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Canadian Hog JOURNAL

Canada's national hog magazine

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Canadian Hog JOURNAL
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Cover Photo
A Saskatchewan wild boar is processed after being captured by a net gun from shot from a helicopter. See our story on page 14.

Sask Pork Industry
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Canadian Hog JOURNAL

Message from the editor

We have completed one full year as the Canadian Hog Journal since we officially changed to a national platform and I'm relieved to say I think it's been a success so far! Of course, when we made the change, I asserted confidence and bravado, but I was actually pretty nervous. Change can be hard and scary, but it can also be invigorating. In our case, it was all three. I hope to see and visit with many of you at the Banff Pork Seminar, and I hope you enjoy our comedic guide to the event, found on page 41 and written by the charming Terry Hockaday of Meristem.com.

I am freshly returned from Le Porc Show in Quebec City, which was even better than last year. It really is an amazing event, and with 900 people in attendance, the energy is spectacular. This time, I brought my oldest son with me, who turns 18 in February. I figured that before he votes for the first time, he should see some of Canada east of Manitoba. We also stopped in Ottawa for a couple of days, which was a first for both of us. We visited Parliament, and the Canadian War Museum. I was surprised to see how large a role agriculture played in the First World War, and I think it would make an interesting story for a future issue.

Just before that, I was at the Saskatchewan Pork Industry Conference, which is one of my favourite events. This year they did something very special, and honoured operations still in production after 40 years, 50 years and even 60 years. What an honour to be a part of that. It was also announced here that Lee Whittington, president and CEO of the Prairie Swine Centre is retiring after 25 years of service. Congratulations Lee!

You will see that Saskatchewan's wild boar problem is our front page story this issue. It's a fascinating overlap of agriculture, wildlife and environment management and government bureaucracy. But perhaps most importantly, we need to ensure we are doing our part by meeting best practice guidelines for wild boar containment, by adhering to PigTrace requirements, and by communicating with our elected representatives that this must be a priority in every province where wild boar occur. The threat posed by these feral animals is significant – and not just to agriculture through crop damage. Wild boar can cause tremendous damage to ecosystems, creating a ripple effect right up the food chain. Once entrenched, they have proven nearly impossible to eradicate.

Our climate is hospitable for these animals. Our political climate should not be. ■

Until next time,

sherimonk@gmail.com

S Monk.

Sheri Monk

Editor, business manager

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The good news on pork demand

Based on production, imports and exports of pork, Ag Canada's Red Meat Section calculates that third quarter pork consumption in Canada was up by an impressive four per cent this year compared to last. It was the strongest quarterly growth in total consumption since the fourth quarter of 2015. At that time consumption grew by 12 per cent that quarter compared to the fourth quarter of 2014. The fourth quarter of 2014 would have been impacted by PED in the United States, which in turn, would have made 2015 look large by comparison.

By Kevin Grier

While consumption was increasing, pork prices in Canada were also increasing. Third quarter fresh and processed retail pork prices were up by nearly two per cent in the third quarter this year compared to last according to the Statistics Canada Consumer Price Index (CPI). The total CPI for all items in Canada was up by 1.4 per cent.

When the price of pork at retail and the consumption of pork is combined, it gives an indication of pork demand. In that regard, pork demand increased by four per cent in Canada in the third quarter. Again, that is the strongest quarterly performance since the third quarter of 2015.

In the United States, pork demand was also very strong in the third quarter. Demand was stronger than last year's third quarter but again, not quite as strong as the third quarter in 2015. As in Canada, 2015 was one of the better demand years in several years. Based on the U.S. and Canadian data, it can be said that North American demand for pork was very strong during the third quarter.

With regard to export demand, the total value of U.S. pork exports was down by one per cent in the third quarter. That came after a seven per cent increase in value during the second quarter. Third quarter pork export values were the second lowest for the United States since 2012.

Pricing impact

Demand is just as important to the price of hogs as supply. Note the fact that slaughter was record large in the third quarter, and that hog prices were 14 per cent higher than last year, despite the record slaughter. That gives an indication of the importance of demand. Furthermore, given that export demand was not particularly stellar in the third quarter, the message is that domestic demand was the driver of the strong hog prices. Another way to look at it is that if domestic North American demand have not been robust, prices would have been much less profitable for producers in the third quarter.

Demand for beef and pork was a negative factor in the industry for much of the past three decades. Declining demand led to industry contraction at the producer and packer level. During the last three-five years, demand has improved. This is the reason behind strong pricing despite large production. Demand is the reason behind expansion in the industry.

Conestoga growth

It was recently noted that the Ontario Government was giving a grant to Conestoga Meat Packers to expand its pork process-

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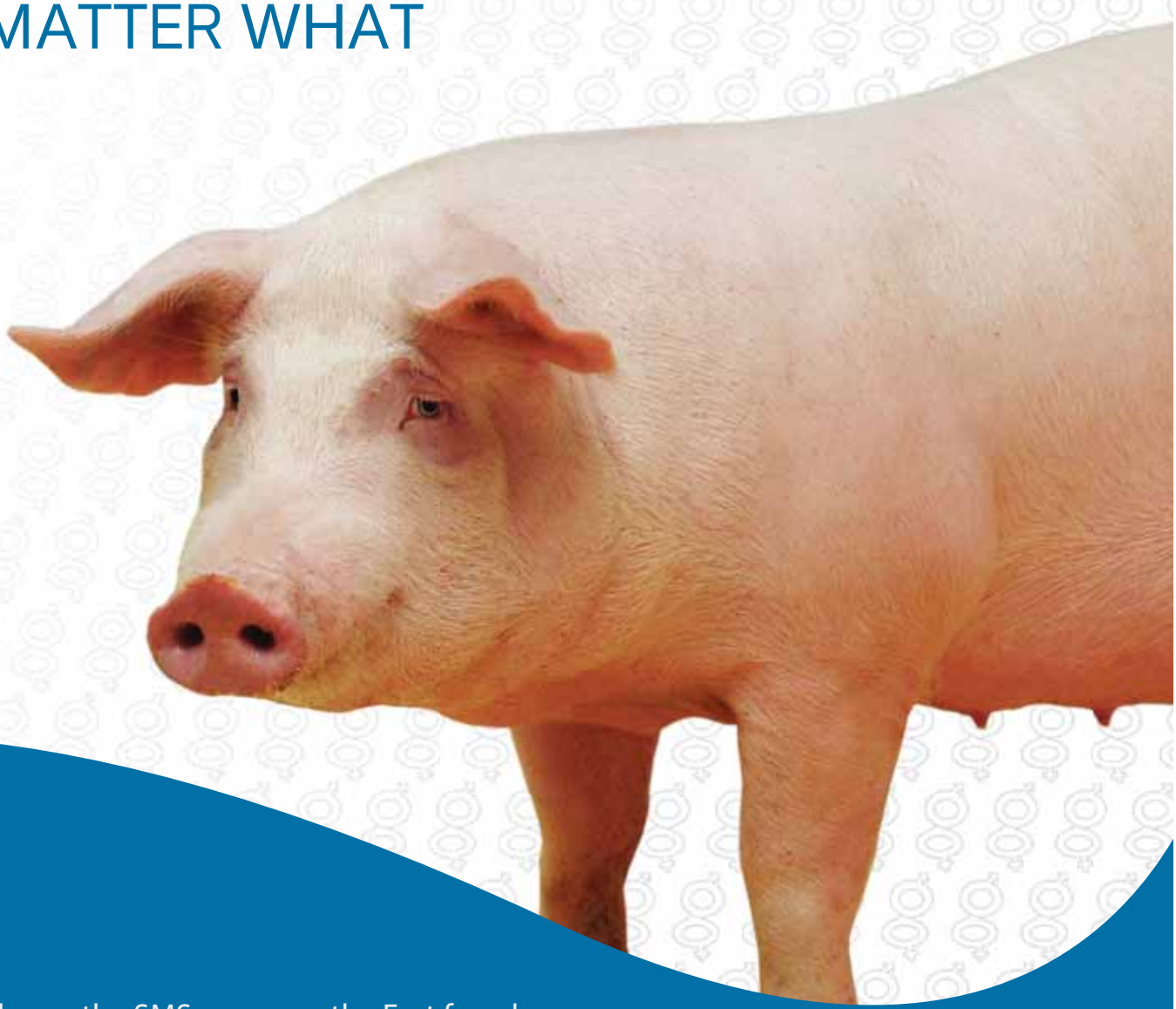

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ing capacity. TheRecord.com, on September 15 stated that the plant was currently doing 29,000 hogs per week. The expansion would give the plant the potential to go up into the mid-50,000s weekly.

This expansion was just the latest in a long line of growth that has occurred since 2001 at the Breslau, Ontario plant. In 2001 Conestoga Meat Packers was purchased by the Progressive Pork Producers (PPP). PPP is a farmer-owned co-operative which had 172 members at that time. When the plant was purchased it had capacity of 3,500 head per week with 35 employees. At the time of purchase it was being expanded to 10,000 head per week. The PPP members marketed about 12,000 head per week. The expansion was completed by the end of 2003. From then through to 2008/2009 the plant increased its throughput to about 15,000 per week.

The next major development for Conestoga was the move to a double shift in 2013. By early 2014 the plant was doing 22,000 head per week. The question regarding that expansion was whether there were enough hogs in the province for Conestoga, Quality and Sofina. The closure of the Quality Meat Packers plant in April 2014 put that concern to rest. By then plant was able to slaughter between 25,000 to 30,000 head. Expansion to those levels was facilitated by expansion of hog coolers and the purchase of a distribution centre in Cambridge, Ontario. Both of those areas had been bottlenecks to expanded production.

The latest expansion is a new kill floor and barn. The new floor will allow the plant to slaughter 650 per hour compared to the previous 400 head. That 650 brings the plant's potential slaughter to 45,000 per week on the two shifts. There is no timeline for building the business and going from the current 32-33,000 head to 45,000. To reach 45,000 per week, the plant will need to make further modifications including expansion of its cutting floor. The plant currently employees about 940 people.

PPP vision

The PPP cooperative now has 157 members that supply all the hogs to the plant. The PPP Conestoga effort has been a success due in large measure to the patience and vision of the members. That and the stability and strength of senior management have been equally important.

With regard to the members, the original goal of the purchase was to provide hook space and a return on investment. For many years, the return on investment aspect had been the challenge. The plant pays for hogs based on the margin performance of the plant. Producer payments for hogs are meant to reflect the required margin performance. Lower margins for packing means lower payments to producers to compensate and vice versa. There were years in which the packing sector was not doing well. At those times, PPP members were not doing as well as other hog farmers that were marketing to other packers. The patience of the members meant that the plant and members made it through difficult times. That patience and vision of the future allowed for the expansion. Now of course in the last couple years, as packers have been profitable, the benefits have flowed to the PPP members.

The other positive factor now of course relates back to the original goal of hook space. Now in Ontario there is a shortage of hook space relative to hog marketing. PPP members are in a preferred position compared to many other producers in the province regarding marketing.

As such, now in Ontario the PPP members are seeing the positive benefits of both goals after working through difficult periods. They have scarce hook space in Ontario and the profits of the packing sector are flowing to the production sector beyond normal pricing. Their longtime ownership of a packing plant predates the current trend in the United States for producers to vertically integrate downstream into packing. That trend is resulting in an unprecedented increase in U.S. capacity and

production. Given that, it is likely that the patience of the PPP members is going to be tried again in the coming years.

Pork grading

A proposal for a new U.S. Pork Grading System was published in the U.S. Federal Register on October 23, 2017. A formal comment period on the proposed grading system ended December 22, 2017. The new pork grading system will parallel the U.S. beef grading system, with three quality grades: Prime, Choice, and Select.

Ron Gietz, Pork Specialist with Alberta Agriculture made the following points in a recent Pork Market Update:

"A change was long overdue, with the previous grading system dating back to 1985. In the ensuing time-period the pork industry has transformed structurally, consumer tastes and preferences have shifted, and scientific consensus on the healthiness of animal fats has turned 180 degrees (The Big Fat Surprise, Teicholz, 2014).

The quality grade will be based on two attributes which have been demonstrated through numerous studies to be good predictors of consumer eating quality: lean marbling and lean colour.

These changes have been pushed by the U.S. pork industry and are expected to usher in a new era in pork marketing. Once adopted, we can expect significant premiums for the Choice and Prime grades of pork compared to Select, similar to what we see every day in the beef market.

The Canadian pork industry will be forced to either adopt the US grades outright, or, similar to beef, develop a Canadian grading system which essentially parrots the US quality grades. The new US pork grades will send ripples across both export and domestic markets, and affect all aspects of the pork industry from genetics to nutrition and feeding practices. Consumers, who in general do not know how to select pork for a quality eating experience, will be able to rely on the grading system to select the appropriate product."

At this point the merits or rationale behind government grading is beside the point. There have been a few champions of a new Canadian grading program but the concept has not gained traction. Now however, the U.S. is going to do that and the Canadian industry must react, or not.

Furthermore, if grading does result in premiums that should mean a longer term move toward more intra muscular fat; that will be a good thing. Pork fat helps flavor and flavor is lacking in fresh pork loins and to a lesser extent the ham. Unlike beef though, in which the marbling and hence the resulting grade impacts a variety of cuts, the focus of pork grades will almost all be on the loin and the ham to a lesser extent. The processing cuts would not be impacted and the rib is generally fat enough. As such pork grading is really loin grading.

In any event, it is likely that the Canadian industry is going to have to move now.

Canadian Pork PowerhoUSes

Successful Farming (agriculture.com) recently released its Pork Powerhouses listing of the top 40 U.S. producers. The list also included the top five Canadian producers. As seen on the table below, the top five have 308,500 sows, up by 37,500 compared to last year.

Top 5 Canadian Pork Powerhouses

	2017	2016	Change
Olymel	84,000	56,000	28,000
HyLife	78,000	73,000	5,000
Maple Leaf	74,000	67,000	7,000
The Progressive Group	38,500	38,500	-
Provista Agriculture	34,000	36,500	(2,500)
TOTAL	308,500	271,000	37,500

CONTINUED ON PAGE 10

I expect part of the reason for the increase is not so much an increase in holdings among the top five as much as a blurring of definitions. That is, more and more of the larger operations in both Canada and in particular, in the United States, may manage sows or inventory on behalf of clients or partners. Ownership and control are the issues.

Olymel Keeps Moving

Olymel's number includes production in both the prairies and Quebec. About 30,000 would be in Quebec. In Quebec there are partnerships built over the last few years with varying degrees of ownership. Those would be included in the Pork Powerhouses as they are under control of Olymel, even if not owned 100 per cent

As noted here previously, the company is in the midst of building and populating sow barns in the northern Quebec region of Abitibi-Témiscamingue. There are now two farms in operation and a third one is under construction in the region. The sows will arrive for populating the third one in the first week of January 2018. They start building a fourth one in the spring of 2018. Each of the sites is 2,360 sows. By the time they are done there will be five barns with a total of 11,800 sows in the region. Those operations are an example of partnerships.

Meanwhile in the West, the Olymel growth in numbers in Pork Powerhouse would include the late 2016 acquisition of Pinnacle Farms. According to Pinnacle's business partner, VerUS Swine Management Services of Calgary, Pinnacle's capacity includes two 3,000-head sow barns, 20,000 nursery spaces and 10,500 finishing spaces, built in 2000. Olymel said the deal brought its available sow count in western Canada to 52,000 (agcanada.com, November 25). There were no other deals in 2017.

Olymel has stated that it has a goal of producing more than 1.5 million head annually in the West by 2020. Assuming 24 pigs per sow per year, that would mean that the company will need to control about 62-64,000 sows. That likely means more acquisitions along with natural growth.

Past lists

The other large producer in Canada that has made previous editions of the Pork Powerhouses, is Menard of Ange-Gardien, Quebec. In 2003, the company was listed at 32,000 sows. Today the vertically integrated producer and packer has about 29,000 sows. Isoporc also of Ange-Gardien, was listed in 2003 at 33,000 sows. Today system and related partners probably have a similar number.

While Menard or Isoporc are not on the 2017 list, both are thriving. The same cannot be said for others on the eight member 2003 list. Those include Premium Pork in Lucan, Ontario at 47,000 sows, Big Sky, Humbolt (26,000) and Puratone, Niverville (25,000) which are now Olymel and Maple Leaf. Heartland Pork, Saskatoon with 18,000 sows was also on that 2003 list. ■

Kevin Grier Market Analysis and Consulting provides industry market reports and analysis, as well as consulting services and public event speaking. You can reach him at kevin@kevingrier.com to comment or to request a free two-month trial of the Canadian Pork Market Review.

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NEVER STOP IMPROVING

Like a bird on a wire…or a fish out of water

By Sheri Monk

Water can mean the difference between life and death – for people, plants AND for MacBooks. In what seems to be the ultimate design flaw, a measly 10 millilitres of grapefruit-flavoured carbonated water splashed on my keyboard and within two minutes, I had basically lost my entire life.

"What Apple giveth, Apple also taketh away" became a common refrain in my thoughts in the following days as I tried to resurrect my computer, the window to my soul – and also to my paycheque.

When that tiny spill happened, I immediately reached for a roll of paper towels and mopped up what was visible. I thought I was going to be fine. After all, it was just a tiny amount of water, and the only wet keys appeared to be numbers one through four. Ahhhh, but I was so much younger then, and so naïve. Within two minutes, my tried and true MacBook made a tiny sound, and shut itself down.

This happened right after I'd returned home from the Saskatchewan Pork Industry Symposium, a week before I had to leave for Le Porc Show in Quebec, and two weeks before the deadline to publish this edition. And we had recently adopted a young crow with a broken wing, and her surgery was scheduled for the next morning. The timing could have been worse, but not by much. So, I did the only thing I could think of and within seconds, I was reaching deep into the pantry and lifting out an enormous bag of rice. Without hesitation, I thrust the dead computer into its depths, hoping for the best, but older and wiser by five minutes or so, expecting the worst.

By this point, you must be wondering whether my work was backed up and yes, it was. (Thank you Dropbox!) My personal and professional photos and documents were all in a cloud somewhere, and this knowledge kept me from complete despair.

I am not a religiously organized person by nature... with exception of my email, which is divided into folders, sub-folders and sub-sub-folders that categorize projects, clients, advertisers, story ideas – and that's just for this publication. That doesn't even touch the multitude of other emails stored for the past decade, organized by folder in professional and personal sections. And while most of the emails were still stored on the Gmail server, there were 130,000 conversations to sort through to try and determine where I left off with each advertiser and story source. Surely, if Dante's nine circles of hell are real, this is one of them. Another would be the subsequent three work days lost at Best Buy, trying to cure the incurable.

I had another MacBook at my disposal I could transfer my data onto, which the techs said would be possible, but only if I paid an additional $50 fee for expedited service above the $220 charge I was already going to have to pay. Otherwise, I was waiting seven business days, which simply wasn't an option for me. In some ways, the $50 was nothing. I would have handed over my firstborn for my organized emails and precious folders. I was told to come back the next morning and the data transfer would be complete. That was convenient because the next day, the crow was supposed to have surgery to remove her broken wing.

The next morning, I dropped off a very unhappy bird and proceeded to wait in the parking lot at Best Buy. At this point, I had been without my computer for 19 hours, relegated to trying to create this entire issue by iPhone. The tech called me at 9:34 and told me that the new computer did not have enough space for all my data, but that I could come in and spend $220 to upgrade its memory, which I faithfully did. Three hours later, they called back and said it wasn't the right part, and that the right part would take 5-7 business days to ar-

rive. That wasn't an option, so I asked if just the mail program and its associated local data could be moved over, and I have never been so relieved to hear the word "yes".

Late that afternoon, I picked up the one-winged crow who was even unhappier than before, then returned to Best Buy to pick up both computers. By the time I got home and settled the bird, I was exhausted and decided I would get a good sleep and get in a full day of work bright and early.

On day three of this saga, I woke up, turned on the new computer and found... nothing. Not a single email. Only the program had been transferred. Not only was I in the same boat I had been, but now the sharks were circling and smelling blood. For a third consecutive day, I was headed back to Lethbridge, back to Best Buy. This time I was told that clearly, there was too much data in my email, and it couldn't be transferred onto the newer, smaller computer. Unless I bought a hard drive to back up my former hard drive, erasing most of it, with the hope that once that had been done, only the emails could be transferred and I'd be golden.

Four hours later, I was told the emails were still too large and I was out of options. And money. The entire escapade had cost me $270 in "repairs" at Best Buy and almost two tanks of gas. Defeated, I cycled through the five stages of grief on the way home. I suspect I am suffering from PTSD, which for me, means Post Technological Stress Disorder.

And then I remembered that while I only organize words and a broken crow, many of you successfully organize hundreds (or even thousands) of LIVING ANIMALS. It was a humbling moment. But it did make me better appreciate all the hard work that goes into not just production, but the incredible technological advances that allow for the better management and health of our animal charges. You do a fabulous job, and you do it 24 hours a day, seven days a week. Thank you.

There are undoubtedly hurdles ahead – some we may see coming and others as seemingly innocuous as a zero-calorie soda water, but we will get through them. We will persevere, we will learn, we will not have beverages around our computers, and we will come out of it stronger than we were going in.

Happy New Year, and all the best to you and yours in 2018, whether they have broken wings or cloven hooves. ■

(P.S... For those of you wondering, in Alberta you can possess crows, and they are also exempt from the federal Migratory Birds Convention Act.)

The Canadian war on boar will be fought on the Saskatchewan front

By Sheri Monk

Dr. Ryan Brook has been trying to incite a war against Saskatchewan's wild boar for several years, and it appears as though his efforts may now be paying off.

Brook, a University of Saskatchewan assistant professor, has been studying the wild boar population in the province since 2011. At first, all he wanted to do was confirm what had thus far been largely anecdotal accounts of species. "Our first job was to evaluate whether they are present and where. And so we started setting up trail cameras in a few places around Saskatchewan, and we started to see a lot," he said.

But proving the wild boar were present in the province was just the beginning of Brook's battle.

"Then people denied they were surviving to reproduce in the wild, so we continued our work."

Wild boar are native to large portions of Eurasia and North Africa, but they are not native to North America. While the U.S. has had established feral swine populations since European colonization, the introduction of wild boar for sport hunting culminated in a crisis the country is struggling to contain. Wild boar cost the country's agricultural industry more than $1.5 billion USD annually, and they are spreading northward at a rate of up to 12 kilometres every year. The

Dr. Ryan Brook has documented successful reproduction by wild boar in Saskatchewan since 2011 as evidenced in this image. Photo courtesy Ryan Brook

population of wild boar in the U.S. is currently estimated at four million animals. To put that in perspective, there are an estimated 3.6 million mule deer and fewer than 1,500 grizzly bears remaining in the lower 48. Montana is currently developing an emergency wild pig action plan.

Brook, who specializes in wildlife ecology and wildlife-livestock interface, warns that Canada could find themselves in the same boat if swift action isn't taken.

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"These wild boar are incredibly well-adapted to cold. They've come from Northern Europe and Asia and they're very well adapted for cold and snow," he warned. "Some people assume they would never survive a Saskatchewan winter. That's a bit naïve, given where they survive in Siberia."

Brook used remote wildlife cameras and was able to prove that the wild boar weren't just surviving in Saskatchewan – they were thriving.

They'll get into hay bales. They'll eat almost anything. They will kill and eat white-tailed deer. Some people have cut stomachs open and seen nothing but frogs or nothing but salamanders. They'll get their nose into the ground to get roots, so they do a tremendous amount of damage. ~ Dr. Ryan Brook

"We actually captured images showing females walking by the cameras in the wild with multiple litters, showing they were clearly reproducing," he said.

Despite that revelation, Brook says the issue failed to gain much traction with the provincial government.

An unexpected ally

Brook's research stalled from the lack of funding and interest from Saskatchewan and the rest of Canada. That's when Uncle Sam stepped in.

"We developed a relationship four years ago with the United States Department of Agriculture (USDA) and we went into phase two of our research, which was much more expansive," Brook said.

Domestic pigs kept outdoors have been documented fraternizing with wild pigs, which poses biosecurity risks to the entire industry. Photo courtesy Ryan Brook

Phase two of Brook's research meant he could bring Ph.D. student Ruth Kost into the project, and he could start capturing the pigs to outfit them with GPS satellite collars, which was also supported by some funding from the Saskatchewan Fish and Wildlife Development Fund.

But why would the U.S. fund wild boar research in Canada?

"There's a very real concern of wild boar going into the United States from Canada," Brook said.

The American wild boar problem is concentrated in the south and is spreading outward and northward, but they aren't entrenched yet in some of the more important agricultural states. An unmanaged problem in Saskatchewan could result in an invasion from the north, with wild boar pouring into North Dakota and Montana. Brook says the U.S. has triaged their wild boar populations and has acknowledged that the situation is out of control in some parts of the country.

"They've said that in these southern states, we're just not getting rid of them. They're endemic now, and we are not going to eradicate wild boar from Texas, but we're going to manage them and reduce impacts and control them as best as we can," he explained. "In other states, they're going to try and control them and keep them out of main areas. There are some pockets in some of the northern states, they've really tried hard to keep them pig-free."

Kost is developing a national map showing the currently known distribution of wild pigs.

"We started looking at things like home range, overlap of wild pigs with domestic livestock and distribution. Why do we see, for example, that wild pigs in Saskatchewan have the largest home range that's ever been recorded for wild pigs or wild boar?"

A wild problem with captive roots

When Brook wants to predict where he's going to find pigs, he needs only to determine where the wild boar farms are, or where they've been in the past.

"When they were brought to Canada in the 1980s and 1990s, there was a strong push to diversify agriculture. We had reindeer farms, moose, elk and white-tailed deer and many other species including wild boar," he said. "Since the 1980s, ranching of wild boar has been essentially unregulated. In contrast, elk ranching in Saskatchewan has required fencing standards, mandatory disease testing and all ranched elk were required to have a large yellow ear tag in each ear for identification. None of this was required for wild boar and no one really knows how many wild boar farms there are, or where they are."

Producers were encouraged to crossbreed domestic pigs with wild boar to increase litter size and frequency of the new imports.

"And so most, if not all of the ones we see in the wild, have some domestic pig in them. Some have a lot in them. Some would look very, very much like a pink, domestic pig out in the wild, with a little bit of hair, but not much. Often we'll see that much longer, drawn-out nose you'll see in the wild boar types."

Brook says they are working on the genetics of Saskatchewan's wild boar population, and the results will be available next year.

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"What it looks like is that these hybrids have much higher reproductive rates. That's why they were crossed in the first place. Some of the wild boar farmers, probably the few that do have true wild boar tell me their pigs only have one litter per year, with four per litter. We're seeing six per litter on average from all the pigs that we've handled so far, and from the trail camera images and the fact that these animals appear to be continuously breeding, we think that they're probably having two, often three litters per year," he said. "Those reproductive rates are really at the heart of the issue here, and the single biggest reason why it's going to be such a challenge to try and manage this."

Hunting "farms"

Wild boar are also raised for the penned hunting industry in Alberta, Saskatchewan and Quebec. The concept is common in Texas, where people can hunt giraffes and kangaroos, but it should be no surprise that the state has a huge problem with exotic species such as warthogs and aoudad that have escaped fences and set up shop in sensitive eco-systems.

The issue is controversial in Canada, with many hunters and non-hunters alike believing penned hunts are unethical. Regardless of where one stands on the issue, one thing is certain – escapes happen from these types of operations too. In an article about the wild boar issue, one operator in Alberta claimed his fences have been cut more than 10 times over the year. He believes people who want to hunt the wild boar for

A wild boar in Saskatchewan. Photo courtesy Ryan Brook

free in the wild are responsible. Brook says wild boar populations can also be predicted by locating the penned hunt farms.

Good fences make responsible neighbours

As unbelievable as it sounds, a large part of the problem has been the intentional release of wild boar.

"Domestic wild boar, to my knowledge, were rarely if ever kept indoors. They were usually in some form of outdoor operation," Brook said. "We've had massive numbers of escapes and quite a number of operations that have allegedly just cut the fence and let the wild boar go. So when we see those huge releases of 100-300 animals in one shot, they end up in the wild and they've done very well."

In 2014, Brook says 300 wild boar were released from a farm in southeast Saskatchewan.

"When that release happened, many of the Moose Mountain eradication team quit. They felt like there was no chance of winning while trying to deal with wild pigs when domestic wild boar were leaking like a sieve."

> **...even if you kill 80 per cent of these populations every single year for 10 years, you will still observe population growth.**
> **~ Dr. Ryan Brook**

One month after the release, he received a call from a USDA biologist that a bunch of wild pigs had been spotted in northwest North Dakota.

"There's no clear proof they were from Saskatchewan because there were no ear tags or anything, but the timing was interesting," said Brook.

Many releases aren't intentional. Fences are not foolproof, and animals consistently surprise people with their persistence and ingenuity. Fences and outdoor livestock also allow for interaction between wild and domestic animals. Brook has observed domestic pigs and wild boar on the same side of a fence, and sometimes they're making more than small talk.

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Saskatchewan hunter Craig Ochitwa poses with his recent harvest. She was pregnant with seven young. Photo courtesy Adam Makosiej

"There's one operation in the southeast where every single piglet that was born that spring had cream-coloured horizontal stripes, that were very clearly sired by a wild boar. We've had hands on an animal that was 638 pounds, so these hybrid pigs get much, much larger than you would see in Europe or Asia. It's a bit of a mess, quite frankly, and a lot of concern when we think about potential for disease transmission," he said.

Ecosystems and landscapes

While wild boar can certainly cause tremendous damage to the agricultural industry, the effect on native wildlife, ecosystems and sensitive landscapes is potentially devastating. Saskatchewan is home to an array of unique areas, including the Great Sandhills, the Cypress Hills, and native grasslands, which are under increasing pressure. They can outcompete native wildlife for resources such as food and water, and they cause tremendous damage to riparian areas, which are very sensitive in western Canada. Research shows that invasive plant species increase and correlate with increased wild boar populations. It is every bit as much an environmental problem as it is an agricultural one. Saskatchewan is home to two national parks, three national historic sites, 35 provincial parks and countless recreational areas.

"We have received considerable morale and in-kind support from the Ministry of Parks, Culture and Sport, which has been fantastic and much needed," says Brook.

Disease and biosecurity

Wild pigs, like their domestic counterparts, can host a range of diseases. Some can affect human health, and some cannot. But the difference is that the pork industry in Canada has worked very hard to keep its herd healthy and has heavily invested in medical technology and research to achieve this goal. Regular

Brook's research has revealed that more than 50% of captured wild boar sows are pregnant when necropsied. This sow, harvested in the beginning of December in the northeast part of Saskatchewan, was carrying seven piglets. Photo courtesy Adam Makosiej

monitoring, vaccines and intense biosecurity protocols have made Canada a leader in livestock production around the world.

"CFIA (Canadian Food Inspection Agency) is interested in testing all of the samples we've collected in theory, but they need to do industry consultation first. I have no idea when that will happen," Brook said. "There are potential trade implications if something like swine brucellosis or TB was found. It's hard to know what the implications of a wild animal will be. Cases of disease in domestic pigs would be more straightforward."

The U.S. has been testing feral swine for swine brucellosis, classical swine fever and pseudorabies since 2006.

"Everyone wants to bury their head in the sand and not test wild pigs thinking short term, but what if there is disease and we ignore it? It's not going to go away. As of today there have been zero pigs in Canada tested for the important reportable diseases," said Brook.

The ideal invasive species

"If we sat down in my university with all the best experts and designed the ideal, theoretical invasive species, it would look essentially, exactly like a wild pig. It would have a large body size to survive winters, extremely flexible diet to eat anything, extremely high reproductive rates, great capacity to move and disperse, very smart and able to be highly elusive, and it would use any kind of habitat," said Brook.

Tracing the invader backwards can be done by examining where the wild boar farms have historically been located. Many are gone now.

While the farmed wild boar industry didn't take off as some had hoped, the industry is still represented in Canada. High-end restaurants often feature wild boar on the menu, and public appetite for food perceived as more "natural" is likely helping to grow the category.

"We've tried it, it's a good tasty meat," said Brook. "We just had a paper that came out a few months ago in which we looked at all the data from StatsCanada, and it showed the rise and fall of the wild boar industry in Canada. It showed it was very widespread. Central Alberta had lots. Saskatchewan of course had lots and the current distribution of wild pigs sort of matches up fairly well with how much each province was into wild boar farming."

In Saskatchewan, the northeast part of the province is hardest-hit, and groups (called sounders) of animals up to 14 strong have been observed. Brook says they like agricultural land fringed with forest, heavy bush cover and wetlands.

"That's the perfect mix and in that area, there's a huge mix of that. There are very well established populations in there, but all across the southern part of the province we're seeing sightings as well. There was one not that far from Regina just in the last month or so, and there are many sightings along the North and South Saskatchewan rivers."

As versatile, opportunistic omnivores, wild boar are not limited by one food type or habitat.

"It's pretty clear that agriculture is critical to their survival. We don't see them any distance more than five kilome-

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Although this shouldn't be a common sight in Saskatchewan, it is becoming more frequent. Photo courtesy Ryan Brook

ters from agriculture so far. What we think happens is through the summer and fall, they just put on lots and lots of body conditioning with barley, wheat and they'll get into hay bales. They'll eat literally just about anything, and they will kill and eat white-tailed deer. Some people have cut stomachs open and seen nothing but frogs or nothing but salamanders. They'll get their nose into the ground to get roots, so they do a tremendous amount of damage," Brook said. "We have trillions of calories spread across the landscape."

Saskatchewan may be the province with the biggest problem, but it's not the only province with a pig problem.

"All provinces except the Maritimes currently have at least some wild pigs. Quebec has a bit of an issue, Ontario has a couple of hot-spots, Manitoba has about three spots. Saskatchewan is very widespread. Alberta is mostly sort of northwest of Edmonton, but there's been a few hotspots as well and just a couple of points here and there in BC. There's no evidence of wild pigs in the Yukon, but there are several wild boar farms in the Yukon, so we still have potential source populations," said Brook.

How many are out there?

No one knows.

"We don't know what the population would be, but very fair to say we're in the thousands. My view as a scientist, and certainly this is well-established, is that effective management of these kinds of problems means you have to have a plan with some targets, and then you need data to tell you whether you're there or not," Brook explained.

With limited funding and human resources, Brook and Kost are only studying distribution – and that can only track spread, not population density.

"In terms of numbers we just have no clue. Anywhere in Canada, if anybody gives you an estimate, just immediately say that it's not true. We just have no data on that. How can you possibly assess success or failure without any numbers?" Brook asked. "Certainly we don't see densities anything like we would see in the southern U.S. – I spent January of 2017 in Texas catching and collaring wild pigs down there, and the densities are just unbelievable."

While numbers aren't approaching those in the U.S., it's the potential for growth that really frightens Brook.

"The capacity for Saskatchewan to support more than a million wild pigs is very, very clear. Our landscape is mixed with small pieces of forest, with prairie-pothole wetlands spread across the southern half of the province. We have rivers mixed in with agricultural crop production, with lots of stored crops in the landscape. Switching to things like bale grazing, grain bags and swath grazing have been fantastic revolutionary approaches that have helped farmers, but unfortunately that leaves trillions of calories out on the landscape for pigs to access," Brook said. "If we had the funding, I would use drone technology to make the first estimate of Saskatchewan's wild pig population."

Hunting isn't helping

Wild boar hunting is a passion for many Americans, but it's done little to limit their spread. In Texas, business is booming for helicopter outfitters who cater to hunters who want to shoot wild pigs from the air. Unfortunately, it doesn't control wild boar populations.

"These pigs become sexually mature at four to six months of age. If you have a pregnant sow dropped off in your back-

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yard today, after two full years you can easily have over 100 wild pigs. So you can shoot and shoot and shoot and shoot, and increase hunter numbers, and even if you kill 80 per cent of these populations every single year for 10 years, you will still observe population growth," said Brook.

In response to the realization that wild pigs were on the Saskatchewan landscape, the provincial government changed regulations to allow residents to hunt them all year, without any bag limit.

"The belief that hunting can control population is just ignoring everything about the science of it. It was cheap and easy, so you can see why it was an attractive option, but unfortunately, just weeks before that we advised them that opening it up to hunting is not going to help," Brook said.

Research has consistently showed that sport hunting pressure actually makes the problem worse.

"If you have a group of 10 coming in from behind your house and you shoot six, now there's four. One took off three miles south, two went north, and now they're really skittish. They are four times harder to find and shoot now, because they've survived, they've become more shy of humans, and then reproduction begins in new areas," he said.

Craig Ochitwa, a wild boar hunter from Saskatoon, harvested a sow in northeast Saskatchewan on December 9. She was

A net gun is aimed at a target on the ground. Photo courtesy Ryan Brook

Once the animal is netted, ground crews must rush in to take samples and humanely euthanize it. Photo courtesy Ryan Brook

pregnant with seven piglets. Brook says that is consistent with his research, which found females upon necropsy had an average of six young.

Photos of Ochitwa's hunt were posted on the Facebook group Saskatchewan Wild Boar Hunting. It didn't take long for a debate to break out in the commentary on the post. Aspiring hunters often ask for the locations of successful hunts, and that can cause controversy as hunters are reluctant to share information or compromise their relationship with land owners. That quickly evolves into a conversation about how people are morally obligated to release this information to "control" the population. Comments about land access are also made, and some hunters believe that farmers who do not grant land access shouldn't be entitled to compensation from crop losses caused by wild boar.

Brook says the hunting crowd doesn't always want to hear what he has to say. Many hunters enjoy having a large game animal

they can hunt year-round. Some sport hunters seem to prefer the idea of managing wild boar numbers rather than eradicating them, and may be reluctant to give the pastime up. But hunting wild boar poses safety risks as well. They can grow long, razor-sharp tusks and they're not afraid to use them. Wild boar can and have charged hunters, and in Texas, attacks on people's pets and livestock are common. A German man was recently killed by wild boar after firing at it during a hunt.

Being the bearer of bad news can be a tough gig, but Brook is getting used to it.

"In the U.S., the states that have been most effective have actually banned sport harvest completely as it gets in the way of control efforts. I get challenged on that almost every single day and criticized for it. The reality is there has been sport harvesting of wild pigs for 20 years in Saskatchewan, and there's absolutely no evidence that it has helped the problem at all, just like it hasn't helped anywhere else on Earth."

So, what does work?

"What the science clearly tells us is that whole-sounder removal is what works. If you have 10, call in a team of expert hunters that use some aircraft, drones and trail cameras and the team kills 10," said Brook, who has been to 14 countries to see how the problem is handled elsewhere. "Driving around in northern Africa a few months ago, there are big signs everywhere that say 'wild pig crossing – avoid collisions'. They said they've been shooting them for the last 500 years there and they still have a problem."

While Brook's research goal isn't to remove the wild boar, when they do capture live animals for research, they use aircraft to spot and capture entire sounder groups. It's not cheap, and it's not easy, but it works. Also used in the U.S., the technique uses a Judas pig – one collared animal that is released. Judas is tracked back to his sounder and then the arsenal is deployed. A fixed-wing aircraft locates the group, a helicopter equipped with infrared helps find individuals and capture them using net guns. People on the ground are ready on snowmobiles to capture and process boar that have been netted from the air. Euthanization takes place with a captive bolt gun.

"One of the big challenges currently is access to land. In Saskatchewan, if I come to you requesting permission to clear pigs from your land, you could say no. And so we could clear out all the surrounding areas and even if that's 99 per cent effective, if you have six pigs on your land, and we leave, we'll come back in two or three years later, and there will be 100," Brook said.

Next steps are critical

"I've applied for funding through the (Saskatchewan) Agriculture Development Fund numerous times, and the response has been that this is not a problem. The main data they've used is that for four years they've paid compensation for wild boar that did crop damage, and each year I think they get less than 10 claims. 'We're not seeing crop damage, so where is the

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issue?' That's sort of been the government response," Brook said.

Every province is tackling the issue differently, but Brook expresses frustration that the province with the biggest problem seems to be taking the it the least seriously.

"Quebec is taking serious action, and we're talking about an area with maybe four dozen or so animals – nothing even close to the scope and scale of Saskatchewan. When you invest when there are just dozens to try and get rid of them, that's when you have a chance at success. When you've got them in half of the 296 rural municipalities with very well established populations in some of the wildest country in Saskatchewan, then you're spending a lot more to achieve a lot less."

Despite his frustration, Brook recognizes the pressures that government is under, and by necessity, they must triage projects.

Photo courtesy Ryan Brook

"I totally appreciate that in a lot of ways I have the easy job in that we can raise all kinds of issues, but government has so many to deal with, from rural crime to TB, to chronic wasting disease and where does this fit? I think at some point, there's going to be some very difficult issues to deal with, and they're going to have to make some decisions about priorities."

...given the risks and the damage to the landscape, the risk of disease, the damage to crops, the damage to stored feeds... we don't want them on our landscapes. ~ Perry Abramenko, Alberta Agriculture and Forestry

Brook says every province has been dealing with the issue differently, but that they all have a plan – all except Saskatchewan.

"Management versus eradication are two very different things, and that all comes back to whether a plan aims to manage or eradicate the problem. Without a plan, we don't even know what the goal is in Saskatchewan."

Saskatchewan taking action

Darby Warner, executive director of insurance for the Saskatchewan Crop Insurance Corporation (SCIC), says they're working on it. The Saskatchewan government charged the SCIC with running the Feral Wild Boar Control Program in 2015, taking over the responsibility from the Saskatchewan Association of Rural Municipalities. It is now operated as part of the Wildlife Damage Compensation Program. There are two components of the Feral Wild Boar Control Program. The first compensates producers for losses caused by wildlife.

"In our history there's been about 50 claims for damage to crops from wild boar. In all of those claims, there's been another wildlife animal included in that, so it's really hard to tell how much damage is caused by the boar, because boar is just one of the contributing factors," he said. "So last year there were 15 claims for wild boar damage in crops in Saskatchewan, and to put that in perspective, we had approximately 10,000 wildlife claims. It's a very small percentage of the damage that gets caused by wildlife in Saskatchewan."

The second part of the program responds to wild boar sightings and attempts to remove the animals from the landscape once reported.

"We have three hunting co-ordinators in Saskatchewan. One works primarily in the Moose Mountain area, and two guys work across the province. When somebody reports wild boar to us, we have a pretty good success rate if we have snow

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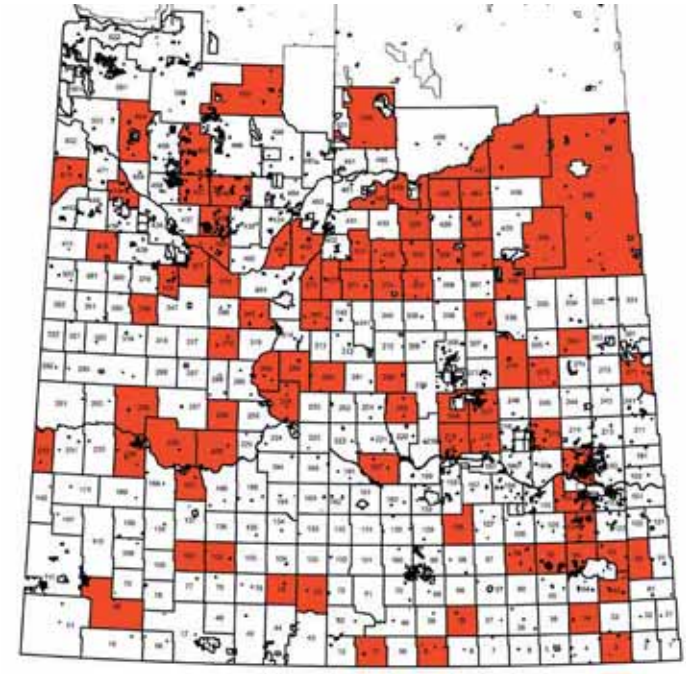


This illustrates which rural municipalities in Saskatchewan have demonstrated wild boar presence. Courtesy Ryan Brook

on the ground, we don't do a whole bunch of work in the summertime. If you have lots of snow they get bound to those trails and they're quite vulnerable in those cases," said Warner.

SCIC employs a strategy similar to Brook's, using aerial support and a Judas pig. Additionally, Warner says they have added some new tools to the mix.

"We have been quite successful with free hanging snares, so when we find those wild boar we have the same people who are co-ordinating the hunt also do the snaring for us. Of the 85 animals we killed last year, about 64 of them were killed with snares," he explained.

This past fall, they began using live traps equipped with some pretty high-tech bells and whistles.

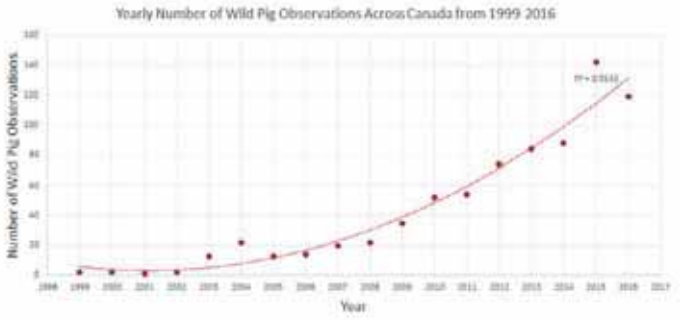
"Our live traps are set up with a digital camera, which sends pictures to a cell phone, it has a cell phone card right in it, it will send a picture to us when the pigs are in the trap. We have a remote trigger for it so we can a text message back to the trap and it will close the gate," Warner said.

Sixteen pigs were caught with that method within a couple of weeks, and all three live traps demonstrated wild boar activity at the sites.

"Dr. Ryan Brook often talks about how prolific these animals are and how many births they can give during the year, of the pigs we've killed, we've only had a couple juveniles in that bunch. They've all been adult pigs. They don't seem to be as successful as Dr. Brook is trying to portray," Warner commented.

Warner admits they have no idea how many wild boar are in the province.

"We have no idea what the population would be," he said. "It's something that the university is doing. I know Ruth Kost that works with Ryan Brook, that's what project she is working on right now. She is trying to get a handle on how many there are."



However, Kost is working on distribution, not population. Brook believes determining how dense the population is needs to become a priority so an appropriate plan can be generated and benchmarks identified.

"We don't have a management plan yet. It's something we're working on with the Ministry of Environment. We just initiated that. There are a couple of examples we have our hands on. Alberta has quite a good plan, we think we are going to use that as our roadmap to get us where we need to be," said Warner.

Matt Strebchuk processes a Judas pig by taking blood and fecal samples before outfitting it with a GPS collar. Once released, the pig will betray the location of its sounder. Photo courtesy Ryan Brook.

Looking West for answers

Although Alberta's wild boar population doesn't appear to be as extensive as Saskatchewan's, it is certainly present. Perry Abramenko of Alberta Agriculture and Forestry, isn't shy about using the word 'eradication'. Alberta is taking action on several fronts, but determining the breadth and scope of the problem is job number one.

"We are partnering up with academic institutions and we are working now on drafting up agreements and then we are going to share data. Any wild boar sampling that we are doing, they are going to be involved and possibly doing research on body condition, reproduction, diet, and DNA," he said.

The government has also prioritized communication to tackle the problem.

"We just want people to be aware that there are wild boar on our landscape, living in a feral state, and the problems that it brings," said Abramenko.

The province is also investing in trialing equipment for surveillance and capturing.

"We are concentrating our efforts in two counties – Woodlands and Lac Ste. Anne. They showed the biggest returns for bounties," Abramenko explained.

The bounty program, put in place in 2008, was funded provincially and administered municipally, and paid $50 for

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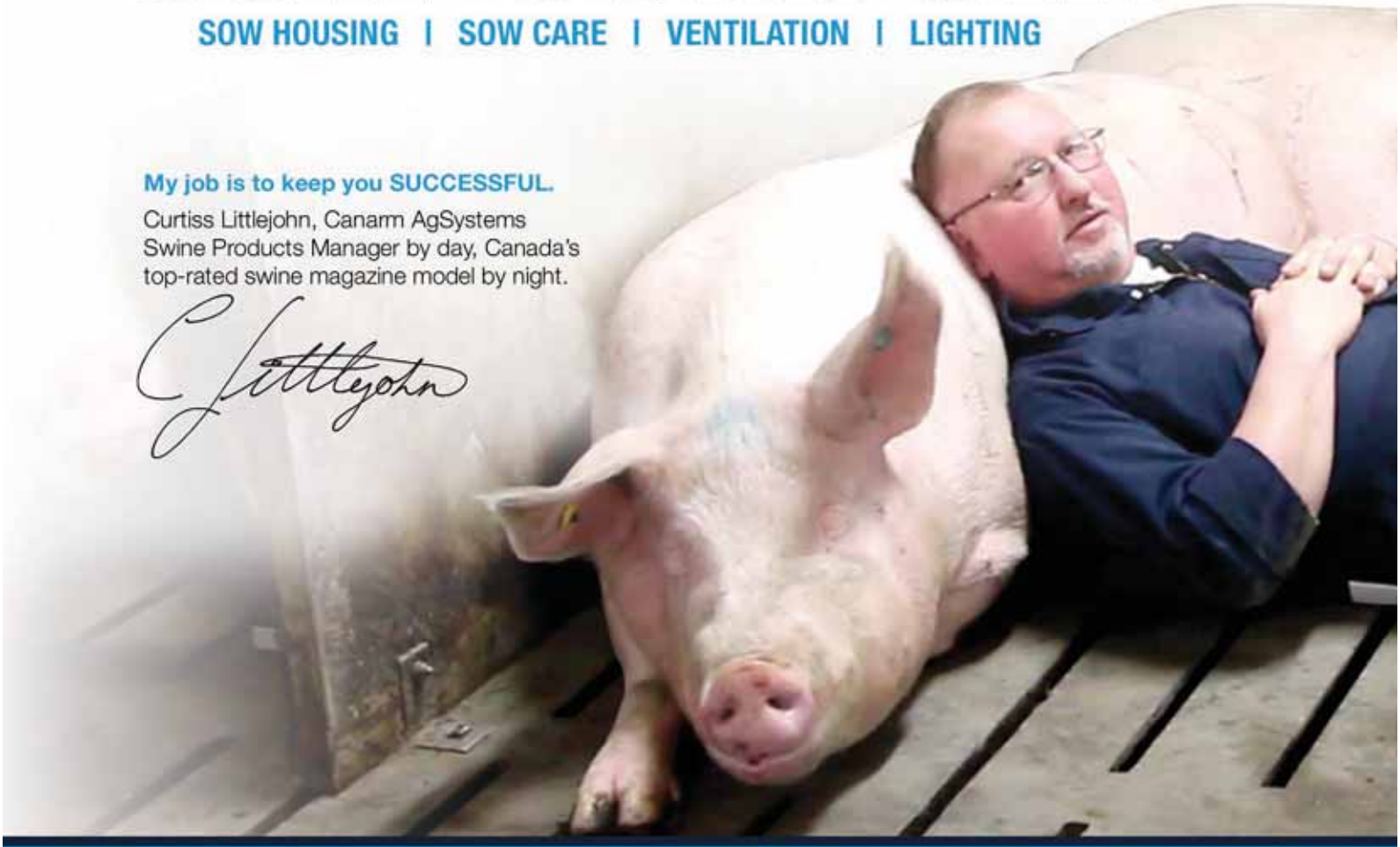

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a pair of wild pig ears. The bounty program has since been suspended in those two counties.

"We found that bounties are an effective means for gathering information and for monitoring a situation to what is going on and where things are happening. Bounties will not affect the eradication of wild boar. People that are going out and sport hunting and collecting wild boar under the bounty, unless they are catching the whole sounder at the same time, they're actually making the problem worse," said Abramenko. "That's a hard concept to sell because there are people in Alberta who enjoy hunting them as a resource. But given the risks and the damage to the landscape, the risk of disease, the damage to crops, the damage to stored feeds... we don't want them on our landscapes."

Alberta has also implemented containment standards that wild boar producers must abide by – an action Saskatchewan has yet to take.

"We are working with producers to get them into compliance and then have until the end of 2018 to be in full compliance," Abramenko said.

Falling through the cracks

Effectively dealing with the wild boar problem is going to mean mitigating the risk factors that allowed it to happen in the first place. Brook says some states have banned wild boar operations entirely.

"There are probably 20-30 wild boar farms in Saskatchewan, and theoretically, every wild boar inside a fence should have an ear tag or a tattoo."

These wild boar are incredibly well-adapted to cold. They've come from Northern Europe and Asia and they're very well adapted for cold and snow. Some people assume they would never survive a Saskatchewan winter. That's a bit naïve, given where they survive in Siberia.
~ Dr. Ryan Brook

PigTrace Canada is the national traceability system for the swine sector. An industry-led initiative by the Canadian Pork Council, the goal of the program is to identify swine premises and their location, identify animals, and record and report the movement of animals between the premises. Like with other traceability programs, the objective is to contain and reduce the spread of disease so it can be controlled and eliminated.

Jeff Clark, PigTrace Canada's manager, says the system wasn't set up to classify types of swine operations, so there is no way to know how many wild boar farms are still operating, or where they are located.

"We have loads of hobby farms registering with us and usually I pull those out based on the date of registration because we had most of our commercial operations registered before 2014. A rule of thumb I use is that anything registered since August, 2014 is a hobby farmer or an outdoor production or kind-of non-commercial, including wild boar. I have no idea in terms of a number."

Clark says in retrospect, he wishes PigTrace had included a mechanism by which to identify the types of swine farms out there.

Additionally, hunt farms aren't even required to register their operations with PigTrace.

"I think they breed on-farm, so they're not moving live animals. They're killed on-farm and then taking the carcass to a butcher. That's kind of outside our program, although I think that one (hunt farm) is registered with us. We just don't really know what's out there," he said.

Clark says he is a little surprised that producers aren't more concerned about the disease risk that feral pigs pose.

"It's weird. Within the industry itself, it doesn't really seem to concern producers. And maybe with good reason, because they practice good biosecurity so even if there are wild boar roaming around their properties, they put faith in their barn biosecurity," he said. "Even here in Manitoba, it's supposed to be regulated. If you have a wild boar farm, you're supposed to get a licence from Manitoba Conservation, which near as I can tell doesn't happen."

Manitoba Conservation hadn't returned Canadian Hog Journal's inquiry prior to press time.

Clark says the number of backyard hobby farms is continuing to climb.

Photo courtesy Ryan Brook

"We have about 13,000 farms registered now. We started with just under 8,000 so that's 5,000... lots of outdoor production and hobby farms."

He says that one day in the future, it might be possible for PigTrace to do a survey to keep the registry current, and at that time, producers could be asked what type of operation they have. PigCARE and PigSAFE are two new initiatives under development by the Canadian Pork Council, and Clark says there might be potential in those programs to reach producers with livestock at risk of becoming feral.

"Part of it includes an on-farm outdoor food safety certification. It is expanding beyond just barns because we are recognizing that there's a lot more outdoor production than we thought," he said.

Conclusion

"My job as I understand it is to do good science, and inform everybody," said Brook, who predicts that within the next decade, people will begin to see wild boar wandering into Saskatoon. "They are close, and we have a very well preserved corridor in the form of the river and so I think we'll see huge populations of pigs."

What happens next, he believes, might ultimately determine whether Saskatchewan decides to manage or eradicate the problem.

"Absolute worst-case scenario is that someone like a young child gets seriously injured or killed, or some disease is detected," Brook said.

But he hopes it won't take a tragedy to mobilize the political will to take care of the problem, and that's why he has tirelessly engaged stakeholders and the media. Look for his page on Facebook by searching for 'Canadian Wild Pig Project'.

"From everywhere else in the world we know their reproductive capacity, their massive capacity to cause crop damage, to harass livestock, to kill young livestock, and to completely devastate native ecosystems. In the States, it's a multibillion dollar problem and what has befuddled me is the assumption

Those tusks can do real damage. Last month, a German man was killed by a wild boar while hunting. Photo courtesy Ryan Brook

that things are different here in Saskatchewan than anywhere else in the world," Brook said.

"I think (eradication) is everybody's goal at the outset. I don't know if that's possible," Warner said, adding that if eradication is the objective, they will have to listen to Brook's advice and move quickly. "That's something we will have to outline in our management plan, what the eventual goal of this is in Saskatchewan."

"There really isn't anything in Saskatchewan that you would call bad habitat for wild pigs. The window to deal with this is closing very rapidly. Certainly within my lifetime, at the rate we're going, we could have more wild pigs than people in Saskatchewan," Brook said. ■

Industry News

Farewell to pork industry giant Bill Vaags, 1934 - 2017

By George M. Matheson, chair of Manitoba Pork

The Canadian pork industry has had many champions over the years, but few were as dynamic as Bill Vaags, who passed away in September at the age of 82, leaving a hole in numerous lives and a deep legacy within the pork sector. Bill's career as a pork producer began in 1961, when he and his wife Bertha started raising hogs near Dugald, Manitoba. Over the years, Bill, Bertha and their five children built a progressive, sustainable hog operation that at one time was one of the largest in western Canada. Ever a pioneer, Bill led the way in the use of swine artificial insemination and other industry initiatives, experimenting with new production methods and environmentally sustainable and innovative farming practices.

In addition to farming, Bill devoted a significant part of his life to advancing the interests of Canadian pork producers and was well known nationally and internationally as a leader in the industry. His expertise in agricultural trade policy matters, both domestic and international, was widely recognized and sought out in both industry and government circles.

At Manitoba Pork AGM 2010, then-chair Karl Kynoch (right) presents the Lifetime Achievement Award to Bill Vaags, shown here with his wife, Bertha.

To highlight but a few of Bill's accomplishments, he was a director at Manitoba Pork for 37 years, 11 of those as chairman. He was a Canadian Pork Council director for 24 years, with five as president. Bill was a founding member of Canada Pork International in 1991, and its president for six years, and was an active participant in the NAFTA negotiations. Bill was also a driving force in the Canadian Federation of Agriculture and was the Chairman of the Organizing Committee of the World Meat Congress that was held in Winnipeg in 2004.

Over the years, Bill received numerous national and international tributes for his tireless efforts. On the home front, to honour and acknowledge his vast contributions to the Manitoba agriculture sector, the Vaags were recognized by the Red River Exhibition as the Manitoba Farm Family of the Year in 1997. In 2002, Bill's outstanding contribution to the pork industry was recognized by Manitoba Pork with the Swine Stewardship Award. Bill was inducted into the Manitoba Agricultural Hall of Fame in 2006 and in 2010, Manitoba Pork presented him with a Lifetime Achievement Award. To say that everyone in the Canadian pork industry knew Bill Vaags may be an exaggeration, but not by much. He had a way about him that drew people in and made them feel that their opinions mattered. To me, Bill was a colleague and friend, and most importantly, a mentor. He taught me that in our sometimes-maligned industry, diplomacy is essential and that it is crucial that producers always present themselves well and with pride. He also taught me the value of consensus. Manitoba Pork's board of directors is the most diverse group of its type in the country, and Bill knew that a united front was necessary to get an effective message out to governments and the public. With Bill's passing, the Manitoba and Canadian pork industries have lost a very good friend, and I am sure many producers would say one of their best. ■

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The next 25 – looking to the future with Prairie Swine Centre

CEO Lee Whittington is retiring after the first 25, but he sees great things ahead for PSC

By Sheri Monk

Lee Whittington, president and CEO of Prairie Swine Centre, is retiring in 2018 after 25 years of service.

The year 2017 was a big one for the Prairie Swine Centre (PSC), with commemorating 25 years as an organization high on the list of priorities. But as it turns out, it was also a year of transition and new beginnings. During the Saskatchewan Pork Industry Symposium in November, it was announced that long-time president and CEO Lee Whittington would be retiring in 2018, after 25 years of dedicated service.

So, what does the next 25 years have in store for the Prairie Swine Centre? Change, challenge and success.

"I've built a growth philosophy around author Steven Covey's Seven Habits of Highly Effective People," said Whittington.

His version, Seven Habits of Highly Effective Research Organizations, has been refined throughout his time and experience with PSC – some may even call it his legacy.

Number One: Issues, not disciplines, will engage your client

Lee says stakeholders may not necessarily have a passion for engineering, and that means researchers need to look at disciplines such as engineering as a tool that facilitates dialogue, rather than an entity that defines the narrative.

"There are all kinds of disciplines that may affect an issue, but as an institution and as a smart researcher, you're going to focus on the issue itself because that's what's going to engage the industry to say, 'Yes, I want to invest in this person, because they understand the problem.' If the researcher doesn't get it intuitively, it's the role of the institution to build that relationship."

Number two: An industry-driven mandate keeps research connected to the customer

In other words, figuring out what pigs dream about during REM sleep might be fun to investigate, but the resulting discoveries need to be relevant to the pork industry to be practical.

"The future of research centers, I think, is going to look a lot different than it looks now. I think every funding agency, whether it's a government or private institution, are all looking for results that are applicable. Maybe not in six months, or six years, but that they're applicable, because that is how the funder will measure their success. The ability to apply that knowledge is their measure of our accountability," said Whittington.

Number three: Professional management frees researchers to do what they do best

"I think researchers should be allowed to research, and explore ideas, and demonstrate statistically valid results. We really need to support them with specialized accounting, HR and tech-transfer people, so they don't have to perform the kinds of tasks they aren't trained for or passionate about. We need to surround them with professional management," he said.

Number four: Be a catalyst – share facilities and collaborate

There is strength in numbers, and wisdom in working together. It puts the needs of the entire sector ahead of individuals, and it builds opportunities that may never have existed before.

"Each research farm has its strengths in building design and capabilities and we need to encourage researchers and their students to travel to the facility that best meets their project needs. Less provincialism and openness to work in other institutions will optimize the use of the various facilities across Canada," said Whittington. "We must resist duplicating facilities in other institutions, and instead make the most use of the facilities we have, building new only when we as a national industry need new resources to complete specialized work."

Number five: Develop people who will make a difference

Whittington says the right people want to work at the right place for the right reasons. They're invested in the industry, and they're capable of putting a human face on the big (and pig) picture.

"You need to recruit the kind of scientists who are really interested in seeing their ideas flourish. They like interacting with the public and they like talking about their work – they're not just interested in seeing something published in a journal," Whittington said. "The greatest outcome is not the immediate project knowledge, but the people that are trained and go into industry using their knowledge and learned skills to make a difference in feeding programs or genetic evaluation, for example."

Number six: Have a Global vision plus a BHAG (big hairy audacious goal, as popularized by author Jerry Porras)

What might seem a fantastical idea at first can grow into an inspirational institution like Prairie Swine Centre has over the years. But that takes courage, vision and patience to stay the course.

"I believe that you need to aim high to make a difference, so if Prairie Swine Centre wants to make a difference for Canadian pork production it needs to behave like it is Canada's research centre and collaborate globally to find the best ideas. That is why we are currently working closely with two Spanish groups. For a small prairie-based-institution to be collaborating with the leaders in innovation in swine production is a big win. That is the definition of a BHAG – to be 'world class' so that our local Canadian stakeholders benefit from the best innovations in the world."

Former and current employees of PSC gather together for a photo during the 40th Sask Pork Industry Symposium.

Number seven: Quantify the benefits to your stakeholders

Whether it's their return on investment, the internal rate of return, or $/pig marketed, stakeholders want to be kept apprised of the bottom line.

CONTINUED ON PAGE 40

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Prairie Swine Centre CEO and president Lee Whittington cuts the anniversary cake during the Saskatchewan Pork Industry Symposium November 15, 2017.

"This has been a significant point of differentiation with Prairie Swine Centre for many years, that is to evaluate and estimate the financial net income benefit of the research done and define the benefit to a commercial farm. We believe that much good research is left on the shelf. It is the final economic impact analysis that helps to convince the farm owner and their family to invest in new technology and reap those benefits of lower production costs, better animal well-being and lower impact on environment," Whittington said.

Prairie Swine Centre is unique in how it's funded and how it operates. Like all research programs that involve animal husbandry, they have to be in it for the long-haul.

"Research farms are expensive to run, relative to anything else that is run at a university. A research farm feeds animals every day and must continue to be able to, even when a grant runs out," Whittington said. "And I guess I made it my mission some years ago to try and make sure that that resource would be available into the future, because if we ever let it go or wound it down, I doubt that there's enough political appetite to restart such an expensive venture."

A tremendous advantage the Prairie Swine Centre has is its ability to ramp up a research program. It already has the people, livestock and the infrastructure needed to mobilize quickly. And that rapid responsiveness can make all the difference when there are big issues in the industry such as PEDv, dramatically changing feed prices, or changes to regulations.

"Part of the beauty of the way Prairie Swine Centre was set up, and it's so unique, is that we get base funding to hire people with the right skill set, to let them explore some of these ideas. They still need individual project funding to move ahead, but at least we're given the latitude to hire an engineer, and as things evolve from air quality to barn design, we've already got that person on-staff and engaged. We don't have to shut down one program and then apply for money on the next topic of barn design," Whittington explained.

One of the biggest challenges facing any research facility with an engaged group of stakeholders is trying to predict what will become the most relevant issues in the future. Research takes time – a lot of time – and just applying for and receiving funding can take months or even years.

"Trying to pitch an idea at a pork board meeting projecting 10 years into the future when people are looking at me asking what I'm going to do for them tomorrow is difficult. We have to always be looking 3-5 years into the future so that we're not dated, and to make sure we are on top of market trends," he said.

But there's so much more to it than just knowing the hard facts and how the markets are performing, and that's some of the most rewarding stuff.

> **Our team genuinely cares, and they are invested in the success not just of one research project, but in the entire industry**
> **~ Lee Whittington**

"It's really about relationships, and communicating with producers so you truly know what they're up against. Then you take that information and you shape it into funding, and hopefully at the end of the process you're able to look those producers in the eye and give them something they can use, and something that makes their life better," Whittington said.

Whether it's a marriage or a research centre, communication is the cornerstone to success.

"We've got to ensure that our whole team that interacts with the industry understand, communicate, and have empathy with the pork producer. The value of the research program in the eyes of the farmer, transporter or processor is not just the new knowledge but the whole package of delivery, communication and economic benefit associated with that new knowledge. With the right delivery there will be perceived value and that translates into support for future work. Author Simon Sinek said it best in his 2009 TED talk "people don't buy ***what*** you do they buy ***why*** you do it". And that's something I believe we have done very well at Prairie Swine Centre. Our team genuinely cares, and they are invested in the success not just of one research project, but in the entire industry. And that will be the key to our success in the next 25 years." ■

Watch out for fake news about Banff Pork Seminar 2018

Everything you need to know for the January 9-11 event

By Terry Hockaday

Fake news is everywhere. Driven by social media, fueled by discontent and who knows what... Now there are stories about what is happening at Banff Pork Seminar (BPS) 2018. Some of them are nasty, some of them sad, and all untrue.

Here are the worst of those that BPS delegates need to know about before they head for the mountains:

Lost delegates from 2017

There are reports at least three delegates from the 2017 Banff Pork Seminar disappeared never to be seen again while desperately trying to find passageway from the main hotel to the conference center. Absolutely untrue.

What is true is that all the events for Banff Pork Seminar 2018 are under one roof. It's a simple short walk across the parking lot from the hotel to the conference center if you want some fresh air. Or if you want to stay warm, you can take the tunnel system and come up right in meeting central. Just follow the crowd.

The luncheon buffet goes vegan

Someone has started the rumor that that BPS co-ordinator Ashley Steeple has changed the luncheon buffet, go-

CONTINUED ON PAGE 42

Last minute tips for BPS 2018 delegates

Here's a quick last-minute checklist for delegates to the 2018 Banff Pork Seminar (BPS) from Seminar co-ordinator Ashley Steeple.

The venue

The Banff Springs Hotel is where BPS began and the hotel staff and the BPS committee have worked hard to make it special for 2018. There are several restaurants and lounges right in the hotel so check out which best fit your needs.

Registration payment

If BPS has not received payment for your registration or your group's registration, delegates will not be able to check in and pick up their kits until payment is received. Please ensure the first person

to check in from your group is prepared to settle the invoice. Payment by credit card, cheque or cash is accepted.

Breakout sessions
The breakout sessions delegates have selected are printed on their name tags. If you did not choose sessions, the person who registered your group may have chosen for you.

Note – breakout sessions have limited seating and once a session is full, fire regulations prevent BPS from allowing more people in. Please arrive at least five minutes before the session to avoid disrupting speakers and other delegates and to ensure you get to see the sessions you want.

Wednesday evening is open
There is no formal event planned for Wednesday evening. Delegates can meet after the day's breakout sessions and enjoy a refreshment from the cash bar in the tradeshow area, then head out on their own to enjoy the best of Banff.

Wear your nametag
Name badges will be required for entry into sessions, functions and meals.

Free wireless
Available in the hotel and meeting rooms. Password is "pork".

ing all vegan this year to save a couple of bucks and the environment.

Not true. Delegates can choose from a broad selection of incredible culinary delights at lunch. Note – lunches are included in delegate registration. Breakfast and dinner are at delegate choice and cost (the Banff Springs breakfast buffet is a winner). And by the way, the environment is just fine, thank-you very much even with all those delicious livestock products on the table.

Snap exam for Wednesday evening

This one really hurts. There are rumors that Banff Pork Seminar chair Mark Chambers has called a snap exam on the animal care code for delegates on Wednesday evening.

"Absolutely not true," said a horrified Chambers. "That would mean I can't go to the Irish Pub."

Wednesday evening at BPS 2018 is wide open for networking or whatever the code is for going to the Irish Pub. Delegates can meet in the seminar exhibitor area immediately after the afternoon breakout sessions end for a light refreshment, a quick close to the day and chance to visit. Then they will have the entire evening to do whatever they wish.

Lie detector at the Irish Pub

Nothing to see here, folks. There were stories circulating that the Irish Pub had installed a lie detector. The truth is they tried, but lost too many customers.

This pub, like many other great spots in Banff's wonderful downtown, will be hopping on Wednesday and most other nights during Banff Pork Seminar week. BPS delegates will be leading the way and sharing stories, which will all be absolutely true.

Borders are closed

Fakes news is reporting the pork industry has pushed for border restrictions prior to this year's events to control who gets to attend Banff Pork Seminar 2018.

Truly fake. BPS 2018 has people attending from across North America and around the world. This unique networking experience is one of the reasons many delegates return year after year.

Dancing coordinators

BPS 2018 plenary speaker and YouTube sensation Greg Peterson gets millions of visitors to his channel telling the story of modern agriculture with parodies of popular songs. The videos are shot with his brothers on their Midwest U.S. farm. Some are now suggesting on social media that BPS program coordinators Ruurd Zijlstra and Michael Dyck have landed a gig as backup dancers in Peterson's next video. But we're thinking this is likely

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Check the BPS app
It will have all the program details delegates need for quick, easy access to program details such as breakout locations. App download details will be sent to each delegate registered.

Banff Airporter Shuttle discount
Anyone arriving by air and wishing to book the Banff Airporter Shuttle can get a discount by booking through the BPS website. Check under the Accommodations and Travel button, Airporter Shuttle tab for promo code and details.

Free downtown shuttles
These will be running between downtown and the Banff Springs during the evening. See the program for times and pickup locations.

Find the latest news at the Inside BPS 2018 Special Report
Get news, photos and the Inside BPS blog in this Special Meeting Report from the 2018 Banff Pork Seminar presented by communications partner Meristem. Find the special report link on the BPS website home page. Inside BPS Report articles are available with credit for reprint for individual, industry or media use.

Follow BPS on Twitter
All the latest news will at #Banffpork

Final program handout
A PDF of the 2018 program handout with final details will be on the BPS website www.banffpork.ca in late December. Click on the Program button at the home page, then on the printable Program PDF tab.

Seminar evaluations
These are critically important to planning future seminars so please fill them out.

The BPS team looks forward to meeting you in Banff!

untrue, and their co-ordination is likely better on the seminar floor than the dance floor.

What we do know is delegates should not head home until they hear Greg Peterson's talk on advocacy and reaching the elusive millennial demographic. It's the closing plenary Thursday afternoon, a fun and positive end to a great BPS program.

New downtown bus

No truth that a well-known transporter has stepped in with a new stock trailer to haul delegates back and forth to the downtown.

What we do know is there is regular, comfortable bus transportation from the Banff Springs to downtown evenings during the seminar. It's complimentary. It starts at 7 p.m. on Tuesday and 6 p.m. on Wednesday and runs approximately every 15 minutes. Or you can just stay right in the host hotel and enjoy one of the restaurants.

Aherne Innovator Prize

Rumors are circulating that this year, the coveted prize went to a beef producer.

Never happened. In fact, this award has grown into one of the best in the pork industry in Canada, truly fitting for the man and pork industry visionary it was named after, Frank Aherne.

You can learn more about this year's Aherne Prize winner or winners in Breakout Session 8 on Wednesday afternoon, and watch the award presentation just before the Thursday morning plenary session.

Undercover stories

This is scary. Rumors are that BPS has adopted the "Report a Poacher" technology to report any delegate who goes skiing.

This is just silly. In actuality, what we do know is that BPS has worked with the Banff Springs Hotel to negotiate one sweet deal on hotel rates that allow delegates to arrive early and stay late that week to do exactly that – have some fun.

The snow is great and delegates will never forget those great times in one of the most beautiful spots on earth.

The test of a good time

So try this. Take a photo or more than one of the phenomenal beauty just outside the door of your conference hotel, or the world-renowned history inside it. Send immediately to your friends, family or your teammates and then see how many send a note back wishing they were there. (And don't forget to send some to the editor of Canadian Hog Journal, Sheri Monk. She's searching for her next front cover photographer! sherimonk@gmail.com)

We told you. Enjoy the week. It's a special one. ■

Sask Pork honours industry marathon producers

By Sheri Monk, with files from Sask Pork

The 40th Saskatchewan Pork Industry Symposium was held November 14-15 in Saskatoon.

Along with an (always) impressive line-up of speakers and topics, this year, organizers did something extra special to celebrate and honour producers and operations that have been working for 40, 50, and 60-plus years.

2017 Saskatchewan Pork Industry Long Service Awards

60+ Years of Production

Bench Colony

Cypress Colony

Tompkins Colony

Leask Colony

50+ Years of Production

Downie Lake Colony

West Bench

Hillsvale Colony

Main Centre Colony

Simmie Colony

Sand Lake Colony

Haven Colony

Paul and Judy Ulrich

Recipients of the Saskatchewan Pork Industry Long Service Awards (not all award winners present for photo)

40+ Years of Production

Smiley Colony

Baildon Colony

Kyle Colony

Hodgeville Colony

Clear Spring Colony

Ponteix Colony

Lakeview Colony

Quill Lake Colony

Star City Colony

Swift Current Colony

Fort Pitt Farms

Florian and Betty Possberg, Humboldt

Don and Kathleen Kolla, Cudworth

Richard and Dianne Wright, Kenosee Lake

CONTINUED ON PAGE 47

PIG WELFARE IS EVERYONE'S BUSINESS...

Boehringer Ingelheim

"We raise them for us; that means we owe them some respect. Nature is cruel but we don't have to be."[1]

- Dr. Temple Grandin

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1. Goodreads:Temple Grandin Quotes. https://www.goodreads.com/quotes/422878-we-raise-them-for-us-that-means-we-owe-them. Accessed August 8, 2017.

Paul and Judy Ulrich with their award of distinction for entrepreneurial spirit and service, presented by Lee Whittington (right).

In addition, every year, Sask Pork present their awards of distinction to honour individuals or organizations who through their leadership, commitment and innovation contribute to the success and sustainability of the Saskatchewan pork industry. This year, Paul and Judy Ulrich from Spalding, Saskatchewan took home the award of distinction for entrepreneurial spirit and service. Lee Whittington, president and CEO of Prairie Swine Centre, presented the award after a touching and sometimes hilarious tribute to the couple.

Paul was raised on a farm in the Spalding area and began hog farming 50 years ago in 1967 with 25 sows, later expanding to a 400-sow farrow-to-finish operation. Paul and Judy also operated P&J Sales, a dealer for Crystal Spring Hog Equipment. Judy was responsible for the accounting for their operations and also worked in the barn. They have raised five children and enjoy two grandchildren.

Paul served as a Sask Pork delegate from 1999-2000 and was then elected as director in November 2011. He completed three consecutive terms as director in November 2017. He has served as Sask Pork's Audit Chair since 2012 and as representative to the Agricultural Producers Association of Saskatchewan. Prior to joining Sask Pork's Board of Directors, Paul also served as a director for SPI Marketing Group and was a director of the Prairie Feed Coop and participated as a member of Sisco.

Judy was elected to Sask Pork's Board of Directors in April 2001, serving three consecutive terms until November 2007. During her time as a director, Judy also served on the Audit Committee (2003-04), Public Policy Committee (2001-05) and Research Committee (2002-07). Judy was also honoured with a Rural Women's Achievement Award in 2003.

They have also been very involved in Agribition, community events, and were also infamous for hosting a picnic for the media – right next to their lagoon. The stunt was part of a "manure tour" to demonstrate to the public the effectiveness of the straw-blowing technique in eliminating odour.

David Resch, general manager of Chesterfield Stock Farm.

The 2017 Award of Distinction for Production Excellence was awarded to David Resch, general manager of Chesterfield Stock Farm near Leader, Saskatchewan. The presentation was made by Richard Wright, director with Chesterfield Stock Farm.

Under David's management since 1999, the farm has achieved an extraordinary level of production performance. The farm itself is a unique success story – it's an investment owned by a group of local farmers. David is responsible for commercial animal production and production of high-quality breeding stock. His loyalty, ingenuity, commitment and hard work ethic were recognized and his achievements celebrated by all in attendance. ■

Social Licence

National Sow Housing Conversion Project

D. Richards[1], S. Turcotte[2], Y. Seddon[3], M. Fynn[4], L. Connor[5] , J. Brown[1]

Summary

Over the past decade, large numbers of North American food retailers and supermarket chains have announced plans to develop 'stall-free' pork supply chains, and the 2014 Canadian Code of Practice for the Care and Handling of Pigs includes a number of requirements that limit the use of gestation stalls. Consequently, the pork industry is under pressure to implement group gestation housing for Canada's approximately 1.3 million sows.

However, there are major concerns within the industry around the conversion process and implementation of group housing for sows. The process requires a large capital investment, and selecting the 'right' system can be a daunting task. Within the Canadian industry there is relatively little knowledge and experience on the management of sows in group systems.

The National Sow Housing Conversion Project (NSHCP) is a descriptive project intended to facilitate the successful conversion of Canada's sow barns to group housing. The project involves collaboration from industry participants and academic researchers across Canada working together on a comprehensive strategy involving demonstration farms and technology transfer materials and events to support Canadian pork producers. This report describes progress up to year three of this four-year project.

The project is a collaboration between the University of Manitoba, Manitoba Pork Council, CDPQ and the Prairie Swine Centre. The full project will collect detailed information on fourteen barn sites across the country that have implemented group sow housing. The information collected is in the form of questionnaires, interviews, photos, videos, barn layous and production and economic data. The results are being made available to producers through producer meetings and presentations, newsletters, and a comprehensive website – www.groupsowhousing.com.

Introduction

In 2007, the largest pork producers in the U.S. and Canada pledged to transition their sow housing to group systems over the next 10 years. The European Union has banned sow gestation stalls in all member countries as of January 1, 2013. More recently, increasing numbers of food retailers – including Tim Hortons, Burger King and McDonalds – have pledged to source pork from producers who have plans for conversion to group housing, and supermarket chains Safeway and Costco recently announced plans to develop a stall-free pork supply chain. Consequently, the Canadian pork industry is under great pressure to convert existing gestation stall housing for its approximately 1.3 million sows to group systems. With more than 60 per cent of Canadian pork going to export markets, the future strength of the industry depends on maintaining and increasing access to global markets.

Tim Hortons, Burger King and McDonalds have pledged to source pork from producers who have plans for conversion to group housing, and supermarket chains Safeway and Costco recently announced plans to develop a stall-free pork supply chain.

However, there are major concerns within the industry surrounding the conversion from stalls to group housing. The process requires a large capital investment with little room for error, and selecting the 'right' system can be a daunting task. Within the Canadian industry there is relatively little knowledge or experience on the management of sows in group systems. A variety of group housing systems are available, most of which require more space, different management skills and require more labour input compared to stall housing. Without proper support and advice, there is potential for substantial losses in herd productivity, a decline in sow welfare and an overall reduction in the Canadian herd size as producers struggle to make this change. The National Sow Housing Conversion Project (NSHCP) has brought together industry and scientific expertise to produce a comprehensive national strategy, involving demonstration farms and technology transfer, to support Canadian pork producers in this conversion.

Conclusions

The NSHCP is designed to help Canada's swine production sector respond to the emerging issue of group sow housing. By compiling the best information available on group housing and working with producers on demonstration projects, the project will aid producers in meeting this challenge in an efficient manner. This four-year project is being run in collaboration with the University of Manitoba and producer groups in Quebec and Manitoba. The information produced includes barn and pen designs, detailed costing and management strategies, and reviews of scientific literature. The information will be conveyed through demonstrations, factsheets, presentations at producer meetings, newsletters and the project website. The NSHCP will thus increase producer confidence surrounding this transition and provide clear support and guidance for producers wanting to convert from stalls to group housing. The project will therefore assist producers by providing the support needed to implement new housing technologies effectively. This will help producers to maintain productivity during the transition, and places the Canadian pork industry in a strong position with respect to meeting increasing animal welfare requirements within global markets.

Acknowledgements

This project is funded by Swine Innovation Porc within the Swine Cluster 2: Driving Results Through Innovation research program. Funding is provided by Agriculture and Agri-Food Canada through the AgriInnovation Program, provincial producer organizations and industry partners. The authors would also like to acknowledge the strategic program funding provided by Sask Pork, Alberta Pork, Ontario Pork, the Manitoba Pork Council and the Saskatchewan Agriculture Development Fund. In addition, we wish to acknowledge the support of the production and research technicians at Prairie Swine Centre that make it possible to conduct this research. ■

Swine Innovation Porc – research and development for the Canadian Pork Industry

Submitted by Swine Innovation Porc

Swine Innovation Porc is a not-for-profit, national organization that co-ordinates and facilitates research for the Canadian pork sector. We are made up of nine members, including the Canadian Pork Council, and eight provincial pork producer organizations. Our primary objective is to develop research that will bring tangible benefits to producers and the pork industry at large.

Our vision – Swine Innovation Porc increases Canadian swine industry competitiveness through a national research and development structure.

Our mission – Swine Innovation Porc is committed to provide national leadership in coordinating and facilitating research, knowledge transfer and commercialization initiatives to enhance the competitiveness of the Canadian swine industry.

Our goal – Increase profitability and long-term success for the swine industry.

What do we do?

- Carry out a five-year research program that is funded primarily through Agriculture and Agri-Food Canada, as well as by producer and private industry matching funds.

How do we do it?

- Identify national research priorities.
- Develop national research and development programs.
- Communicate research results and help producers and others within the pork industry to use new technologies and strategies.
- Bring together the scientific community and industry partners to deliver research.
- Encourage the development of Canadian expertise in swine-related research.

A few numbers

Swine Innovation Porc has managed two research programs to date called Swine Cluster 1 and 2, and is now preparing for a third. Here a few numbers about what we have done so far:

Swine Cluster 1 (2010-2013) and Swine Cluster 2 (2013-2018):

- Total of $31.7 million invested in research over 8 years
- 35+ research projects
- 100+ researchers
- 120+ masters and PhD candidates
- 30+ research organizations
- 50+ industry partners from private companies
- 230+ Peer-reviewed scientific papers

Activities related to communicating research results:

- 13 workshops held across the country on: mycotoxins, sow lameness, nutrition, group sow housing, and research priorities (1,000+ participants).
- 35+ producers and industry representatives who participated in programs where technologies were brought into Canadian barns and private companies within the pork value chain.
- Eight times where SIP supported national swine conferences such as the Banff Pork Seminar and London Swine Conference.
- 200+ articles and e-newsletters .
- 180+ Farmscape interviews.
- 15+ nationally held meetings to increase collaboration between researchers and industry.

More details about SIP's activities and research results can be found at www.swineinnovationporc.ca.

Success stories

Truck Wash Improvements[1] led by Terry Fonstad, University of Saskatchewan

A vacuum wash system is being developed to clean livestock transport trailers more effectively, quickly, and by using less water and labour. The project involves testing a system that combines a vacuum and pressure wash and has shown promising results in increasing overall wash efficiency. In addition, researchers have found that once the trailers are washed, heating them at 75°C for 15 minutes is an effective way to destroy pathogens, including PED. For this final disinfection, trailers are placed in a designated heating bay.

National Sow Housing Conversion Project[2], Jennifer Brown, Prairie Swine Centre

To help producers make the transition to housing sows in groups, researchers have documented several barns going through the conversion process and collected information from a number of sites that already made the transition. The experience of these producers is now outlined on the website www.groupsowhousing.com in the form of descriptions, pictures and interviews. These barns include both newly built and renovated facilities from a variety of locations across Canada. An assortment of herd sizes and feeding systems are also represented. This website is an excellent resource for producers who are preparing to convert to group sow housing.

In addition to documenting barn conversions, the project has organized multiple producer presentations and provided support and information to producers considering the transition to groups. Check out the website to learn more.

Strategies to Reduce Feed Cost, led by James Squires, University of Guelph

Piglet Nutrition[3]

Researchers have looked at various strategies and supplements for feeding piglets that would reduce cost, while maintaining (and sometimes promoting) animal performance. Researchers

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have found that feeding a low complexity diet (such as low-level animal protein) to piglets allows a reduction in feed cost to about $2.80 per pig during the nursery period. The diet does not have a negative impact on pig growth and carcass quality, however researchers are further investigating whether these diets will have any negative impact on pig health.

Growing-Finishing Pig Nutrition[4]

Looking at new and emerging feedstuffs is one avenue that researchers have been investigating to develop low-cost feeding strategies. At the University of Guelph, researchers have found that low fat corn (high protein) DDGS could eventually replace significant amounts of corn and soybean meal in growing-finishing pig diets. The next step is to determine the optimal and economical amounts of DDGS to include in feed.

Pig Transportation, Welfare and Meat Quality[5] – Luigi Faucitano, Sherbrooke Research and Development Centre, AAFC

Work has been done to evaluate if, in hot weather, using ventilation and water misting has a positive impact on pigs that are waiting to be unloaded from trailers at the slaughterhouse. Specifically, researchers looked at the impact on pig behavior, physiology and carcass quality. Preliminary results indicate that using a fan-misting bank on a pot-belly trailer seemed to result in a more comfortable environment for pigs waiting to be unloaded. It also seemed to result in pigs having a lower dehydration condition at slaughter. Results also suggest that there is a need for improving trailer design in order for all pigs in all compartments to benefit from the bank of fan misters (ie. pattern of side ventilation openings and internal gate type).

These highlights represent just a few of our supported projects that are currently underway. Visit our website at www.swineinnocationporc.ca to learn about more research results and to sign up for our email list to receive monthly updates. ■

[1]Project title: "Technology and methodology development for improved biosecurity in livestock transport vehicles - Phase 2: Preliminary system development and data acquisition," Research team: Terry Fonstad, Jennifer Brown, Hubert Landry, Volker Gerdts. 2013-2018

[2]Project title: "National sow housing conversion project," Research team: Jennifer Brown, Laurie Connor, Qiang Zhang, Murray Elliot, Mark Fynn, Sébastien Turcotte, Lee Whittington. 2013-2018

[3]Project title: "Innovative piglet management strategies for optimum performance up to slaughter weight and profitable pork production," University of Guelph research team: Kees de Lange, Jim Squires, Julang Li, Niel Karrow, Vahab Farzan, Bob Friendship. 2013-2018

[4]Project title: "Feeding programs for growing-finishing pigs to enhance global competitiveness: Opportunities across Canada," University of Guelph research team: James Squires, Kees de Lange, Julang Li, Ira Mandell, Robert Friendship. 2013-2018

[5]Project title: "Monitoring the effects of transport on the behaviour, physiology, carcass and meat quality of pigs through the study of truck microclimate, vibrations and cooling systems," Research team: Luigi Faucitano, Julie Arsenault, Marie-Ève Lambert, Zvonimir Poljak. 2013-2018

Feeding chickpea to weaned pigs

Lifang Wang[1], Eduardo Beltranena[1,2], and Ruurd T. Zijlstra[1]*

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Take Home Message

Feeding 15 per cent chickpea by replacing 10 per cent soybean meal and 5 per cent wheat grain increased feed intake and weight gain of weaned pigs while maintaining feed conversion. Further inclusions to 30 per cent chickpea reduced growth and feed conversion due to reduced protein digestibility. Sourced at a right price, chickpea can be an attractive alternative feedstuff for pigs. Chickpea should be introduced progressively by phase feeding to get pigs used to digesting it.

Feeding chickpea

Increased prices of feedstuffs reduce profit margins in pork production. Off-grade chickpea can be a sporadic alternative feedstuff for pigs from time to time. Chickpea production is 13.7 million metric tonnes worldwide, and 110,000 tonnes are forecasted this year for the Prairies of which Saskatchewan grows ~95 per cent and Alberta ~5 per cent. Chickpea contains starch, protein and fibre, and is mostly destined for human food export; Pakistan and USA are our two main markets. Feed inclusion of locally grown off-grade chickpea can replace imported soybean meal as protein source to reduce feed cost. Little information is available feeding chickpea to pigs, so we decide to evaluate its effects on growth performance and diet digestibility feeding weaned pigs up to 30 per cent chickpea in late nursery diets.

Nutrient profile of chickpea and the diets fed

The chickpea sample fed contained 33 per cent starch, 21 per cent protein, 12.5 per cent total dietary fibre and nearly nine per cent fat (much greater than ~1.5 per cent in field pea or

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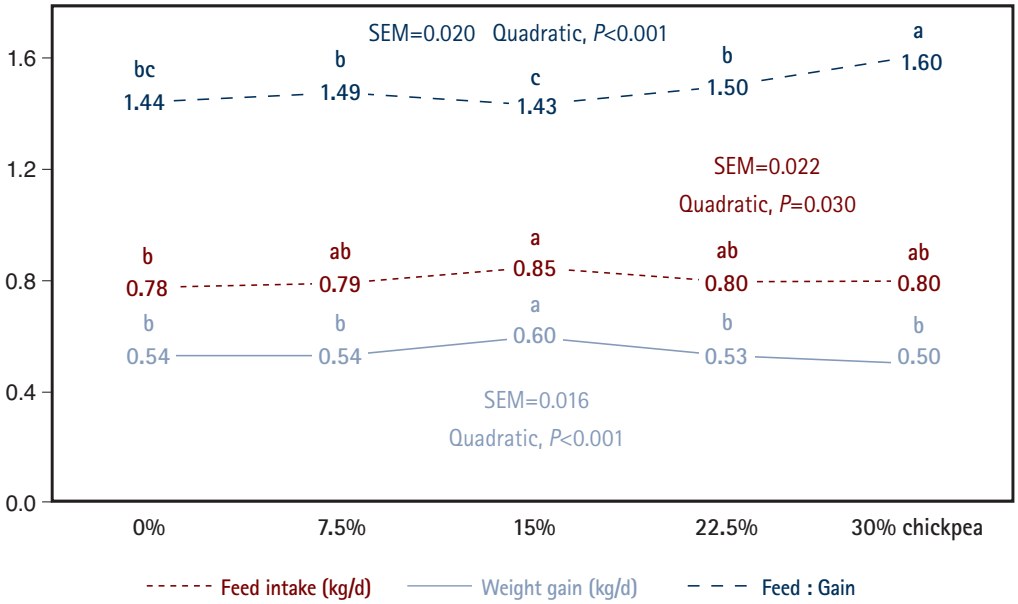
fababean). Chickpea also contained some anti-nutritional factors (5.2g trypsin inhibitor activity and 4g tannin per kg) that may reduce protein digestion and absorption. A wheat-based control diet and four diets containing 7.5, 15, 22.5 or 30 per cent chickpea (Kabuli type, Moose Jaw, SK) were formulated by replacing up to 20 per cent soybean meal and 10 per cent wheat grain. Diets provide 2.35 Mcal net energy/kg and 5 g standardised ileal digestible lysine/Mcal net energy. Fish meal and soy protein concentrate were included at five and 2.5 per cent, respectively. Because of the starch and fat content in chickpea, inclusion of canola oil decreased from 0.9 per cent in the control diet to 0.15 per cent in the diet containing 30 per cent chickpea to balance net energy. Because of relatively lower protein in chickpea, increasing feed inclusion decreased diet protein content; amino acids were balanced by inclusion of crystalline sources. Diets without antimicrobials or growth promoters were mixed and then steam-pelleted at 70°C.

Figure 1. Growth performance of weaned pigs fed late nursery diets containing increasing inclusions of chickpea in substitution for up to 20 per cent soybean meal



a, b, c Within growth performance variable, means without a common letter differ (P < 0.05)

Weaned pig trial set up

The nursery trial was conducted at the Swine Research and Technology Centre, University of Alberta (Edmonton, AB). In total, 300 crossbred pigs (Duroc × Large White/Landrace F1; Hypor, Regina, SK) weaned at 20 ± 1 days of age were used in this three-week trial that started from two weeks after weaning. Pigs that averaged 9.6 kg were randomized to 75 pens in four nursery rooms housing two barrows and two gilts per pen. Pigs within different areas of the room were fed one of the five test diets to achieve 15 pen-replicates per diet. Pigs had free access to feed and water throughout the trial. Individual pigs, feed added during each week and feed remaining at the end of each week were weighed. Faeces were collected during the last two days on test to calculate the digestibility of protein and energy.

What we found

Pigs remained healthy during the entire trial. For the overall three weeks, there was a curvilinear response to increasing feed inclusion of chickpea (Figure 1). Increasing chickpea inclusion to 15 per cent was optimal, but growth performance decreased thereafter by increasing inclusion to 30 per cent. Therefore, final body weight for pigs fed diets including 0, 7.5, 15, 22.5 or 30 per cent chickpea was 20.6, 20.8, 21.9, 20.7 and 20.0 kg, respectively. We also noted poorer feed conversion with greater feed inclusion of chickpea in the first two than in the third week of the trial, indicating that young pigs required time to adapt to diets containing increasing chickpea inclusions.

Increasing feed inclusion of chickpea increased diet digestibility of dry matter and energy, digestible energy and predicted net energy values, but decreased protein digestibility at 30 per cent chickpea inclusion. About 30 per cent

of chickpea starch is amylose that is a resistant type of starch. Hence, small intestine digestibility of starch might be lower for chickpea than for cereal grains. It also suggests that more of the starch in chickpea compared with wheat grain starch bypasses the small intestine and is fermented in the hindgut. The energy utilisation of hindgut fermentation end products that are mostly short chain fatty acids is 17 per cent lower than that of starch digested in the small intestine as glucose. Increasing feed inclusions of chickpea implied greater content of anti-nutritional factors that might explain the reduced diet protein digestibility. Tannins tie up plant protein making it less available to the pig. Trypsin inhibitors can cause excess pancreatic secretion or block the conversion of its precursor to the active enzyme that plays a major role in the pig's ability to breakdown whole feed protein chains into smaller digestible links (single amino acids or smaller chains of two or three amino acids).

Cost vs. benefit

The following prices were assumed ($ per MT): wheat grain, 226; soybean meal, 490; chickpea (off-grade), 255; canola oil, 1,000; limestone, 107; mono/dicalcium phosphate, 825; L-lysine-HCl, 2,100; L-threonine, 3,700; DL-methionine, 4,500; and L-Tryptophan, 13,100. Each 7.5 per cent inclusion of chickpea replacing 5 per cent soybean meal reduced feed cost by $4.8 per MT. Dietary inclusion of 15 per cent chickpea to replace 10 per cent soybean meal reduced feed cost per kg of body weight gain by 2 cents, but dietary inclusion of 7.5, 22.5 and 30 per cent chickpea increased feed cost per kg of body weight gain by 1.2, 0.3, and 3.4 cents respectively. If food grade chickpea (assuming $663 per MT) were included instead, each 7.5 per cent inclusion of chickpea to replace 5 per cent soybean meal would increase feed cost by $26 per MT. Dietary inclusion of 7.5, 15, 22.5 and 30 per cent chickpea to replace up to 20 per cent soybean meal would increase feed cost per kg of body weight gain by 5.7, 6.8, 14, and 23 cents, respectively.

Conclusions

Despite increased energy digestibility with increasing inclusions, levels above 15 per cent chickpea in feed for weaned pigs are not suggested. Considering increasing content of anti-nutritional factors and decreased diet protein digestibility with increasing inclusion of chickpea, formulating a safety margin of amino acids is recommended.

Acknowledgements

We appreciate funding for this research from Swine Innovation Porc, Alberta Crop Industry Development Fund, Alberta Pork, Danisco Animal Nutrition, and the Canola Council of Canada. We would like to thank Midwest Investment, Moose Jaw, SK for donating the chickpea. ■

Ventilating converted sow rooms

Submitted by Prairie Swine Centre

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

Retaining the existing ventilation system in converted sow facilities will lead to over-ventilation during winter months, because existing minimum ventilation fans are designed for higher animal densities. This results in using extra heating fuel, and potentially causing chilling of the animals affecting performance. If ventilation is continued at the pre-remodeling level (prior to conversion to group housing), the building would be ventilated by 33 per cent higher than required which can cause a rise in heating energy consumption of 75 per cent. During summer, the impacts are less pronounced but over-ventilation will use extra electricity which translates to higher costs.

In addition, the transitioning of the ventilation system design from stalls to group housing involves not simply reducing the ventilation rate but also requires careful re-configuration to ensure proper air distribution throughout the room to eliminate dead spots (unventilated areas) and unwanted drafts. Air exchange is critical to providing a healthy environment that fosters efficient pig growth by reducing humidity and gases like ammonia and carbon dioxide. Since under-ventilation can create an unhealthy environment and over-ventilation wastes energy, finding the right balance is key to a healthy environment for both animals and workers as well as to energy savings and efficiency. This balance can only be achieved by careful re-design of the existing ventilation system of a converted gestation barn.

In this project, numerical computer simulation technique which utilized computational fluid dynamics (CFD) principles to numerically simulate fluid flow, heat and mass transfer, and mechanical movement, was used as a tool to examine various design configurations and determine the most effective design of the ventilation system for a converted group sow housing facility. Ventilation system design parameters investigated include: (1). Capacity and location of exhaust fans, and (2). size and location of air inlets. These two parameters were configured in such a way that the resulting ventilation system design followed the following principles: upward airflow, downward airflow, or horizontal flow ventilation.

Implementation of the most effective ventilation system design

Two group-housed gestation rooms were used: one room designated as the Treatment room was modified to incorporate the horizontal flow configuration, identified from the simulation work, while the second room's ventilation system was similar to those in pre-converted (stall) gestation barns (Control room). Eight replicates (4 winter, 4 summer) were carried out.

Figure 1 shows the ventilation design configuration of the two experimental rooms. In Treatment rooms, air inlets were located at one end of the room and exhaust fans at the opposite end allowing air to flow horizontally through the entire length of the room (Figure 1A). In Control rooms, inlets were located on the ceiling while the fans were on one of the external walls; this configuration represented a downward air flow direction which is typical in commercial sow barns (Figure 1B).

Conclusions

Results from the computer simulation work have confirmed the need to re-design the ventilation system of a newly-converted group sow housing facility. Among all the design configurations tested, horizontal flow ventilation system was the most ef-

fective in removing heat from the animal occupied zone (AOZ) in the room during both summer and winter seasons.

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

The horizontal ventilation system design for group sow housing has provided better air quality and cleaner floors than the unmodified ventilation design. Also, the room with the horizontal ventilation design had relatively cleaner floors than the room with the unmodified ventilation design.

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

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

Photo of the control room with the existing (unmodified) ventilation system (A) and the treatment room with the air inlets on the opposite side (B) following the principle of a horizontal flow ventilation system.

B inset – wall air inlets installed in the treatment room.

Acknowledgements

Financial support for this project has been provided by Agriculture Council of Saskatchewan Inc. through the Advancing Canadian Agriculture and Agri-Food Saskatchewan (ACAAFS) program, and the Saskatchewan Agriculture Development Fund. Strategic funding provided to the Prairie Swine Centre by the Saskatchewan Pork Development Board, Manitoba Pork Council, Alberta Pork, Ontario Pork, and the Saskatchewan Ministry of Agriculture is also acknowledged. ■

Ad Index

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