China and Japan, especially. China's track record in this regard is predictably poor for any country that finds itself impacted by ASF, but Canada's long and trusted relationship with Japanese buyers is one that our industry is keen to preserve.

In the case ASF enters the U.S. first, Canada would been seen as an easy outlet for surplus U.S. pork. It could be expected that a flood of U.S. pork would arrive in the Canadian domestic market. Given the pricing linkage, this would actually help alleviate the dip in U.S. pork prices, positively impacting U.S. hog prices and consequently helping Canadian producers a bit.

In the case ASF enters Canada first, producers in non-infected zones would still be able to ship pigs to packers, and that



By working together, Canadian producers and packers can find solutions to the ASF pricing problem, but not without price transparency.



Zoning agreements are important in the event ASF enters Canada, but it remains to be seen whether they will be honoured. Image © S.C. Jiang.

pork could continue moving into the U.S. Likewise, the movement of weaners and culled hogs, primarily, would be allowed. However, it would be unsurprising to see a significant price discount for Canadian shipments, which would still result in major losses across the value chain. Despite that reality, zoning arrangements may help the cause of ASF recovery, but this assumption relies on these agreements being honoured in the time of actual crisis, which is never guaranteed.

The time to act is now

Through the introduction of price floors, zoning agreements and other work being done to prevent and prepare for ASF, profit- and risk-sharing options are on the table for the Canadian pork industry if hog price transparency is established.

It is worth noting that the expectation of government support should not be the default position of the industry in the event ASF arrives. A more workable approach is to seek solutions internally - among industry stakeholders - to ensure that ASF's devastation does not spell our complete demise. Urgent action is needed.

The Next



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Managing agri-business risk in the coming year

David Laks

Editor's note: David Laks is Vice President & Risk Control Services Manager for Hub International, a global agri-business insurance brokerage. For more information, contact Jenna Shields at JSC.Jenna.Shields@hubinternational.com.

If there is one word that can describe agri-business, including the hog sector, it would be 'unpredictable.'

In 2021, farms and food manufacturers had to deal with a record number of weather-related challenges, ongoing labour shortages and an increase in cyber attacks.

In particular, labour shortages, often stemming from lower numbers of Temporary Foreign Workers (TFWs), have affected several points of the supply chain from the barn to meatpacking plants to transport logistics. In fact, more than five per cent of TFWs in Canada used to work in the hog sector. Of course, the labour shortage in agri-business – like in most industries – may actually be pushing the industry toward automation.

Hog farmers and pork processors will need to plan and prepare for 2022. Whether running a family farm or a major corporation, industry players and their partners will need to lean on their experiences to cope with risks.

Managing the impact of weather threats

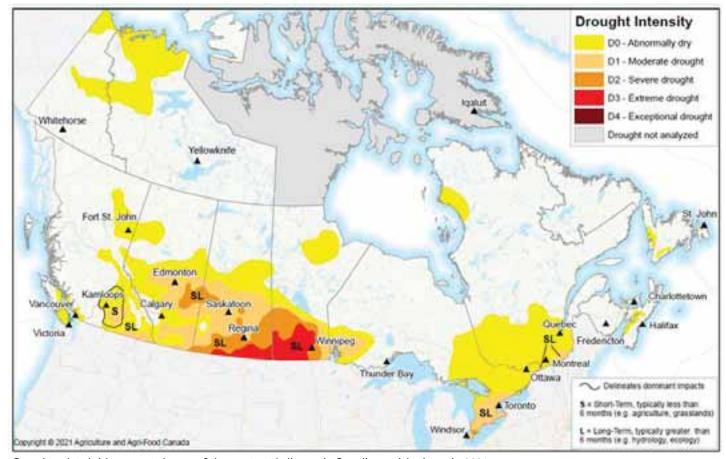
It is impossible to predict the next catastrophic storm, but it may be a good idea to assess a farm's vulnerability to extreme weather through catastrophe (CAT) modelling.

If 2020 was the year of the pandemic, 2021 was the year of catastrophic weather. Western Canadian provinces were especially hit hard, with heat waves, severe drought and wildfires taking over

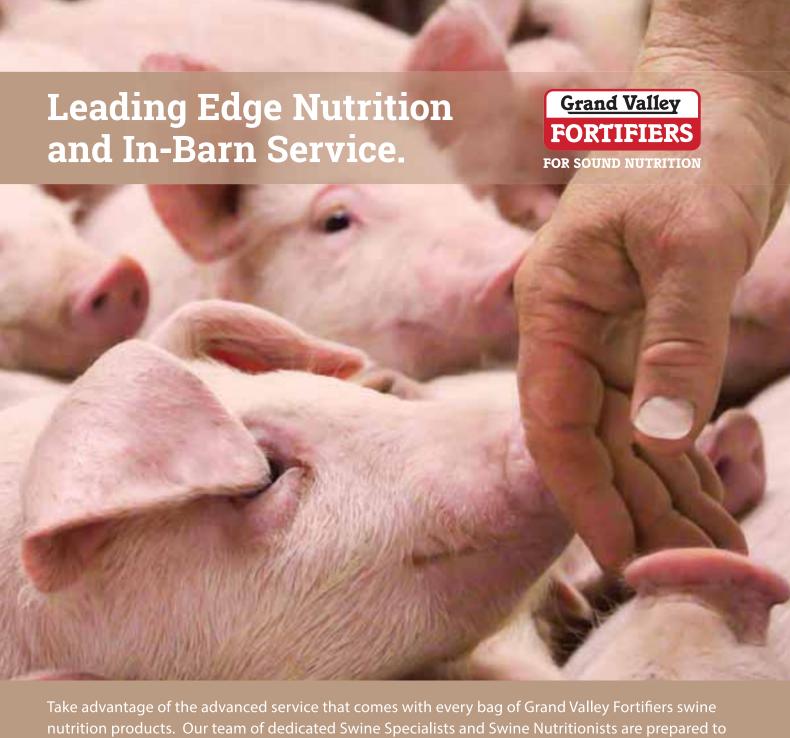
headlines last summer. And weather conditions brought challenges to farms and food manufacturers around the world, including frost damaging Brazil's coffee crop and floods in China affecting livestock and meat processing.

Farmers and processors are taking steps toward risk management measures to ensure resilience, including securing adequate insurance coverage through government programs or private markets. Working with brokers to develop CAT modelling capabilities can help secure insurance, demonstrating to underwriters the strengths and vulnerabilities an organization has to extreme weather.

For processors, it is imperative to secure adequate supplies in the face of weather CONTINUED ON PAGE 24



Drought-related risks generated some of the greatest challenges in Canadian agri-business, in 2021.



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1-877-625-4400 grandvalley.com catastrophes, requiring stronger supply chains, alternate materials sourcing and proper insurance to guard against shortages.

Climate issues encourage water conservation

In 2021, the severe drought in western Canada highlighted the need for water conservation.

The record-setting drought, which has hit nearly every province across the country, is the worst nationwide in nearly 20 years. Farmers are beginning to recognize the long-term effects of climate change, adopting more sustainable practices to improve resilience. With less rain and warmer temperatures overall, crop yields decreased considerably.

As a result of the recent weather extremes, there will be a greater focus on water and energy conservation. Attention to costs and climate change will lead agri-business in general - and hog farmers, in particular – to minimize use of fossil fuels.

Taking precautions around allergens

For many food suppliers and manufacturers, allergens remain a major problem. Between 2015 and 2020, undeclared allergens represented more than one-third of all food recalls across Canada.

Proper risk management requires that special attention be paid to thorough, reliable and consistent cleaning of manufacturing equipment, as well as ensuring that food products are free of contaminants.

Depending on your organization, it may be a good idea to secure product recall insurance and product liability coverage. These policies protect food manufacturers from the high costs of product recalls and liabilities, both in terms of dollar amount and in terms of your reputation.

Approach automation with caution

JBS Foods - the largest meatpacking company in the world - paid more than \$10 million in ransom after a cyber attack disrupted its North American and Australian operations.

This example of increased technology use leading to greater risks for the industry hit close to home for many farmers and processors, who were looking to increase automation to combat labour shortages, where possible. Generally, automation has been a godsend, particularly in manufacturing; it improves efficiency and quality control, with less reliance on human subjectivity.

Yet, the risks are not just financial. JBS had to halt cattle slaughtering at all its U.S. plants, as well as operations at its plant in Brooks, Alberta - about 200 kilometres southeast of Calgary - for a whole day. In addition, since JBS processes more than one-quarter of all beef in Canada, a longer shutdown would have led to disruptions in food supply chains and added to rising food prices. It could have impacted the organization's reputation as well.

Keeping cyber security in mind means finding proper insurance coverage to



Widespread drought in 2021 made it clear that water is precious. In response, the Government of Alberta committed more than \$900 million toward irrigation sector projects.



JBS Foods was hit with a massive cyber attack this past year. Alberta Premier Jason Kenney toured the JBS plant in Brooks, Alberta, in December 2018.

protect your organization from cyber attacks. Because of the increase in cyber crime, cyber insurance in agri-business is expected to increase by 20 per cent or more in 2022.

The importance of prevention and deterrence cannot be overstated. Third-party audits, multi-factor authentication and employee training are essential. For cyber criminals, complacency is almost an invitation.

Getting yourself prepared

With so much that hog farmers and pork processors cannot control, it has never been more important to focus on the things you can control. Mitigating risk through CAT modelling, paying attention to weather events and water conservation, taking precautions with allergens and enhancing cyber security can help organizations find their balance in the coming year. Consult with your insurance broker to prepare for what lies ahead.





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Hogiournal News and Views

Federal funding for Canadian pork sector



Marie-Claude Bibeau, Minister, Agriculture and Agri-Food Canada announced new funding for the Canadian pork industry during a virtual address at the Porc Show.

Marie-Claude Bibeau, Minister, Agriculture and Agri-Food Canada announced in early December an investment of more than \$4.6 million to grow the Canadian pork industry and defend against the threat of African Swine Fever (ASF).

Funding of more than \$550,000 will support the Canadian Pork Council's (CPC) national marketing activities, along with \$850,000 to help prevent and prepare for ASF, building on more than \$3.8 million in funding announced in 2019 for the Canadian Pork Excellence (CPE) program.

"We are pleased with the investment to better prevent and prepare for the eventuality that an ASF outbreak could occur in Canada," said Rick Bergmann, Chair, CPC. "Canada's pork producers look forward to increasing our sector's resiliency and advancing our contributions to Canada's environmental, economic and social sustainability."

Through an investment of more than \$3.2 million, Canada Pork will undertake initiatives to maintain and improve access to pork export markets.

"Canada Pork would like to thank the Government of Canada for its ongoing support for the Canadian pork industry," said Trevor Sears, President & CEO, Canada Pork. "This funding will also help us tell the remarkable story of how the

industry has grown in a sustainable manner, while contributing to almost 100,000 iobs in Canada."

Canadian Pork Council names executives

During the Canadian Pork Council's (CPC) fall members' meeting in late October, the latest board of directors was named, along with an elected executive for 2022. Rick Bergmann from Manitoba was re-elected as Chair, René Roy from Quebec was re-elected as First Vice Chair, Doug Ahrens from Ontario was re-elected as Second Vice Chair and Jack DeWit from B.C. was re-elected as Treasurer.

"Representing our 7,000 Canadian pork producers at the national level is important and rewarding work," said Bergmann. "The Canadian hog industry is a vital contributor to the country's economy, and I look forward to working with my colleagues to address the many challenges and opportunities we will meet over the next year."

Chris Cossitt from Ontario has joined as a director, replacing Eric Schwindt. Brent Moen from Alberta, Casey Smit from Saskatchewan, Scott Peters and Claude Vielfaure from Manitoba, Yvan Fréchette from Quebec and Hans Kristensen from the Maritimes remain as directors.

Ag leadership changes centre on Alberta

John Barlow, Member of Parliament (MP), Foothills (Alberta) was named Shadow Minister for Agriculture, Agri-Food and Food Security in early November, after previously serving in the same capacity, along with roles as Shadow Minister for Employment, Workforce Development and Labour, and Interprovincial Trade.

"The importance of Canadian agriculture to our national interest cannot be overstated," said Barlow. "I look forward to once again working with stakeholders from across Canada and championing Canadian agriculture."

Marie-Claude Bibeau, MP, Compton-Stanstead (Quebec) was previously renamed as Minister of Agriculture and Agri-Food Canada, as part of Prime Minister Justin Trudeau's first cabinet



John Barlow

postings since the Liberal government's re-election in September.

In Alberta, a changing of the guard occurred in early November when Devin Dreeshen, Member of Legislative Assembly (MLA), Innisfail-Sylvan Lake stepped down as Minister of Alberta Agriculture and Forestry. With Dreeshen's resignation, Nate Horner, MLA, Drumheller-Stettler was named Minister of the re-titled Alberta Agriculture, Forestry and Rural Economic Development, combining Horner's existing role as Associate Minister for Rural Economic Development.

"Agriculture is a key component of Alberta's economic recovery, and the Canadian Agricultural Partnership will be critical to maximizing Alberta's ability to create jobs and support growth in the agri-food sector," said Horner. "In my expanded role, I look forward to working with our federal and provincial colleagues to advance sustainable agriculture and sector competitiveness."

Swine Innovation Porc welcomes new executive

Swine Innovation Porc's (SIP) board of directors elected Arno Schober in mid-September to lead the organization as its new Chair. Schober has been a SIP board member since 2015 and has served as Treasurer since 2019. He also serves as Vice Chair for Ontario Pork.





Arno Schober and Tara Terpstra

"SIP has evolved over the years, and I look forward to leading the charge in facilitating industry-led research solutions for the pork industry," said Schober. "I am very proud of the work the organization has accomplished to date, which includes over \$50 million invested in research initiatives."

In addition to welcoming Schober in his new role, the board also elected Tara Terpstra as Treasurer to fill Schober's void. She also serves on a number of other boards, including as Chair of the Research Committee at Ontario Pork and also as a member of Livestock Research Innovation Corporation and Prairie Swine Centre. SIP's outgoing Chair, Stewart Cressman, was in that position since 2013 and has been with the organization since its founding in 2010.

The Canadian Pork Council (CPC) and provincial pork producer organizations across Canada fund sector research through SIP. Research directed through SIP is intended to benefit producer profitability and industry sustainability.

Ontario funds ASF prevention efforts

The Government of Canada and Government of Ontario are investing nearly \$3 million in three new initiatives as part of a coordinated effort to enhance biosecurity and support the Ontario pork sector's African Swine Fever (ASF) prevention and emergency preparedness efforts.

Starting in early November, a targeted intake under the Canadian Agricultural Partnership (CAP) has provided funding to Ontario pork producers, processors and other agri-businesses to support their training, education and planning, as well as for supply and infrastructure

investments. The goal is to support industry businesses and protect the herds and livelihoods of Ontario pork produc-

"Our role in government is not just to react to what happens in Ontario but to also be proactive to help mitigate risks to our agri-food sector and our food supply," said Lisa Thompson, Minister, Ontario Agriculture, Food and Rural Affairs. "The recent detection of ASF in the Caribbean and the devastating impacts it has had in Europe and Asia are a good reminder to tighten protections all along the pork industry value chain."

Additional CAP funding will be allocated for education outreach and awareness for small-scale producers. Targeted financial support will also be provided to help phase out farmed wild boar operations, and a ban on wild boar hunting is part of recognizing the threat they pose.

Banff Pork Seminar inperson and virtual this vear

The Banff Pork Seminar is breaking new ground in mid-January, allowing participants the option to attend in-person or virtually.

"This pandemic has been a time of significant change that has required patience in planning events," said Ashley Steeple, Coordinator, Banff Pork Seminar. "The safety of our delegates is of utmost importance, and we are taking steps to ensure that we host a well-managed and safe experience, in keeping with mandated COVID-19 protocols."

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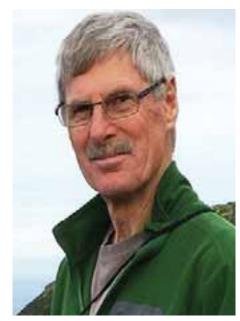


News and Views

Steeple also expects the virtual option to attract strong interest. Plenary sessions will be broadcasted live, and breakout sessions will be recorded and distributed following the Seminar. The event will also feature a 50th anniversary celebration originally planned for last year.

Long-time swine researcher passes away

Long-time swine researcher and industry advocate, George Foxcroft, passed away in early December. The decorated academic was sponsored by Alberta Pork in 1988 to move to Canada from the U.K. as a research chair at the University of Alberta. He led the Swine Reproduction-Development Program there until his retirement in 2012, when he became a professor emeritus.



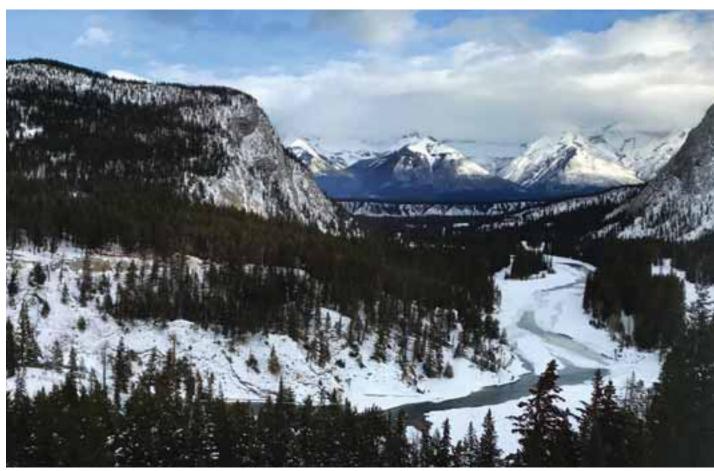
George Foxcroft

"George was a global leader in the field of regulating ovarian function and early pregnancy loss, and he was the Canadian authority in understanding reproductive physiology of the pig," said Ruurd Zijlstra, Professor, Department of Agricultural, Food and Nutritional Science; Faculty of Agriculture, Life & Environmental Sciences; University of Alberta. "Throughout his research career, George focused on maintaining a two-way dialogue with the industry to understand their problems and success. His goal was always to 'bring research to reality."

Each year, Foxcroft's legacy is honoured during the Banff Pork Seminar with the 'George R. Foxcroft Lectureship in Swine Production.' The lectureship was established in 2013 to recognize outstanding international pork industry representatives and cover their costs to attend and present at the event.

Topigs Norsvin research funding and new barn

The Government of Canada and Government of Manitoba announced an investment of \$2.2 million in late November for three research projects to be conducted by Topigs Norsvin, with a goal of enhancing the competitiveness of Manitoba



Following a one-year hiatus, the Banff Pork Seminar returns to the Fairmont Banff Springs for the 2022 event.

hog farmers in the areas of precision sow feeding and animal welfare.

The projects will look at increasing feed efficiency, improving carcass quality, advancing sow reproductive knowledge and management practices, innovative applications for artificial intelligence and using genomics to enhance environmental sustainability.

"Our government is pleased to support the work of our producers through these innovative projects," said Ralph Eichler, Minister, Manitoba Agriculture and Resource Development. "The results will be valuable in our continuing efforts to strengthen the sustainability of our provincial pork industry."

To conduct the research, Topigs Norsvin will build a \$30-million research and development facility in Plumas, Manitoba - about 120 kilometres northeast of Brandon - to be completed by the end of 2022.

"Topigs Norsvin continuously monitors international developments in the pork industry and prides itself as a leader in the sector," said Hans Olislagers, Chief Technical Officer, Topigs Norsvin. "Implementation of loose housing of sows during farrowing is already legislated in several countries, and we recognize our responsibility to breed and select pigs while maintaining the integrity of animal welfare."

Topigs Norsvin is also investing in a new nucleus farm in Manitoba, as part of a larger plan to upgrade and expand the company's capacity in Canada. The project also includes the renovation and expansion of several existing locations.

The new farm will become operational in summer 2022.

Olymel President & CEO passes away



Réjean Nadeau

Réjean Nadeau, President & CEO, Olymel succumbed to a sudden and virulent cancer in mid-October. Following Nadeau's passing, Yanick Gervais, Senior Vice President, Operations, Olymel assumed the duties of CEO.

"Réjean Nadeau leaves behind a company to which he devoted most of his career," said Paul Beauchamp, Senior Vice President, Olymel. "Under his passionate leadership, Olymel grew into the largest processor in the Canadian agri-food industry and became a universally recognized flagship Quebec company."

In a message addressed to Olymel's managers and employees, composed before his passing, Nadeau reiterated the importance of continuing on the path of growth, always keeping in mind the values on which the company was founded: integrity, respect and trust.

"We are deeply saddened by the passing of Réjean Nadeau, an inspiring, visionary and dedicated man and leader," said Ghislain Gervais, Chair, Olymel. "I would like to express my deepest appreciation for his work, which was closely linked to the success not only of Olymel but also of Sollio Cooperative Group."

Quebec orgs impatient over TFWP delays

The Quebec Union of Agricultural Producers (UPA) issued an open request in late October to Prime Minister Justin Trudeau, asking for the creation of a crisis unit to ensure the arrival of all Temporary Foreign Workers (TFWs) necessary for Canadian agriculture.

"The computer failures that Service Canada has been experiencing for several months are jeopardizing the presence in the country of a workforce essential to the food security of Canadians," said Marcel Groleau, President, UPA. "Immediate intervention by Mr. Trudeau is required to avoid a catastrophe."

In response, Quebec Pork posted on social media: "We support the efforts of our colleagues. The government of Justin Trudeau and all the ministers concerned must act quickly to avoid a catastrophic situation. We must also improve the program and reduce the administrative burden."

CONTINUED ON PAGE 30

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News and Views

Computer changes implemented by Service Canada in August 2020 caused delays in the processing of Labour Market Impact Assessments (LMIAs). LMIAs consider factors within the domestic workforce to ensure any position being offered to a TFW cannot be filled by a Canadian citizen or permanent resident first. An LMIA is required for every TFW entering Canada, and the onus is on the employer to have this documentation in place prior to the worker's arrival. Acquiring an LMIA usually takes 20 weeks and must be repeated annually. At the time of the UPA's request, more than 900 LMIAs were awaiting processing.

Maple Leaf fully converts to group sow housing

Since the end of 2021, Maple Leaf Foods has completed transitioning all breeding sows in company-owned barns to its 'Advanced Open Sow Housing System.' This system provides optimized, open housing during pregnancy that allows sows to roam, rest, feed and socialize freely. The shift is a milestone for the company in its pursuit of improved animal welfare.

Maple Leaf Foods is the right thing to do and an essential part of our sustainability commitment," said Michael McCain, President & CEO, Maple Leaf Foods. "Our progress in eliminating gestation crates is significant as we proudly lead the industry towards a more compassionate approach to animal welfare."

Per the National Farm Animal Care Council's (NFACC) Code of Practice for the Care and Handling of Pigs, as of July 2024, all mated gilts and sows must be housed in groups or in individual pens. It is estimated around one-third of Canadian commercial hog farmers have already converted to group sow hous-

Maple Leaf expands bacon capacity

Maple Leaf Foods announced in early October the construction of a 73,000-square-foot, \$182-million expansion to its Winnipeg prepared meats plant, significantly increasing its bacon production with new capacity for producing precooked, microwaveable bacon.

This investment in state-of-the-art manufacturing equipment and cultivated in-house expertise positions the company to meet the growing consumer demand in the pre-cooked bacon market. Maple Leaf Foods currently sells bacon under eight

"Ensuring the animals in our care experience the best possible environment at brands in Canada.

Maple Leaf Foods' 'Advanced Open Sow Housing System' has now been implemented in all of its company-owned barns.

"We are very excited to see this project come to life," said Michael McCain, President & CEO, Maple Leaf Foods, "Our vision to become the most sustainable protein company on earth applies even to our very best convenience food - delicious, pre-cooked bacon."

As part of the expansion, the company is adding approximately 350 new positions at the plant, bringing total employment to more than 1,900 people at that location.

Plant-based investments looking doubtful

From 2016 to 2018, plant-based protein manufacturer Beyond Meat, headquartered in California, experienced annual revenues between \$25 million and \$30 million. In 2019, that fell to \$12 million, but, in 2020, grew to more than \$50 million. However, in 2021, a dramatic downward trend began to occur, with the company racking up more than \$100 million in losses.

In early November, following the release of Maple Leaf Foods' third-quarter report, the company announced it was reviewing its investments in the plant-based portfo-

"We are seeing a marked slowdown in the plant-based protein category performance, which may suggest systemic change in the extremely high growth rates expected by the industry," said Michael McCain, President & CEO, Maple Leaf Foods. "Given current category performance, such a review is underway, which will either affirm or adjust our strategies going forward."

Currently, Maple Leaf's U.S. subsidiary, Greenleaf Foods, manufactures plantbased products under the 'Field Roast' and 'Lightlife' brands. Maple Leaf's sales for the third quarter of 2021 were nearly \$1.2 billion, up about \$150 million compared to the third quarter of 2020. Meat sales continue to eclipse plant protein sales, at more than \$1 billion in meat sold but less than \$50 million of plant-based products.



Integrated food companies like Maple Leaf Foods are approaching their plant-based protein investments more carefully, as major processors like Beyond Meat continue to lose market value.

Awards and growth continue for HyLife

HyLife was named 'Large Business of the Year' by the Steinbach Chamber of Commerce in early October. The award recognizes businesses that exemplify "excellence in growth and stability, innovation, quality of product or service, human resource practices and commitment to community."

In early April, HyLife announced the construction of a four-storey head office in Steinbach, Manitoba - about 60 kilometres southeast of Winnipeg. Once completed, the office will be home to more than 200 corporate employees. HyLife's current office is in nearby La Broquerie. The company's main slaughter plant in Neepawa, Manitoba - about

80 kilometres northeast of Brandon processes 3.2 million pigs annually.

In May 2020, the company announced plans to build a 24,000-head nursery barn site near Elgin - about 60 kilometres southwest of Brandon along with acquiring 75 per cent of Prime Pork, a facility that produces, processes and sells pork products in Minnesota.

Biosecurity laws receive another boost

Manitoba Pork praised the Government of Manitoba in mid-October for bringing forth assent on the Animal Diseases Amendment Act and the Petty Trespasses Amendment and Occupiers' Liability Amendment Act in a timely manner.

"Throughout the COVID-19 pandemic, Manitobans have first-hand experience when it comes to methods that farmers use every day to attempt to suppress the spread of a deadly virus," said Rick Préjet, Chair, Manitoba Pork. "The legislation also helps protect farm families and their staff from potentially dangerous encounters with illegal trespassers. This is an important safety measure that we support."

Recent reports suggest animal activists in Manitoba may now be disguising themselves as utility company employees to attempt to gain access to farms.

"Just like all of our homes, we don't want to come home in the evening and see some stranger sitting at our kitchen table," said Cam Dahl, Manager, Manitoba Pork. "It's the same for farmers."

In early November, the Government of Saskatchewan amended its Trespass Property Act to make it easier for rural landowners to take legal action against trespassers. Alberta and Ontario took the lead in Canada on this file starting in 2019, with the passage of new trespassing legislation in those provinces, and the issue has been elevated at the federal level as well, with amendments to the Health of Animals Act. ■

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Comparing Polish and Canadian culinary characteristics

Andrew Heck



Warsaw's modern skyline shows remnants of several periods of development and political control. Like Poland, Canada's battle for culinary identity and foodservice survival in the COVID-19 crisis has caused some forced adaption to occur.

From kielbasa to perogies, borscht to pickles, many Canadians are familiar with the cursory aspects of Polish cuisine. In fact, a lot of it has become woven into the fabric of quintessentially Canadian cuisine, as a country primarily composed of immigrants and settlers. Many of those immigrants and settlers, over time, brought with them an enduring and endearing passion for pork that persists to this day - in Canada and still in Poland, especially.

Not only the aspects of hardy, coldweather cooking, but other cultural components come into play, too, when looking at the culinary scenes in Canada and Poland. Beyond the food itself, both industries have also been saddled with challenges related to CO-VID-19. And, despite the odds, chefs in Canada and Poland alike continue to triumph when it comes to showcasing their countries' finest dishes.

Polish cuisine's meaty side

What makes Polish food Polish? A legacy of hardship, combined with curiosity, has shaped traditional Polish dishes, along with adopted ideas and ingredients from abroad.

Some of the more popular Polish meatbased specialties include:

- Golonka: Pork hocks boiled and then roasted or braised in stock, beer or animal fats - like duck or goose. It is typically served whole - bone in, skin on – but some modern interpretations discard the bone and skin, leaving behind a leaner portion of meat. 'Golonka' means 'knuckle,' which is another name for the pig's hock or shin, located beneath the leg and above the
- Zimne nogi: Chunks of pork and vegetables in an aspic, prepared similar to head cheese, using pigs' feet. The feet are simmered with carrot, celery and onion until tender, including bay leaf and allspice berries for flavour, diced, then allowed to set in the strained stock from the same pot, relying on the natural gelatin found in the feet to hold everything together. Served cool, as the dish disintegrates when it becomes warm.
- · Kabanosy: Thin, smoked pork sausages seasoned with salt and pepper. Some require refrigeration, while drier varieties may be stored safely at room temperature. They closely re-

CONTINUED ON PAGE 34



The golonka served at chef Adam Gessler's Wódka Gessler Na Widelcu, in Warsaw, with a side of boiled potatoes and onion jam.



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semble and taste like what most Canadians know as 'pepperoni sticks.' They are often served cold, as a snack or appetizer, but they can be sliced and mixed into soups and pastas, served warm.

- *Tatarski*: Minced beef seasoned with simple herbs and spices, served raw, sometimes with egg or other garnishes. In Canada, the French word 'tartare,' is more commonly used.
- Carpaccio: Thinly sliced beef, served raw, often garnished with greens, slivers of cheese, capers and herbs. The name is borrowed directly from Italian. The product is not widely consumed in Canada, but it would be known by the same name.
- *Geś pieczona*: Roasted whole goose, a traditional main course for St. Martin's Day on November 11. The dish is popular across central Europe, for the same reason. The date also coincides with Poland's independence day, celebrating the end of occupation by German, Austro-Hungarian and Russian monarchies, as declared in 1918.
- *Pasztet*: Known as '*pâté*' in Canada, borrowed from French. This paste of

minced meat, liver and seasonings is a popular sandwich topping, when sliced from a firm loaf. It also appears on its own, served as a soft mousse, in a manner similar to *foie gras*. Turkey – a bird native to North America – is

often used, on account of widespread availability today in Poland.

These and many other forms of farmed and hunted red meat, poultry and seafood can be found in the broad repertoire of Polish protein consumption. For Poles, animal products really are cherished, given the country's legacy of *going without* during different periods in its history.

Poland grapples with culinary identity

Chef Robert Sowa owns several restaurants in Poland's capital, Warsaw. He is a cookbook author, former international culinary competitor, former cook for Poland's men's national soccer team and current host of a cooking demonstration TV show. In addition to being a mentor for many up-and-coming Polish chefs, he believes in continuous improvement and evolving his menus, which consist of traditional Polish meals with an international touch, served in a unique way.

"I have gone to some famous restaurants abroad, and they give very small portions of food," said Sowa. "If I am going to a restaurant, I do not want to leave hungry, no matter what."



Chef Robert Sowa spent more than two hours eating and chatting with Canadian and American journalists attending the 'Meat with European Quality' study tour, in November 2021, explaining his menu and sharing entertaining stories.



Chef Jurek Sobieniak's over-the-top persona took the form of Polish traditional dress on this particular TV broadcast. He was preparing parsnips, not to form them in the shape of a burger or sausage, but to enjoy as... parsnips.

Poles are no strangers to large portions of food, which, at one point in time, were a lot harder to come by. When Poland emerged as an independent democracy following the fall of communism, society was turned upside-down in many ways. It is a legacy that some chefs, including Jurek Sobieniak - another kitchen extraordinaire turned TV host - speaks eloquently about.

Trends in other parts of the world - such as transitioning toward 'flexitarian,' vegetarian or vegan diets - are generally not looked upon with much enthusiasm in Poland.

"I don't see plant-based alternatives being an issue in Poland," said Sobieniak. "I like meat and vegetables, but if I am going to have vegetables, I just cook vegetables. No need to copy meat."

But Poles do also pride themselves on produce, including stone fruits, durable vegetables and foraged fungi. It is a legacy of necessity and geography that exists to this day.

"Poland is an agricultural country, and people know that," said Sobieniak. "But it has taken us a long time to adjust to the world we live in now, which is one of many choices."

In Canada, where we have no shortage of choices, the struggle for culinary rec-

ognition still exists, and like the Polish food scene, we are sticking to our guns while remaining open-minded about who we are and how to represent ourselves by tapping into our gastronomic instincts.

Poland comes to Canada on the plate

Chef Paul Rogalski is co-owner of Rouge Restaurant in Calgary, where he was

born and raised, but his surname belongs to the village of Rogal in Kalisz County, Poland, from where he has some ancestry. His establishment partners with local food growers and utilizes an on-site garden to create exceptional, handcrafted dishes for customers.

Rogalski's grandparents were Polish and Ukrainian immigrants to Canada in the 1920s, and it was his grandmother's cooking that left the greatest impression on his career.

"My grandmother cooked everything from scratch. They had a large farm and used to grow a lot of things themselves," he said. "When I would visit there, she would harvest the garden and preserve everything for winter for family gatherings. I didn't understand the influence she had on me until a few years into my career. I had an epiphany, 'Holy cow! This all because of my grandmother!"

Rogalski draws on his heritage and Calgary's increasingly cosmopolitan flair to remain contemporary but also grounded in the classics. His current menu includes starters like wild mushrooms and toast, along with a solid lineup of proteins that would rival any flesh-loving Polish chef's selection.

CONTINUED ON PAGE 36



Chef Paul Rogalski's restaurant in Calgary, Rouge, was named one of the world's 100 best in 2010.

"For us at Rouge, it's important that we use local products," said Rogalski. "Market fluctuations and COVID-19 disruptions have made that more difficult. We like to purchase directly from farms, but we've found ourselves looking at 'commodity' product more often now."

COVID-19's impact is international

Catering for hundreds or thousands of guests in one sitting is no easy task, even when the food is simple, but for chef Marcin Sasin of the Sheraton Grand Warsaw, COVID-19 has made it just that much more difficult.

"Food price inflation and a lack of workers has hurt us," said Sasin. "We are still catering large events in the hotel, but we are doing it with a much smaller crew, and we are starting to rely more on 'ghost' kitchen delivery orders to sustain us."



Chef Marcin Sasin has experienced significant impacts to the demands of his hotel kitchen in Warsaw, on account of COVID-19.

Back in Calgary, Chef Rogalski claims not to have raised menu prices in about a decade, but the compositions he creates - especially when it comes to choosing cuts of meat - have become more variable and dependent on input pricing.

"If you can't charge more, and your margins are slim, you need to lower your supply cost," he explained.

However, many other Canadian restaurants have not been able to successfully navigate COVID-19's on-again, offagain restrictions. To that end, industry group Restaurants Canada has been pushing for increased support.

"The fate of Canada's more than 90,000 restaurants is still uncertain," said Todd Barclay, President & CEO, Restaurants Canada. "Most have been losing money or barely breaking even since coming out of initial lockdown last year, and at least 10,000 establishments have already closed."

COVID-19 aside, in Rogalski's Alberta, other factors have left their mark on foodservice as well.





Pork croquette and clarified borscht, one of seven courses on chef Sowa's current menu at N31 Restaurant & Bar in Warsaw, where diners will not leave with an empty stomach.

"The reality for anyone in restaurants in Alberta is this: oil and gas is number one, agriculture is number two and tourism is number three," said Rogalski. "Numbers two and three need to fortify themselves and work together, since we depend on each other."

Nowhere to go but up

Eating out is still seen, in both Canada and Poland, as a luxury that many would prefer not to do without. COV-ID-19 has complicated the situation, but there are plenty of talented, motivated

and creative cooks chomping at the bit to fulfill this social need, as tastes and business models evolve.

Even as the nature of foodservice changes - favouring new options like online, app-based delivery ordering - there will always be a place for white linens, cellared wines and exquisite meats with a story to tell from farm-to-fork.

COVID-19 is a story unto itself, and in the coming years, the connections between livestock farmers, meat packers, chefs and

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consumers will continue to change, but what will stay the same is an appreciation for how food has the power to enhance our everyday lives beyond mere sustenance. No historical legacy, pandemic or supply chain roadblock can stop that.



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Streptococcus virus threatens Canadian swine

Jessica Colby

Editor's note: Jessica Colby is a University of Regina journalism student. She previously worked at the University of Saskatchewan's Western College of Veterinary Medicine (WCVM). This article is printed with permission from WCVM Today.

Several years ago, no-one in the Canadian pork industry would have been concerned about the potential risk of *Streptococcus equi subsp. Zooepidemicus* – bacteria that can cause infection in virtually every species, explained Matheus Costa, a swine medicine specialist at the University of Saskatchewan's Western College of Veterinary Medicine (WCVM).

"Before 2019, if anyone investigating clinical cases found this bacteria in a pig, they would suggest this is just part of its normal biota," said Costa. "We find it in healthy pigs all the time, so we never worried about it."

However, that perception shifted in 2019 when *S. zooepidemicus* began posing a serious health threat to hog herds across Canada and around the world. During

that same year, researchers were alerted to *S. zooepidemicus* outbreaks among pigs in New Zealand and the Netherlands.

"The problem is that it looks like it flares up over and over again," said Costa. "It just doesn't go away. Antibiotics will suppress it, but if we take antibiotics out, it comes back again."

As with other illnesses, some pigs can also carry *S. zooepidemicus* without displaying clinical signs – a finding that was recently reported by Costa and his research team.

The WCVM research group is now aiming to discover how Canadian hog farmers can prevent this disease from establishing itself in their barns. Costa is also investigating the development of non-antibiotic therapies and prevention strategies to reduce the disease's severity.

"Because it's bacteria, antibiotics are usually the first thing we do. We can suppress disease by treating pigs aggressively," said Costa.

However, veterinarians need to ensure that they are using the right antibiotic drugs to combat the infection, so they do not induce antimicrobial resistance. Costa said the main challenge is that researchers and veterinarians do not understand enough about the disease, "so we don't know how to control it beyond antibiotics."

Costa's team is trying to determine what will slow the spread of *S. zooepidemicus* in barns, whether that includes workers washing their boots, testing every animal or depopulating a barn – a drastic option that is costly in terms of time and money.

"Depopulation means all the pigs go through the barn flow, then we empty the barn physically. Pigs are removed, and the entire barn is disinfected. Then we start repopulating," said Costa. "We've done that before, and it doesn't get rid of the bug, likely because of carrier pigs."

Another problem with *S. zooepidemicus* is that its clinical signs are similar to the dangerous and extremely infectious African Swine Fever (ASF) virus that causes high mortality rates. Due to the similarities in presentation, it is impossible to distinguish between *S. zooepidemicus* and ASF without extensive testing.

"S. zooepidemicus looking like ASF adds another layer of complexity to this, because we're not just dealing with a new disease," said Costa. "We need to make sure we don't have ASF as well, so we're both trying to rule it out from clinical cases and making sure we understand this new disease."



University of Saskatchewan scientists are working to discover how to prevent Streptococcus equi subsp. zooepidemicus from establishing itself in swine barns.

S. zooepidemicus usually affects older pigs, and its initial clinical signs include a lack of appetite and lethargy.

"There is an invasion of the whole body - it goes everywhere. Once it has access to the blood, it can essentially attack any organ, and that's what we see: septicemia," said Costa. "We see lesions in multiple organs, and that's where it becomes challenging to differentiate it from ASF, because that's what the ASF virus does."

Unless the pigs have what Costa calls "nose-to-nose contact," there is little chance the disease will be transmitted between the animals. A recent WCVM trial concluded that the bacteria spreads through physical contact.

"We've learned that if we have sentinel pigs in the room together with pigs that have *S. zooepidemicus*, the sentinel pigs never become infected if they don't have nose-to-nose contact," said Costa. "They could be close - at one-and-a-half metres apart - but they don't get it. We're going to facilitate dealing with the disease as we progress and learn more about it."

Saskatchewan's Agriculture Development Fund, Alberta's Results Driven Agriculture Research (RDAR) and Canada's Natural Sciences and Engineering Research Council (NSERC) provided funding for this study.

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As with any virus response, judicious use of antimicrobials is important. S. zooepidemicus presents clinical signs indistinguishable from African Swine Fever (ASF), making testing critical to being able to tell the difference.

Helping piglets survive and thrive

Chantal Farmer

Editor's note: Chantal Farmer is a research scientist at Agriculture and Agri-Food Canada's Sherbrooke Research and Development Centre. She can be contacted at chantal.farmer@agr.gc.ca.

Modern piglet problems for modern sows

Intra-uterine growth-restricted piglets occur more frequently when litter sizes are large, making piglets more susceptible to death due to overcrowding in utero.

Low birth weights, lack of energy reserves and poor immune protection also leave piglets vulnerable, and this situation has become worse with the current use of hyperprolific sow lines. Assisting newborn and suckling piglets to maximize their survival and growth is essential, given the trend of increasingly larger litters.

Intra-uterine growth-restricted piglets are characterized by their dolphin-like head shape (Figure 1) and their reduced growth rate, resulting in a poorer capacity for ingestion and use of colostrum - a sow's nutrient-dense milk that is available to piglets only immediately after birth. This is most important considering that the early intake of 250 grams of colostrum is crucial for the survival and growth of piglets.

Various nutritional strategies can be used in gestation and prior to farrowing to help suckling piglets, including supplementary feeding of arginine - an amino acid - in gestation, which may improve nutrient supply to the placenta and increase birthweight. Additionally, feeding a source of n-3 polyunsaturated fatty acids in late gestation - such as fish oils - to stimulate fetal brain development and vigor can decrease the interval between birth and first suckling.

Sow backfat thickness matters

Recent findings have shown that body condition of gilts at the end of gestation must be considered to achieve optimal sow lactation performance (Table 1). A gilt that is too thin (with 12 to 15 milli-

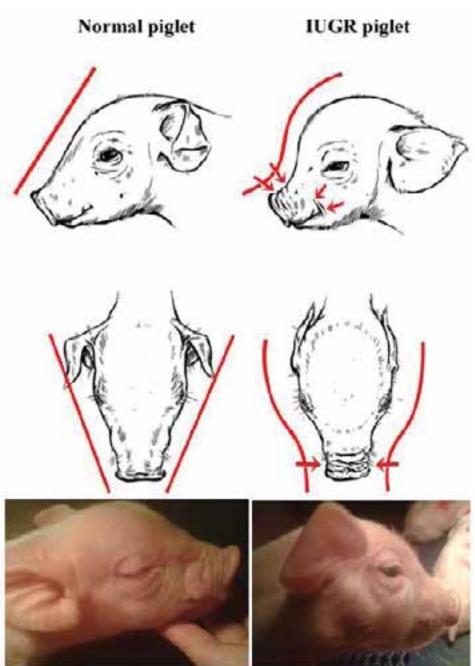


Figure 1: Typical dolphin-like head shape of intra-uterine growth-restricted piglets.

metres of backfat at the P2 site of the last rib) on day 110 of gestation has less milksecreting tissue in her udder than a gilt with 17 to 26 millimetres of backfat. This difference was achieved by offering varying amounts of feed throughout gestation (1.30, 1.58 or 1.83 times the maintenance

requirements). Body condition is also important for colostrum yield. Sows with moderate body conditions (17 to 23 millimetres of backfat) produced more colostrum (4.0 kilograms versus 3.2 kilograms) compared with fatter sows (more than 23 millimetres of backfat).

	LOW	MEDIUM	HIGH
Parenchymal tissue ¹ , g	1059ª	1370 ^{ab}	1444 ^b
- dry matter, %	38.4	40.8	42.5
- fat, %	62.8	65.9	68.2
- fat, g total	255ª	367 ^b	394 ^b
- protein, %	45.1a	31.3ab	29.4 ^b
- protein, g total	14.9	176	179
- DNA ² , mg/g	10.9	10.0	9.0
- DNA, g total	4.4	5.6	5.4

¹Contains the epithelial cells that synthesize milk

Table 1: Mammary gland composition on day 110 of gestation for gilts fed various amounts of a gestation diet to achieve 'low' (12 to 15 millimetres), 'medium' (17 to 19 millimetres) or 'high' (21 to 26 millimetres) backfat at the end of gestation.



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² Indicative of the number of cells present

a,bMeans within a row with different superscripts differ significantly from each other

Feeding during the transition period starting on day 108 of gestation - has received quite a bit of attention recently. The amount of energy reserves of sows at the time of farrowing has a great effect on farrowing duration and on the incidence of piglet stillbirths and hypoxia - a state caused by insufficient oxygen levels in body tissues.

Lessons for hog farmers

Maximizing the energy intake of sows prior to farrowing is important. This can be achieved in various ways, such as increasing energy intake (to 33.8 megajoules versus 28.2 megajoules of net energy per day), feeding a readily available energy source, feeding a highfibre diet to prolong energy uptake via hind-gut fermentation, or feeding sows three times a day. Farrowing duration and stillbirths have been shown to increase if a sow has not eaten in the 3.1 hours prior to farrowing.

Management strategies during farrowing and lactation are also needed to maximize piglet performance. Farrowing supervision and piglet assistance at birth - such as drying, placing close to a teat, providing an extra source of energy to low-birthweight piglets, splitsuckling and cross-fostering - will help decrease piglet mortality.

Sows do not produce enough milk to sustain maximal growth of their piglets. A teat that is not suckled in first lactation will produce less milk in sec-

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Sow diet control and managing piglets during farrowing can help reduce mortality.

ond lactation. First-parity sows should have all their teats suckled for the first 48 hours after farrowing to maximize milk yield in the next parity.

There must also be enough teats for all piglets in a litter, but if that is not the case, the use of nurse sows or providing artificial milk can help. Artificial

rearing of a whole litter should be used only when piglets cannot be reared normally, since artificially reared piglets will grow slower than sow-fed piglets, taking five more days to reach market weight.





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