

Better pork

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IMPROVING
BARN HYGIENE

26



LIVESTOCK FEED

Using Insects

6

FINDING SAVINGS

Feed & Time

42

STAFFING NEEDS

Looking Abroad

12

PORK MARKET

Weather Influences

44

DAVE & LAUREN DEVRIES
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SOW ENRICHMENT

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DEAR READER: LETTERS FROM A FAMILY FARM
WHEN YOU NEED A PLAN B

On the farm, one of the key skills we quickly develop is ingenuity.

After all, when we are dealing with Mother Nature, we have multiple opportunities tossed at us.

We had plans for a late night in the field as rain is in tomorrow's forecast, for example, but we have a combine breakdown after the local dealership closes. So we start working our way through our list of neighbours who may just have a spare part. Or we get creative with ideas for temporary fixes that might allow us to put in a few more hours.

And our livestock can get themselves into the oddest predicaments that we have to sort out. "How did he manage to do *that*?" we may ask ourselves as we ponder how to dismantle the broken feeder.

This month, many of our writers pick up on this theme of problem solving.

In her feature article, for example, **Kate Ayers** explores the possibility of an alternative protein source to soybean meal for swine diets: insect meal. The production and use of this protein may be one method to overcome the limited farmland available for feed production, researchers say. Kate reviews the benefits and challenges related to insect meal, and outlines how long it may be before producers could incorporate the new protein into swine diets.

In our second feature of the month, **Kaitlynn Anderson** reviews Canada's Temporary Foreign Worker Program (TFWP). She shares how the pork industry uses the program to overcome its labour shortage and underlines possible improvements to streamline the TFWP for employers and staff. Hopefully, the federal government takes the sector's recommendations into consideration and makes some updates to the program.

Dr. Jessica Law, a swine vet based in Red Deer, Alta., also delves into problem solving. She reminds us of the importance of barn hygiene practices for improving herd health, and highlights practical tips for making small, incremental improvements to our management practices. We are pleased to welcome Jessica to the *Better Pork* team.

Please feel free to reach out to share a story of your ingenuity in overcoming a challenge on the farm or if you have a problem you would like to discuss. I always look forward to hearing from our readers. **BP**

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Dave DeVries photo

Dave and Lauren DeVries's sons, Clark, 2, and Garret, 4, love helping out in the barns whenever they can. See related story on page 20.



PORK PROVIDES PROTEIN FOR INFANTS

Pureed meats, such as pork, could play an important role in the growth of young children.

During the transition to solid-food diets, pork could serve as an important source of protein for infants, a team at the **University of Colorado** found.

The researchers fed pureed meats to 32 healthy babies between five and 12 months of age. The scientists gave an equal number of infants dairy-based sources of protein. All participants also received formula or breast milk.

During the seven-month trial, infants in both groups consumed three grams of protein per kilogram in body weight every day.

Infants who ate pureed meats grew longer than the average for their age group, researchers found.

“Infants who consumed high-protein meat-based complementary diets had increases in length-for-age Z scores,” **Minghua Tang**, an assistant professor in the department of pediatrics at the university, told *Better Pork*. These Z scores show how many standard deviations data points are away from the mean values.

At the end of the trial, the infants who consumed meat were not at a higher risk of becoming overweight.

While pork provides individuals with a source of protein to improve growth, it holds other benefits as well, Tang said.

Pork is also “an excellent source of micronutrients, such as iron and zinc,” she said. **BP**

DEVELOPING PRRS-RESISTANT PIGS

Thanks to gene editing, scientists have developed pigs that are resistant to a deadly and costly disease.

Porcine Reproductive and Respiratory Syndrome (PRRS) infects pigs through a cell receptor called CD163. So, a research team at Scotland’s **University of Edinburgh** removed the section of the receptor where the virus attaches itself.

Although previous studies showed these cells were resistant to PRRS, this work was the first time researchers exposed pigs with the altered genetic code to the virus. And the scientists found these animals are resistant to the virus, a June university release said.

PRRS costs the hog industry billions of dollars each year, and vaccines have mostly failed to stop the spread and evolution of the disease.

“The research shows a new strategy of how we can combat and possibly eradicate one of the most important viral diseases in the pork industry,” **Dr. Christine Tait-Burkard**, a research fellow at the university’s **Roslin Institute**, told *Better Pork*.

“The edited pigs show complete immunity to the disease, meaning that they will not only not get affected by the disease themselves, but they will also not spread the disease.” **BP**



UNEARTHING A PRICE DROP IN RENOS

In an industry where costs continue to rise, the news that barn renovations necessary under the new Code of Practice for the Care and Handling of Pigs may cost less than first thought is most welcome.

Original cost estimates ranged from \$500 to \$1,000 per sow, according to **Centre de développement du Porc du Québec (CDPQ)**,

Manitoba Pork and the **University of Manitoba**. That range included a basic renovation, as well as more involved concrete/pit work, new feed lines and ventilation.

But the actual costs could be much lower, researchers from **Swine Innovation Porc** and the **Prairie Swine Centre (PSC)** have found.

The team followed 12 sow barn conversions from stall to group housing between 2015 and 2017.

“Many of the actual renovations, especially ones where (producers) used farm labour and competitive feeding, have come in at \$200 per sow or less,” said **Dr. Jennifer Brown**, research scientist in ethology with PSC.

At the same time, Brown cautions that you

get what you pay for.

As Brown told *Better Pork*, what she calls “cheap and cheerful renovations” like floor feeding or shoulder stalls “may not be as costly in the short term, but they will require more feed and labour, and likely involve lower production in the long term.” **BP**




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INDUSTRY ABUZZ ABOUT NEW PROTEIN SOURCE

by KATE AYERS

In the not-too-distant future, insects may serve as a protein source in swine diets.

While global competition grows for feed and food, the agricultural industry is studying alternative protein sources for livestock diets.

In fact, the world will need to produce about 70 per cent more food by 2050, the Food and Agriculture Organization of the United Nations estimates. The production of swine, poultry and beef will double over this period, the International Feed Industry Federation suggests.

And the industry is paying particular attention to one potential protein source for inclusion in feed: insects. This protein is high in quality, efficient and sustainable, says Dr. Teun Veldkamp, the senior researcher in animal nutrition at Wageningen Livestock Research (WLR), an institute based in the Netherlands.

Farmers could use insects to meet the increasing demand for protein and overcome the limited land base available for feed production.

Insects on the incline

Typically, farmers use such protein ingredients as oilseed meals, fish meal, biofuel by-products, legumes and animal co-products, says Victoria Leung, the manager of marketing and operations for Enterra Feed Corporation in Langley, B.C.

In the swine industry, for example, soybean meal is the golden standard for protein sources, Dr. Christopher Mateo, the general manager of the northwest region for Standard Nutrition Services in Lethbridge, Alta., says to *Better Pork*. As a source of dietary protein, soybean meal offers a consistent nutrient quality and amino acid profile.

However, these traditional protein sources have drawbacks. For example, some feed could contain anti-nutritional factors, mycotoxins or contaminants, says Leung.

Insects could serve as a safe and sustainable alternative source of protein in livestock feeds, some members of the ag industry say. Researchers are studying the use of such insects as black soldier fly larvae, common houseflies and yellow mealworms.

Currently, the Canadian Food Inspection Agency (CFIA) allows the use of insect meal in aquaculture, poultry feed and pet food, says Leung.

But researchers are exploring the possibility of using insects in swine diets. Swine nutritionists highlight such benefits of insect meal as its amino acid profile, functional compound groups, sustainable production practices and antimicrobial properties.

Amino acids

Swine feeds need an adequate balance of bioavailable amino acids to support animal growth and maintenance.

Insects meet these needs.

“Most edible insect species appear to be good sources of amino acids, fatty acids and micronutrients,” says Veldkamp.

Insect larvae are also “high in total lysine,” Dr. Lee-Anne Huber, an assistant professor in swine nutrition at the University of Guelph, says to *Better Pork*.

“Lysine is typically our first limiting amino acid in pig diets. So, that aspect is a great selling feature.”

Larvae meal has a crude protein concentration between 30 and 70 per cent of the total protein content. These levels and those of soybean meal are comparable, Huber says.

But before nutritionists can begin formulating diets with insect meals, researchers need to better understand the digestibility and availability of amino acids in processed insects, she adds.



Lee-Anne Huber



National Pork Board and the Pork Checkoff, Des Moines, Iowa, photo

Swine feeds need an adequate balance of bioavailable amino acids to support animal growth and maintenance.

Functional compounds

Insects contain the functional compounds of chitin, medium chain fatty acids, and antimicrobial peptides (AMPs), which could have positive effects on pig gut health.

These products could be especially beneficial in light of the new federal regulations which begin in December. The rules aim to reduce the use of antibiotics in livestock production.

“Intriguing older research has shown chitin can positively influence immune system robustness,” says Huber. This compound may be particularly important for newly weaned pigs, as “they are very vulnerable at that time.”

Leung agrees.

“Chitin is a valuable prebiotic that has antifungal and antibacterial effects for gram-negative bacteria like *E. coli*. It also stimulates beneficial gut microflora and overall gut health,” she says.

Chitin is the primary component in the exoskeletons of insects.

“Metabolites of the medium chain fatty acids in insects have been shown to be quite effective antimicrobials,” Huber adds. Researchers have found that lauric acid, a medium chain fatty acid, helps maintain gut health.

Lauric acid is “known for its antimicrobial properties and is a tool to control gram-positive bacteria such

as *Streptococcus* or *Clostridium*,” says Veldkamp.

Such fatty acids may not serve as a “replacement for in-feed antibiotics but certainly could be a good alternative and support additive,” Huber says.

Black soldier fly larvae are also a rich source of AMPs.

“AMPs cause damage to bacteria, fungi and certain parasites and viruses,” says Leung.

These findings are “increasingly valuable as the industry moves towards antibiotic-free production.”

Sustainability

Insects also offer environmental benefits: they can turn organic waste into a high-quality product and have an impressive feed conversion ratio. The production of this protein source requires fewer resources than its animal and plant equivalents.

“Rearing insects requires a very small land base and very little water,” says Huber. Growing plant-based ingredients like soybeans requires much more land and water. Insect production also generates minimal greenhouse gas emissions.

“By replacing a portion of our conventional protein ingredients ... with insect protein, we will improve the sustainability of our pork production.”

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Veldkamp agrees.

“Insects can be reared on low-grade bio-waste, such as vegetable substrates, and can turn this bio-waste into high-quality proteins,” he says.

In addition to finding a use for waste, the insects’ feed program reduces the risk of mycotoxins, heavy metal contamination and prions, says Leung. Prions are pathogenic agents that scientists believe can cause rare, progressive neurodegenerative disorders in both humans and animals, Centers for Disease Control and Prevention says.

“Current regulations prevent the use of meat by-products and high-risk material as feed ingredients for insects to minimize the risk” of prion diseases, Leung adds.

The use of insect meal in animal feed could also decrease the pressure on fish populations.

Insects could “replace wild-caught fish meal in livestock diets,” she says. Using insects could also “reduce the need to harvest sensitive populations of fish in the world’s oceans.”

Legislation limits

While insects offer benefits for the animal feed industry, the industry must overcome some challenges before this novel protein source can be considered a viable option.

Near the top of the list is government regulation.

Both Canada and the European Union regulate the type of insect protein that can be included in feed as well as the species of animals that can consume this feed.

The European Union only permits the use of live insects and processed insect oils in feed. As a result, insects cannot be used as a consumable product for pigs and poultry. Insect protein has been used in aquaculture since July 2017, says Veldkamp.

In Canada, black soldier fly larvae



Teun Veldkamp



Black soldier fly larvae are a rich source of antimicrobial peptides and have a high crude protein concentration.

meal can be fed to fish and broiler chickens. Industry representatives are now looking at uses in pig diets.

Processing challenges

Feed represents 65 to 70 per cent of the total variable costs of producing a pig, an OMAFRA feeding management fact sheet says. As a result, farmers rely on reasonably priced and dependable feed sources.

“As nutritionists, we need to ensure that the ingredients we include in our swine diets are consistent: consistently available and consistent in nutrient profile,” says Huber.

“We really need to work on the insect-rearing procedures to make sure we get a consistent product.”

Many companies are still in the start-up phase of insect meal production. “It is going to be a bit of a waiting game until the production of insects takes off and increases to a level that ... reliably provides a source of insect meals to feed to our pigs,” Huber adds.

“Once companies expand their production capacity and automation, it will become more economical to purchase insect meals.”

Other important areas of production need to be addressed before farmers can use this protein source in pig feed, a WLR study says. These include:

- selecting suitable insect species

- managing diseases
- developing cost-effective large-scale production systems
- safeguarding animal welfare

Palatability

Once a new feed ingredient passes regulatory and production hurdles, it must also pass the taste test. Palatability is especially important in weanling diets; young pigs can be reluctant to switch from a liquid-based diet to solid feed.

If the feed is “not palatable, they’re not going to eat it,” says Mateo.

“Feed intake in young pigs is key to meeting their daily nutrient requirements for



Christopher Mateo

maintenance and growth, as well as supporting gut maturation and health to maximize genetic potential.”

However, some industry representatives believe the inclusion of insects in swine diets will not be a drastic change for the animals.

Indeed, “insects are what many animals eat in the wild,” says Leung. Huber agrees.

“Insect meal has an earthy and nutty flavour and smell to it, which

pigs would likely find quite attractive,” she says. These properties are like the flavour and smell of sunflower seeds.

“I don’t suspect that the taste will be an issue as long as producers’ storage environments are ideal and prevent rancidity of the fat,” Huber says.

Meat quality

The taste test will also extend to the human palate.

The influence of insect-based diets on the taste of pork could depend on the meal’s fatty acid profile. Researchers also need to consider the amount of insect meal that is fed to the animal, the length of time the meal is in the diet and the stage of animal production at which the pig is fed, Huber says.

“We will probably use insect meal in the diets of newly weaned pigs for a short amount of time. Then they will continue to grow for the next four months or so after that ... (and will not get) this meal in their diets,” she notes.

“Any effects, perhaps on their fatty acid profile ... early in their growth, will probably be undetectable by the time of slaughter.”

Next steps

Researchers and feed companies continue to study the use of insects in Canadian livestock feed. Huber and her team, for example, focus on the nutritional value of meal from black soldier fly larvae.

“They have a fabulous crude protein concentration and a great total amino acid profile,” says Huber. “But we don’t know if those amino acids are actually digestible and available to the animal.”

After this work is complete, Huber wants to feed diets containing insect proteins to newly weaned pigs.

“The growth performance study will compare a conventional diet that has animal proteins in it, with and without the inclusion of in-feed antibiotics,” to a diet that has insect meal ingredients, she says.

“We will look at insect meal as a replacement for some of the animal proteins in our nursery pig diets.”

Research is also underway in the European Union.

WLR scientists will conduct “studies on the digestibility of insect proteins and functional properties of insect proteins in poultry, pig and aquaculture diets,” says Veldkamp.

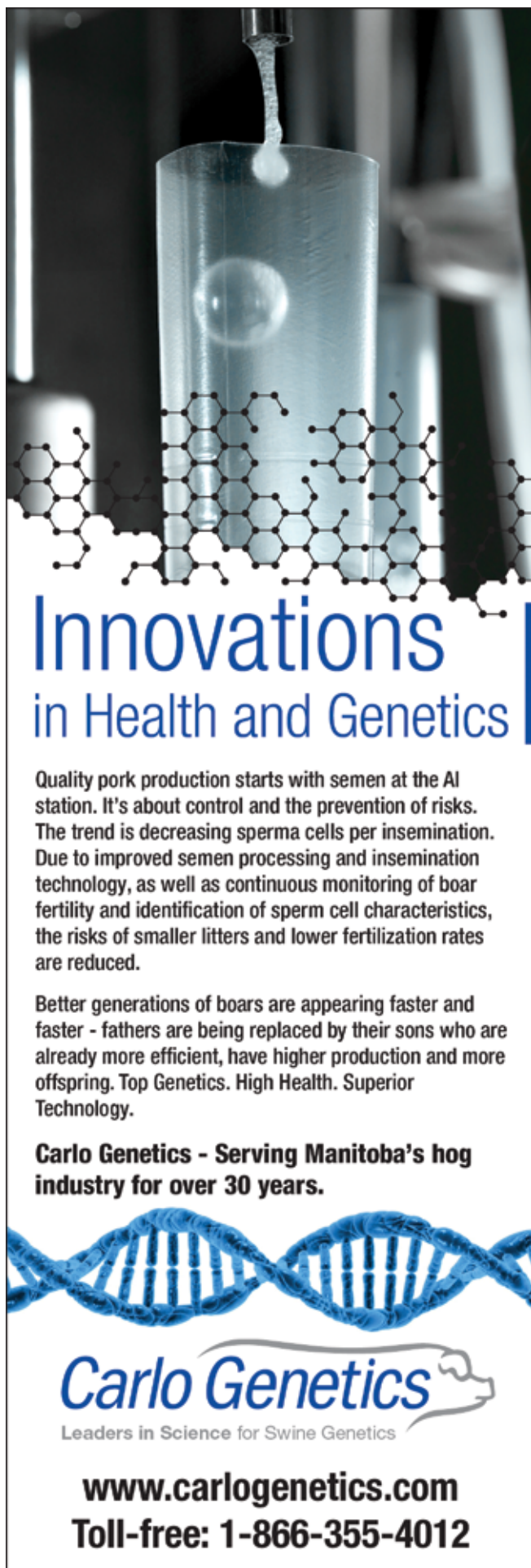
Although research continues, insects could be flying into livestock feed soon.

The CFIA’s application and approval process could take several months. But Huber is optimistic that producers could be using insect proteins in swine diets within the next year.

Indeed, some companies have already “made applications to the CFIA,” she says.

“Regulators evaluate insect-based feed ingredients the same way they evaluate any new or novel ingredient – by reviewing safety, microbiology and efficacy,” says Leung.

“Our work with research institutions across North America has led to approvals of our products for use in aquaculture and poultry so far,” she says. “More work is ongoing for additional species.” **BP**



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PRODUCERS HOPE FOREIGN WORKER P

Employers need and value these staff members, but the hiring process can be time consuming and expensive.

by KAITLYNN ANDERSON



FOR TEMPORARY PROGRAM REFORMS

National Pork Board and the Pork Checkoff, Des Moines, Iowa, photo

For many years, staff at Sunterra Farms have faced an increasingly common challenge in the pork industry.

Despite using many recruitment methods, the company, which has pig farms and processing plants in Ontario and Alberta, struggles to employ Canadian workers.

Since Sunterra's operations are located far from urban centres, many people are reluctant to commute to the farms every day. Prospective employees often do not want to relocate to rural areas, either.

So the company turned to Canada's Temporary Foreign Worker Program (TFWP) for help. Sunterra has used this program to maintain its workforce for 14 years.

Indeed, the company relies on the TFWP to stay in business.

"Without the foreign worker program, we would be closed," says Mark Chambers, senior production manager at Sunterra Farms in Acme, Alta. Chambers is also a member of Alberta Pork and the Agriculture Industry Labour Council of Alberta. He is co-chair of the Labour Task Force, which is housed under the Canadian Agricultural Human Resource Council (CAHRC).

Olymel, a pork producer and processor which has plants in Quebec, Ontario, New Brunswick, Saskatchewan and Alberta, faces similar challenges.

The employer works with professional agencies to recruit people at trade shows, job fairs and open houses. The company advertises on radio stations, on employment websites, on social media channels, and in local and national newspapers.

The company also developed the profile referral program, which encourages current "employees to refer family, friends and neighbours who are looking for work," Richard Vigneault, a spokesperson for Olymel, tells *Better Pork*. "This program financially rewards staff who refer candidates according to predefined rules."

Although Olymel uses many methods to hire local workers, recruiters still struggle to find Canadians to fill positions.

So the company submits applications to the TFWP.

This program "provides the additional labour our company needs to pursue and plan for growth," Vigneault says.

In total, Olymel has 12,000 employees across Canada.

Olymel recruits 597 of them through the TFWP.

Companies that use the program may hire only a limited number of foreign workers.

"We can recruit temporary foreign workers to fill up to 10 per cent of the positions at each establishment," Vigneault says.

Program requirements also limit the length of time foreign workers can stay in Canada.

In the seasonal agricultural worker stream, participants may legally work in the country for eight months. The employer must provide these individuals with at least 240 hours of work every six weeks.

In this stream, producers can hire citizens from Mexico, Anguilla, Antigua and Barbuda, Barbados, Dominica, Grenada, Jamaica, Montserrat, St. Kitts-Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.

Businesses can also employ workers through the agricultural stream for a maximum of 24 months. In this category, producers can hire individuals from any country. Pork producers generally hire workers through this stream of the program.

Once these staff have completed their legal work terms, many wish to relocate to these rural areas.

Producers and processors, like Sunterra Farms and Olymel, support program participants throughout their journeys.

"We are happy to continue employing them if they are granted permanent residency in Canada," Vigneault says.

Whether these workers stay for a short time or successfully immigrate, they bring many benefits.

"These people want to come to work every day and do their jobs well," Chambers says. "It's been a huge win for us, rural communities and the Canadian economy."

Identifying the need for improvements

While the TFWP can help Canadian pork producers and their staff, employers who rely on the program report many frustrations.

Farmers often find a drawn-out application process. In fact, applicants can wait six to eight months before they can hire for the role.

"This can be a real challenge, especially for smaller operations," says Mark Ferguson, manager of industry

TEMPORARY FOREIGN WORKERS

program and policy analysis for the Saskatchewan Pork Development Board. “You want to fill vacancies immediately so that animals receive proper care and all the tasks in the barn are completed without burning other staff out.”

Before producers may submit applications to Service Canada, they must advertise the positions to Canadians on the national Job Bank and at least one other platform for a minimum of two weeks, says Marvin Salomons, a private consultant at Salomons Group Solutions in Red Deer, Alta. Salomons provides consulting services to farmers on behalf of Alberta Pork.

The producers then fill out Labour Market Impact Assessments (LMIA) and submit them to the federal government. Officers may approve these documents if they determine that the employers qualify to hire foreign workers to fill the positions.

Once an employer receives a positive LMIA, the company can offer a temporary job to the foreign worker. To find workers, employers such as Olymel travel overseas to collect resumé and interview candidates.

Then the prospective employee must apply to Immigration, Refugees and Citizenship Canada for a work permit. To complete this task, each applicant must submit a job offer



Olymel photo

Over the past 14 years, meat-processing companies have increased their employees' wages by more than 50 per cent, recent Canadian Meat Council research reveals.

letter, a contract, a copy of the LMIA and the LMIA number, the Government of Canada website states.

The length of time needed to complete this step can vary.

“While the process may take a week or so for some countries, it could take months for other areas,” Salomons says. To learn the processing times for each country, visit cic.gc.ca/english/information/times.

However, if government officers deny applications, producers and processors must restart the applica-

tion process.

This challenge has caused many employers to feel anxious when they fill out the forms, says Gary Stordy, director of government and corporate affairs for the Canadian Pork Council.

Applicants can hire third parties to help them through this process, but these services are an additional expense, he explains.

Alberta Pork will cover one-third of farmers' costs to hire private consultants to help complete LMIA.

Members of the industry also have

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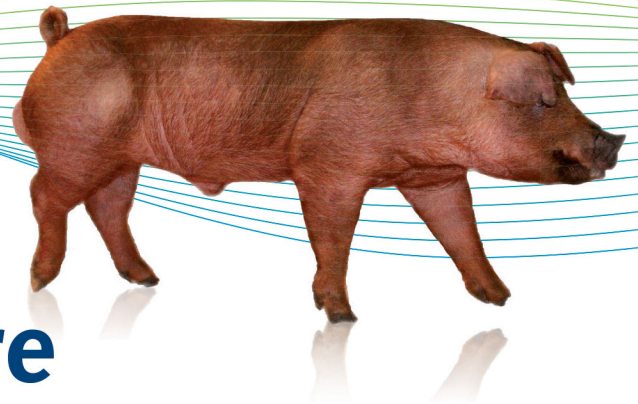
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concerns about inconsistencies in hiring. For example, government officers may not assess all applications equally.

“I know a producer who challenged a denied application,” says Chambers. “A different officer became involved and approved the same application without requesting additional information.”

This lack of consistency could be due to government officers’ lack of knowledge about the pork sector, Stordy says.

“They need to understand our industry more.”

Some farmers do not receive explanations for their denied applications either, says Salomons.

To reduce the frequency of application denials, producers hope that

the government will communicate with them more throughout the process.

For example, if employers make a mistake in their applications, officers could contact them to clear it up.

“Producers don’t want to miss out on the opportunity to hire foreign workers because they incorrectly filled out a certain section of the forms,” says Stordy.

Currently, farmers receive minimal support from the government when they apply.

“The process needs to be more user-friendly,” says Chambers.

Many employers and industry professionals echo this concern. “Most employers only want to access the TFWP as a last resort to address ongoing labour shortages in the hog sector,” says Martine Varekamp-Bos, a regulated Canadian immigration consultant at Immigration Care in Alberta. Producers often turn to Varekamp-Bos for guidance when they apply to hire temporary foreign workers.



Marvin Salomons

“The program doesn’t allow for a great level of flexibility, and employers using the program are being held to a very high standard,” she says.

Pork producers also have concerns about the housing requirements across the two program streams.

Employers can deduct \$30 per week from year-round workers’ pay cheques to help cover costs of housing these workers, says Janet Krayden, stakeholder engagement specialist at CAHRC.



Martine Varekamp-Bos

However, while seasonal workers generally stay in bunk housing, employees in the agricultural stream often live in single rooms in farm houses.

“You don’t want to put workers in bunkhouses in the winter,” says Krayden.

“While these bunkhouses are good quality, producers are generally providing their year-round employees with a lot more space. But this isn’t necessarily being recognized.”

Because of the differences in living space, employers find that “this is one of the areas where the rules of the current programming are not conducive to year-round employment,” says Krayden.

This situation poses a financial challenge for many small-scale operators, too.

“It’s very difficult for producers to recoup the cost of a mortgage or rent, and this does not help year-round workers integrate into communities,” she says.

This setup could also mislead foreign workers who return to Canada as permanent residents, as they will have to find accommodations in nearby towns. These workers could face sticker shock when they look for homes for their families, says Chambers.

“We need to be able to charge fair-market price,” he says.

Continued on page 18

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Many employers help their temporary foreign workers adapt to life in rural Canada.

Olymel, for example, travels abroad to interview candidates in their home countries. Human resource directors talk to these prospective employees about life in Canada and working conditions at the plants.

"We have created staff positions specifically to help our temporary foreign workers" adjust to their new jobs, says Richard Vigneault, a spokesperson for Olymel.

Once the workers arrive in Canada, staff offer their full support.

"We help them with housing and inform them about health services, pharmacies, grocery stores and the like," he says. "They can count on us to help them adapt."

The employer tries to group couples and friends together as well.

The communities also warmly greet these employees. For example, many people gathered to welcome foreign workers who arrived at the company's Vallée-Jonction, Que., pork slaughtering and cutting plant in March.

"Mayors, municipal councillors, staff at a local grocery store and volunteers worked together to welcome and support them," Vigneault says. "It was extraordinary. The workers were pleasantly surprised." **BP**



Olymel photo

These temporary foreign workers, who are employed at Olymel, arrived in Vallée-Jonction, Que. in March. They received a warm welcome at the town hall from the mayor of this municipality.

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National Pork Board and the Pork Checkoff, Des Moines, Iowa, photo



The agricultural industry faced a shortage of 30,000 workers 10 years ago. Now, that figure has climbed to 59,000, Janet Krayden says. Within the next decade, that number could jump to 114,000.

Continued from page 16
Discussing program improvements

Industry members hope that the government will make appropriate changes to the Temporary Foreign Worker Program as a result of recent consultations.

In May and June, producers, industry representatives and federal officials participated in face-to-face discussions about the TFWP.

Until July, the government encouraged members of the agricultural industry to complete an online survey. Producers could also provide written submissions outlining their thoughts on four areas: program eligibility and structure, wages and deductions, housing in primary agriculture and LMIA processing.

Many swine producers participated in these consultations to learn more about the program, says Krayden. They also attended other meetings.

During an Ontario Pork Industry Council workshop held in Mitchell in March, for example, attendees



Janet Krayden

discussed some of the misconceptions about the program.

“There is a bit of a myth that people use the TFWP for cheap labour, but that’s not the case,” Krayden says to *Better Pork*. “During the employer panel, farmers explained that it actually costs more to bring in temporary foreign workers than to hire people locally.”

In fact, producers end up paying between \$8,000 and \$12,000 per worker to bring them to Canada and house them, she explains. This price does not include recruitment fees or wages.

However, farmers willingly accept these costs.

“They’ll pay the price to get people who are reliable and interested in these jobs,” she says.

“Employees must handle live animals, so producers need workers they can count on.”

Throughout the consultation period, industry representatives also addressed the need to review job classifications.

Currently, the government considers most agricultural workers low skilled, says Krayden. This assumption is often incorrect.

“A lot of these jobs require highly skilled workers,” she says.

“For example, swine technicians need to have animal husbandry skills. They need to understand diseases and

swine health.”

This classification presents a challenge to foreign workers who want to become permanent residents.

“Low- and semi-skilled workers won’t necessarily get enough points to immigrate through the Canadian system,” says Krayden.

Employers also hope that the government improves immigration because “agriculture is the main sector without a clear pathway to permanent residency,” Krayden says.

By refining the system to include the agricultural industry, the government could help employers reduce labour shortages.

For example, CAHRC researchers found that meat processors retain more than 90 per cent of their foreign workers who immigrate to Canada, she explains.

“On average, these individuals stay at the plants for at least 10 years,” she says.

Before the feds make any final changes to the program, members of the industry hope that officials will pursue more discussions with stakeholders.

“I hope the government comes back to the industry, shares the changes it would like to make and asks for further input,” says Chambers. “We have to go back to the table and work through the TFWP as a team.” **BP**



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by
**KATE
AYERS**

SETTING THE STAGE FOR LITTLE FARMERS

An Ontario hog producer carries on the family operation with hopes of passing it on to his sons.

Martin Schwalbe photo



Dave and Lauren DeVries share a passion for farming which they have instilled in their sons.
Left to right: Clark, Garret, Lauren and Dave DeVries.

Dave DeVries of Wellington County, Ont. is the third generation of his family to farm on Canadian soil. DeVries and his wife Lauren run a 200-sow farrow-to-finish and cash crop operation. The couple has a passion for farming, which they have shared with their young sons: Garret, 4, and Clark, 2.

Dave's family emigrated from Holland in 1956. His grandfather Klaas DeVries purchased the homestead in 1964. Dave's father, Jerry DeVries, along with Dave's uncles worked together on the farm.

In 1981, Jerry took over the operation. He managed the business until his passing in 1997. Dave was in high school at the time, so his uncle Albert and cousins, John and Bruce DeVries, leased the farm. They kept it running until Dave was able to work on the farm full time.

He finished school and took over his father's original operation in 2002.

Six years later, Dave married Lauren. She grew up on a dairy farm that was later converted to poultry while she was still there. She is now heavily involved in her family's pork operation, and teaches two and a half days each week at the local elementary school.

Since their marriage, Dave and Lauren purchased another 200-sow farrow-to-finish farm, which they rent out.

This spring, the couple began building a new barn to replace their existing gestation, farrowing and nursery barns. This barn will expand their home farm operation to 350 sows.

Dave and Lauren raise their hogs without antibiotics for Grand Valley Fortifiers. They also crop 300 acres in a corn-soybean-wheat rotation. The corn goes to feed and 30 per cent of the soybeans are roasted for feed. The couple sells their wheat and remaining soybeans.

In addition to his family operation, Dave does 500 acres of custom work for area producers.

He enjoys the time he spends with his family, raising the next generation of pig farmers.

"To me, success is continuing to grow our farm and seeing our boys take it over some day," DeVries says.

When did you start farming?

I grew up farming with my dad but officially started my farming career in 2002.

What contributed to your decision to become a pork producer?

I grew up on a pig farm and have always enjoyed working with pigs.

Describe your role on your farm operation.

I am responsible for all day-to-day operations of our farm.



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Lauren takes care of bookkeeping, and assists with farrowing and sorting market hogs. She also drives the combine and grain buggy as required.

A high school student comes once a week to help out in the barns.

Hours you spend in the barn per week?

As many as it takes to get the week's work done.

Probably 40 to 50 hours per week, depending on how the week goes. We also have a robotic pressure washer that we purchased in 2016. We call it Ron the Robot.

It washes about six hours per week, provides a lot of time savings and does a job that no one really likes to do.

Hours you spend in the office per week?

About six hours a week.

How many emails do you receive per day?

Around 10 emails a day.

How many text messages do you receive per day?

About 30 text messages.

Hours a day on a cellphone?

About 20 minutes talking.

Email or text?

Text. It's faster.

Any favourite apps?

Twitter. I enjoy connecting with and following other pork producers and farmers.

Hours a day on the Internet?

Likely about six hours a week. The same hours spent in the office.

How often do you travel?

Maybe once or twice a year.

Where did you last travel to?

We took a family trip to Niagara Falls in March.

What do you like best about farming?

Being my own boss, the variety in my day, raising animals, growing crops, seeing God's glory every day, and being able to live where I work.

I enjoy the quality time spent working with my family.

What do you like least?

Those days where nothing goes how you planned it.

But those days happen for everyone, no matter the line of work!

What is the most important lesson you've learned?

Don't be scared to make mistakes but don't repeat them. This was advice my uncle gave me the day I started farming and it still holds true today.

What's your guiding management principle?

Get up in the morning and do the best I can.

And to not worry about things I have no control over, like the weather and markets.

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

I am a member of the Wellington County Pork Producers' Association.

I am also involved in volunteer efforts within our church – the Drayton Reformed Church.

What are your hobbies or recreational activities?

At this stage of life, my hobby is spending time with my wife and kids, and fitting in day trips when possible.

What was the last book you read?

I am more of a magazine person.

What does your family think of farming?

Lauren grew up on a farm, so she knew what she was signing up for.

Our boys are little farmers and want to be involved in everything at this point. They are in the barn quite often – whenever they get the chance.

My oldest, Garret, was out with me this morning helping empty a nursery room.



And he usually helps me with weaning on Tuesday mornings.

What's your top goal?

My top goal is to hopefully pass this farm on to the next generation.

Is your pickup messy or neat?

Neat on the inside, the outside – not so much.

What are three items that are always in your pickup?

My oldest son Garret, a coffee and a draw pin.

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

Calculator, notepad and bills.

What was the last piece of shop equipment you bought?

Cordless tool kit – drill, impact wrench, saw, light and Sawzall.

What's the best time of day?

First thing in the morning.

Before I go to the barn, I like to sit



The DeVries family posed for a family photo at Canada's Outdoor Farm Show.

and have a cup of coffee and read a magazine or catch up on Twitter.

What was your most memorable production year?

For hogs, it was 2010, right after we repopulated.

Prior to that, we had never repopulated, and our animals were from the original herd my dad and grandfather had. We cleaned everything up.

For crops, it was 2017. The corn and wheat yields were the best ever.

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

Consumer expectations.

Consumers are getting all kinds of messages, accurate or not, and this information impacts their perceptions of farmers and the food they eat. **BP**



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by
**JESSICA
LAW**

PRACTICAL TIPS FOR IMPROVING HERD HEALTH

Regularly reviewing barn hygiene practices enables you to identify ways to improve your operation.

Maintaining general barn hygiene is a daily task and something that pork producers and employees can overlook when time is tight and staff availability is low.

In the event of increased pre-weaning mortality, veterinarians tend to highly scrutinize hygiene practices before they attribute the spike to a specific disease. We review barn hygiene and general care before we reach for the big guns like proposing a change to vaccination protocols or turning to preventative antibiotics.

Now that our antibiotic usage is scrutinized more than ever, altering hygiene-specific protocols can be beneficial in reducing treatment levels and pre-weaning mortality.

Farrowing hygiene

Loading sows into clean farrowing crates is generally standard practice in high-health farrowing barns.

When turnaround time is tight, however, producers may occasionally only scrape the crates rather than pressure washing, disinfecting and drying them. Ensuring these crates stay clean and dry, regardless of whether they were washed or not, is critical for piglet comfort.

Turn the lamps on as soon as the sows show indications of farrowing. Make sure the piglets are dried off quickly and transitioned onto the sows' teats as soon as possible.

When assisting sows, use clean obstetric gloves with sterile/aseptic lubricant to keep the sows' reproductive tracts clean. Replace gloves as soon as they are contaminated with feces, dust, etc. Work with your veterinarian to determine when you should intervene with pain medication and possibly antibiotics.

Endometritis, the inflammation of the uterus, is directly affected by cleanliness and can impact the sows' abilities to nurse properly. Keeping



Now that our antibiotic usage is scrutinized more than ever, altering hygiene-specific protocols can be beneficial in reducing treatment levels and pre-weaning mortality.

intervention processes as clean as possible will mitigate this risk and minimize the incidence of preventable sow illnesses.

Processing hygiene

Every barn processes and castrates piglets in a different manner, but the general principles for hygiene should be the same.

Review critical control points in your processing techniques when you make adjustments to your protocols (such as a product change) or when you train a new staff member in this area.

Start with analyzing the type of bottles used to hold antiseptic sprays, oral medications or supportive care supplements. Observe how staff administer these products and how

they clean the bottles at the end of the workday.

As a rule, no nozzle should touch the surgical sites (castration incisions or docked tails) and the bottle should be disinfected daily after being picked up many times with contaminated gloves or hands.

Any oral medication or supportive care supplements should be in disposable bottles or have tips that can be replaced or easily cleaned. Using bottles with replaceable tips or nozzles that can be easily disinfected, rinsed and dried is best. This practice prevents the growth of bacteria on non-disposable bottles and minimizes the spread of disease from one litter to the next.

Minimizing the number of contact points from litter to litter is key. If



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you use a processing cart, identify scouring litters and process them last. Use this as an opportunity to treat those piglets and avoid picking them up multiple times.

If you use scalpel blades or needles during processing, replace needles every litter and scalpel blades every three to four litters or when the blade dulls, whichever occurs first. Dip tools in an antiseptic between piglets and between procedures to prevent the

build-up of bacteria and surgical site infections.

These requirements will change based on your disease status. For example, if your barn has unstable PRRSV, it is in your best interest to change those scalpel blades every litter. Making such minor changes can lower rates of castration site infections and minimize joint ill in piglets, ultimately lowering disease and pre-weaning mortality.



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This treatment cart has uncapped needles and dirty bottles. Uncapped needles are a human safety issue, as well as a herd health concern.

Day-to-day hygiene

Look at the tools you use daily throughout the barn. They could be bottle top injectors, rattle paddles, pig boards or boots.

These items can become contaminated at some point, so keeping them clean and disinfecting them on a regular basis is a good idea.

Take apart your bottle top injectors and soak them in disinfectant on a daily basis, and rinse and dry them prior to use. Rinse your boots off daily, and disinfect them at least once a week or whenever they become significantly contaminated with blood or manure. Remove all organic matter prior to disinfection in every scenario.

Find the most commonly used tools that have the highest risk of spreading disease. Focus on the cleanliness of those tools first, as the payoff is the greatest.

Individually, these changes are simple. When we add them all together, however, they can seem daunting. Try a few improvements every month or so and review the impact on your herd’s health.

Continue to review and improve hygiene practices, as the consequences of complacency are high and the benefits of the extra effort are worth every second. **BP**

Dr. Jessica Law is a veterinarian with Prairie Swine Health Services in Red Deer, Alta.

OAHN Practitioner Tips- Keeping PED and Other Pathogens OUT of your Farm

The following information is from the Ontario Animal Health Network (OAHN) Swine Network Quarterly Veterinary Report, Jan-Mar 2018. Find the full report at: www.oahn.ca (shortcut: <http://bit.ly/2J6pJW4>). This is list of biosecurity considerations for every farm to help keep pathogens such as Porcine Epidemic Diarrhea Virus (PEDV), Senecavirus A (SVA) and Porcine Reproductive and Respiratory Syndrome (PRRS) out. Please note that some of the tips included in this article have not been scientifically proven.

1) Routinely Evaluate Biosecurity Protocols with Farm Staff and Visitors: Figure 1 clearly demonstrates a breach in biosecurity. Lime was laid on the one side of this entrance (the



Figure 1: Demonstrating a biosecurity breach

side of the wall where the person is not standing) and you can clearly see the outlines of a boot mark in lime on the top of this Danish entry biosecurity line (the wall) and lime on the other side (where the person is standing). Ensure that visitors understand how to correctly use a Danish Entry system if you have one set up in your barn. To be used correctly a person should remove all outerwear (coats, coveralls and footwear) on the entrance side and then enter to the other side by swinging their feet over the wall and changing to designated clean footwear and barn clothes on the other side. Hands should also be cleaned on the entrance side by using hand sanitizer or by washing with soap and water.

2) Cleaning and Disinfection

Protocols: It is recommended that each farm have cleaning and disinfecting protocols in place for all trucks that back up to the barn. Your herd veterinarian can assist you with developing a protocol that works for your farm. Once complete share and discuss these protocols with your staff, your trucking company, and your feed delivery company. Any truck that backs up to your barn that has not been thoroughly cleaned and disinfected is an easy transport vector for viruses that can infect your farm.

3) Protect Your Investment:

Protect your investment, your pigs. Don't be afraid to ask to inspect livestock trucks that arrive

on your premises for cleanliness before you begin to load animals. If any manure is seen within the truck it is not considered clean. Remember to use appropriate biosecurity measures and at minimum change into clean footwear and coveralls before re-entering your barn.

4) Make Biosecurity Easy: Viruses such as PEDV, SVA and PRRSV can live on vehicle floor mats and on outdoor footwear. This is the reason why producers must be cautious of how people enter their barns. The same rules that apply to visitors and your staff also apply to truck drivers backing up to your loading dock. More and more barns are installing a separate entrance that provides truck drivers with the space and controlled climate



Figure 2: A separate entranceway for truck drivers making biosecurity easier.

to be able to follow biosecurity measures such as changing into clean boots and coveralls demonstrated in Figure 2. Truck drivers can then proceed out the side entrance door that connects directly with the trailer's side door entrance to begin loading or unloading pigs. Providing this separate entrance for truck drivers assists them in being able to correctly follow biosecurity measures and could prevent cross contaminating PEDV positive truck cabs with the interior of the livestock trailer. Truck drivers are constantly challenged with both direct and indirect contact with viruses that are present at assembly yards, other swine farms and on packer docks. **Help them by making their job easier!** Separate entranceways such as this are classified as an eligible expense if producers wish to apply and are successful for cost-share funding through the Canadian Agricultural Partnership (CAP) <http://ontarioprogramguides.net/ahim-pd-a-defining-zones-and-controlled-access-points>

5) Confirm the Health Status of Incoming Pigs: Confirm the health status of all pigs moved onto your farm. The only way health status can be confirmed is through laboratory testing. Producers can work with their veterinarians to determine what laboratory tests should be run and on how many animals.

Environmental Enrichment to Improve Pig Health and Performance

Pigs are naturally exploratory animals; therefore providing enrichment for them offers an opportunity for natural behaviour, such as rooting and exploring. Enrichment also deters pigs from harmful and

unnatural behaviour, such as tail and ear biting of pen mates. Van de Weerd and Day (2009) stated that successful enrichment should: 1) increase species-specific behaviour (such as rooting), 2) maintain or improve health levels, 3) improve the economics of the production system, and 4) should be practical to employ.

The Canadian *Code of Practice for the Care and Handling of Pigs* (2014) states that "Pigs must be provided with multiple forms of enrichment that aim to improve the welfare of the animals through the enhancement of their physical and social environments." Many Canadian producers have yet to introduce enrichment to their barns, perhaps because they are not aware of the benefits of enrichment, think it is too expensive, too time-consuming, or a combination of these factors.

The *Code* lists several different types of enrichment, including:

- **Social enrichment:** Involves either direct or indirect contact with other pigs.
- **Occupational enrichment:** Encompasses both psychological enrichment that provides animals with control or challenges and enrichment that encourages exercise.
- **Physical enrichment:** Can involve alternating the animals' enclosures or adding accessories such as objects, substrate or permanent structures.
- **Sensory enrichment:** Visual, auditory, olfactory, tactile and taste stimuli.
- **Nutritional enrichment:** Involves either presenting varied or novel food types or changing the method of food delivery.

The existing literature has established many benefits that arise from providing pigs (of all ages) with enrichment. Pigs reared in enriched

environments were observed to have more positive social interactions, such as a reduction in aggression, and reduced injury scores and skin lesions (Guy et al., 2002d; Schaefer et al., 1990; Ishiwata et al., 2004). Enrichment has also been shown to be linked to increased daily weight gain and a lower food conversion ratio (Hill et al., 1998; Krotzl

Table 1: Enrichment options.

 <p>Burlap: Tied or braided into different shapes.</p>
 <p>Cotton Rope: Tied or braided into different shapes.</p>
 <p>Straw: Provided in hay racks or chopped into small pieces.</p>
 <p>Untreated wood: In suitable size, hung from a partition or ceiling by chain.</p>

et al., 1994). Some studies have also shown that providing a source of enrichment to sows before farrowing and throughout nursing can increase their oxytocin levels (Better Pork, June 2017). This equates to better birthing and quicker bonding to piglets. This is especially beneficial for gilts, as their first farrowing is often a stressful experience.

Several studies have looked at different forms of enrichment to determine what is the most successful, based on a variety of factors. A good source of enrichment should keep pigs entertained for a prolonged period of time, while being economically friendly for producers implement. Characteristics of a good toy include being attractively odorous, destructible, chewable, changes shape, flexible, edible, clean, and complex. These factors keep pigs interested beyond the initial novelty of something new being introduced to the pen. Pigs find pleasure in destroying things, so characteristics such as destructible, changes shape, chewable, flexible and edible keep pigs satisfied and prevent them from getting frustrated, while maintaining their interest. The key is to find balance between a toy that is able to be destroyed, but not so flimsy that it has to be changed so frequently that it is inconvenient for stockpersons. Lastly, it is necessary to ensure that the material of the toy will not harm the pigs if ingested. Toys do not need to be expensive, and can often be made from objects around the farm. Examples include the use of wood (non-treated), cotton rope,, or burlap.

It is ideal if toys can be hung away from the ground, which will ensure the toys stay clean, as previous studies have shown that pigs become uninterested with toys if they become soiled with feces. When hanging toys, a common mistake is

hanging them too high for the pigs to play with properly. Toys should be hung no higher than snout level, so pigs can easily grasp the toy in their mouth.

Straw is considered to be the best source of enrichment, as it is edible, provides a soft bedding, and pigs enjoy playing and rooting in it. Straw is also relatively inexpensive to provide. However, for many producers, straw is not a realistic source of enrichment, as it can fall through slatted floors and interfere with liquid manure systems, and may also pose a biosecurity risk on farm. However, straw can be provided in a slatted system by using hay racks, and chopping the straw into small, edible pieces.

Enrichment is not only beneficial in increasing animal welfare, but when done properly, enrichment can improve producers' bottom line. By decreasing the amount of injuries that farmers have to treat, it leads to better economic outcomes. Additionally, injured pigs have depressed growth rates and lower performance. Keeping pigs entertained not only keeps them happy, but healthy. Finding an appropriate source of enrichment that meets the above characteristics is important in implementing a successful toy.

Enrichment Options

See Table 1 for enrichment options that can be used in your hog barn.

Disclaimer: There are a number of commercially available enrichment devices available in the marketplace. This is not an exhaustive list of all enrichment options available, but presents a few materials for making home-made toys that are safe for pigs. Certain items that may seem cheap and available, such as old boots or used tires, are not suitable.

No matter the type of enrichment, it is important that toys are monitored frequently to ensure that they are not causing health problems (strangulation, digestion problems, choking, transmission of pathogens), or compromising food safety. Old tires or rubber boots are not recommended as forms of enrichment. Although these items may be laying around the barn and convenient, they can cause health problems. Both are made of treated rubber, which can impose a food safety concern. Tires can have metal pieces in them, and rubber boots that are steel toed are dangerous for pigs to chew on. It is also possible for tires to get stuck on pigs, causing harm.

Hanging Toys

In many cases, the best way to

Table 2: Cost breakdown of a chain set up for hanging enrichment toys.

Chain Set Up (one time cost)				
Item	\$ per unit	\$ per unit (incl. tax)	# units	Total \$
Eye Hook (screw) 5/16 inch	2.60	2.94	1	2.94
Quick Link 3/16 inch	1.43	1.62	1	1.62
Snap Link 3/16 inch (carabineer)	1.43	1.62	1	1.62
Hose clamp	1.80	2.03	1	2.03
Tenso #2/0 chain (per foot)	0.60	0.68	7	4.75
Total Cost for Toy Mounting Set up (including tax)				12.95

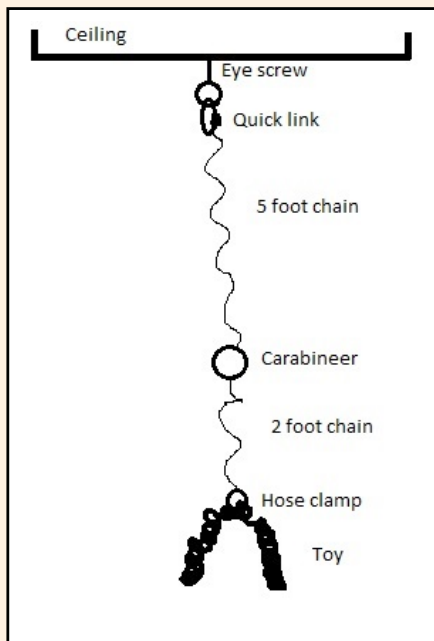


Figure 1: Diagram of chain set up.

preserve toys and maintain the pigs interest is to hang them from the ceiling. By hanging the toys from the ceiling, they are staying clean and prevented from being stuck somewhere in the pen where the pigs cannot utilize the toy. In order for optimal use and enjoyment the toy should be hanging snout level with the smallest pigs in the pen, and should be raised up as pigs grow. While the time between replacing toys will depend on the toy itself and the age of pigs using the toy, the chain set up to hang toys is a one-time investment. It is important that the bottom of the chain is easily removable, to make it convenient for switching out and replacing toys. See Table 2 for a cost breakdown of the chain set up (subject to vary with retailer), and Figure 1 for a diagram of the chain set up.

References

Guy, J.H., Whitehead, N., and Cussins, R.A. 2002d. The pig mobile: a simple environmental enrichment device for growing pigs in barren pens. In: Abstract 36th International Congress of the ISAE, August 2002. Egmond

- aan Zee, the Netherlands (abstract), p. 142
- Hill, J.D., McGlone, J.J., Fullwood, S.D. and Miller, M.F. 1998. Environmental enrichment influences on pig behaviour, performance and meat quality. *Applied Animal Behaviour Science*. 57: 51-68.
- Ishiwata, T., Uetake, K., and Tanka, T. 2004. Factors affecting agonistic interactions of weaning pigs after grouping in pens with a tire. *Animal Science Journal*. 75: 71-78.
- Krotzl, H., Sciarra, C., and Troxler, J. 1994. The influence of a roughage dispenser, straw rack and gnawing wood on the behaviour of grower pigs. *KTBL -Schrift*. 361: 181-191.
- Schaefer, A.L., Salomons, M.O., Tong, A.K.W., Sather, A.P., and Lepage, P. 1990. The effect of environmental enrichment on aggression in newly weaned pigs. *Applied Animal Behaviour Science*. 27: 41-52.
- Van de Weerd, H., and Day, J. 2009. A review of environmental enrichment for pigs housed in intensive housing systems. *Applied Animal Behaviour Science*. 116: 1-20.

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Heat Stress

Ontario is known for its long, hot and very humid summers. These conditions can easily create heat stress situations in hog barns.

Despite the fact that most pigs are raised in barns with ventilation systems that closely control the climate, it is not always possible to

avoid very high temperatures within barns which may lead to a heat stress emergency. In fact, a study released by Ohio State determined that heat stress costs the US pork industry over \$300 million annually.

Pigs are particularly susceptible to hot temperatures because they are not capable of sweating; a mechanism that helps other mammals cool down. Instead of sweating, pigs lose heat to their surrounding environment in four ways; conduction, thermal radiation, convection and evaporation. These four mechanisms help them maintain appropriate body temperatures.

Temperatures above 23°C can result in negative impacts on pigs and their growth performance. Heat stress is classified as the point where the environmental temperature rises above the level where the animal is producing more heat from digestion and/or receiving more heat from its surroundings than it is releasing to the surrounding environment. High levels of relative humidity contribute to the heat stress response of pigs. Figure 1 shows a Heat Stress Index for grow-finish pigs, determined by temperature and relative humidity. This tool can be used to assess the risk to animals under various conditions.

When an animal is under heat stress, the main goal is to minimize heat transfer to the animal from the surroundings, and maximize heat transfer from the animal to its environment. Essentially the more heat out and the less heat in, the better it is for the animal.

Signs of Heat Stress

Signs to look for when walking through your barn on a hot day include:

- Evident discomfort/distress, pigs lying apart, pigs lying with their bodies stretched out.

Ministry of Agriculture, Food and Rural Affairs

- Manure patterns changing, pen floors become wet and dirty, pigs dirtier than usual.
- Increase water consumption (up to 6x normal).
- Noticeable decrease in pen activity, hogs acting slow and lethargic.
- Muscle trembling.
- Rapid fall in feed consumption, reduced weight gain.
- Very high respiration rates (pigs gasping or panting).

How Producers Can Help with Heat Stress

Farmers cannot control the weather, and sometimes heat waves can strike outside of what we would seasonally expect (like in early spring or late fall). The best practice to deal with heat stress is to be prepared. Being proactive as opposed to reactive will help improve animal welfare and your bottom line. Some strategies to be prepared before the heat hits include:

- Ensuring pigs have unrestricted access to a water supply.
- Install a timed water sprinkler or mister that is triggered by high room temperatures. Sprinklers should activate for 1-2 minutes every 20-30 minutes to allow moisture to evaporate off the pigs' skin before starting the process again. Larger water

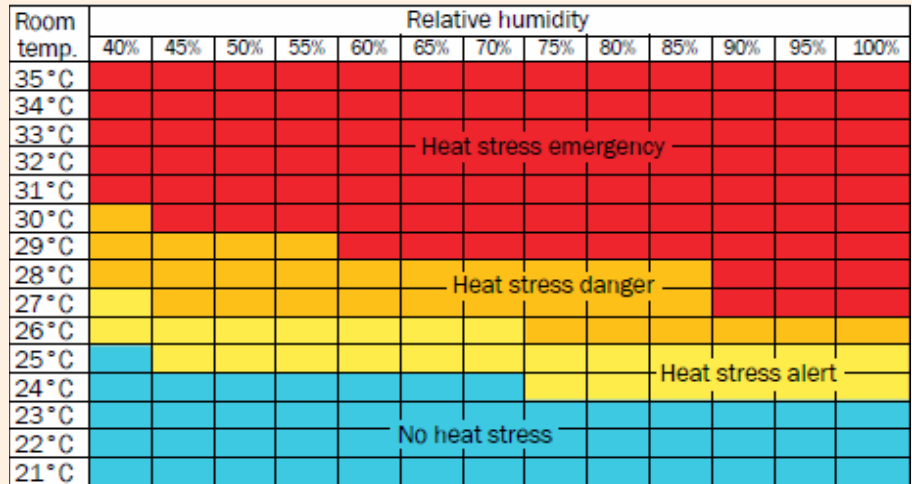


Figure 1: Heat Stress Index for Grow-Finish Swine.

droplets also work better than a fine mist.

- Install a drip cooling system and or sow cooling pads for individually housed sows.
- Do not overcrowd pigs. Provide enough space for each pig to lie down without touching pen mates and still access feeders and waters.
- Work with your nutritionist to reformulate more nutrient dense diets.
- When pigs are fed at given time points, alter the time of day in which the bulk of feed is offered. By providing the majority of feed during cooler hours, it will help reduce decreases in feed intake.
- Ensure alternate power sources are in place if there is a power

loss. Death due to heat stress often occurs in power outage situations. Test these systems monthly to ensure the backup power source is working properly

The Importance of Ventilation

Regular maintenance of ventilation systems is one of the best ways hog producers can avoid the consequences of heat stress in their barns. Dust and dirt build-up on air inlets and exhaust fans can deteriorate equipment and lead to malfunctions. Make it part of your regular routine to inspect ventilation equipment on a regular schedule, and schedule repairs when necessary. Doing this will maximize the efficiency of the equipment and the quality of the pigs' environment. Ventilation equipment needs to be running at its best in order to combat the high temperatures of Ontario summers and provide your pigs with comfortable living conditions. Additionally, ensuring proper ventilation rates for the size of the room, weight of pigs and time of year is also important (Table 1).

Transportation

Transportation during any season can cause heat stress in pigs. The risk of heat stress can be reduced by loading animals in small groups, especially on hot days. By loading in smaller groups, it reduces the

Table 1: OMAFRA Recommended Ventilation Rates.

Type of Animal	Ventilation Rate CFM/Animal	
	Cold Weather	Warm Weather ^a
Breeding/Gestating Sow	10	200
Farrowing Sow with Litter	15	400
Nursery Pigs, 4-25 kg	1.0-3.0 ^b	15-35 ^c
Grower Pigs, 25-60 kg	4.0-6.0	50-70
Finishing Pigs, 60-20 kg	6.0-8.0	70-90

^a Summer ventilation rate for large pigs may need to be increased to 1 air change per minute during hot summer weather

^b For reasonably good air quality, this minimum winter ventilation rate may need to be increased to ensure at least 3-4 room air changes per hour

^c Limit the maximum summer air changes to 1 per minute for sensitive livestock

stress level of hogs and gives them space and time to load. If possible, adjust pick up time to the early morning or later at night, when the temperature is not as high. Ask your trucking company to provide wet shavings in the truck as bedding, instead of straw. If a pig being loaded is overheating (won't get up, breathing heavily), do not load them, and give them time to recover. Do not pour large amounts of cold water onto the overheated pig, as this may send them into shock.

OMAFRA'S Heat Stress in Livestock and Poultry App

The Heat Stress in Livestock and Poultry App, available on Blackberry or Android, allows you accurately and easily measure the risk of heat stress, by entering the temperature and relative humidity. It also recommends steps to take to reduce heat stress and to maintain feed intake and productivity. You can download this app for FREE on Blackberry World, or Google Play. It is available in English, French and Spanish.



References

National Pork Board TQA program Loading Density Guidelines. www.ontariopork.on.ca. Under "Industry — Resources — Transportation." St-Pierre, N.R., B. Cobanov and G. Schnitkey. 2003. *Economic Losses from Heat Stress by U.S. Livestock Industries*. J. Dairy Sci. 86:E52–E77. University of Minnesota PorkBridge Educational Series *Ventilation for Livestock and Poultry Facilities*. Pub 833, OMAFRA. Xin, H., and J. Harmon. 1998. *Livestock Industry Facilities and Environment: Heat Stress Indices for*

Livestock. Iowa State University.

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Hazards on Farm - Be Informed and Work Safe

There are hazards in any job and employers and workers need to be aware and take precautions. Farming is no different. Liquid manure and grain storage bins are two sources of potential risk.

Hydrogen sulphide, carbon dioxide, methane, and ammonia are natural by-products from the decomposition of organic matter and may be referred to collectively as manure gases. If appropriate precautions are not taken to prevent their build-up to dangerous concentrations, they present real dangers to workers or livestock on hog farms. If everybody working around liquid manure understands what the properties and risks are with each of these hazardous gases the danger of a tragic incident can be reduced. Problems with these gases arise during pit agitation, pulling plugs, when transferring manure, when shutting down barns, and when there are incidents with foaming manure. At these times it is essen-

tial to act as if the danger is present and take appropriate precautions. Always ventilate (DO NOT turn off ventilation just because a barn is empty of pigs), be extra vigilant, know about the hazards, and close pull plugs immediately. Be aware of what causes sudden releases of these gases. Always know where the supply air is coming from in the barn. Preferably, use a hydrogen sulphide or multi-gas detector. These detectors are readily available and could save a life.

Taking care of yourself is the first step but don't forget other people on the farm, or unexpected visitors, who may or may not know what operations are underway. Let staff and family know what your plans for the day are, and tell them what they need to know to avoid danger. Consider making signs like the one below to post on doors anywhere someone might accidentally enter a potentially hazardous area.

More information on these and other hazardous gases on farms is available in the OMAFRA Factsheet 14-017 Hazardous Gases on Agricultural Operations.

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Example of a warning sign for posting at building entrances.



2018 Ontario Monthly Hog Market Facts

Compiled by Jaydee Smith, OMAFRA

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Month	Jan '18	Feb '18	Mar '18	Apr '18	May '18	Jun '18	1st 6 mo.
100% Formula Price (\$/c/kg, 100 index)	\$156.28	\$165.96	\$151.39	\$128.94	\$152.13	\$185.96	\$156.78
* Same Month - Previous year	\$150.70	\$174.67	\$173.64	\$152.66	\$172.71	\$201.55	\$170.99
Average price (\$/c/kg, DW total value)	\$184.60	\$191.90	\$180.54	\$156.47	\$174.15	\$206.20	\$182.31
Low price (\$/c/kg, DW total value)	\$163.40	\$175.62	\$163.86	\$138.54	\$158.51	\$185.33	\$164.21
High price (\$/c/kg, DW total value)	\$216.86	\$222.16	\$209.29	\$191.94	\$207.74	\$235.93	\$213.99
Ontario Market Hog Sales	408,1739	397,214	486,397	388,185	363,232	487,504	2,531,271
*% Change Same Weeks - Previous Year	-2.3%	-0.7%	-1.1%	2.1%	1.4%	3.8%	0.5%
Average Carcass Weight (kg)	105.50	104.44	104.19	104.01	102.78	101.90	103.80

Weaned Pigs (\$/pig, 5 kg)**Formula	\$40.63	\$43.15	\$39.36	\$33.53	\$39.55	\$48.01	\$40.71
Feeder Pigs (\$/pig, 25 kg)**Formula	\$64.47	\$68.46	\$62.45	\$53.19	\$62.75	\$76.17	\$64.58
Value of Canadian Dollar (US\$)	\$0.8032	\$0.7987	\$0.7747	\$0.7857	\$0.7780	\$0.7632	\$0.7839
* Same Month - Previous year	\$0.7567	\$0.7640	\$0.7479	\$0.7443	\$0.7340	\$0.7508	\$0.7496
Prime Interest Rate at End of Month	3.45%	3.45%	3.45%	3.45%	3.45%	3.45%	3.45%

Corn (farm price) - \$/tonne	\$170.06	\$176.12	\$187.77	\$191.07	\$199.32	\$187.76	\$185.35
* Same Month - Previous year	\$180.86	\$184.29	\$183.78	\$184.83	\$190.68	\$191.12	\$185.93
Soybean Meal (Hamilton + \$20)-\$/tonne	\$476.49	\$510.27	\$559.57	\$572.80	\$593.04	\$560.25	\$545.40
* Same Month - Previous year	\$526.12	\$523.55	\$510.84	\$484.69	\$476.68	\$465.79	\$497.45
Corn - Western Ontario Feed - \$/tonne	\$183.80	\$189.97	\$201.92	\$203.28	\$214.17	\$204.19	\$199.56
* Same Month - Previous year	\$201.47	\$200.84	\$197.93	\$197.38	\$204.22	\$202.79	\$200.77
DDGS FOB Chatham/Sarnia/Alymer (\$/tonne)	\$219.21	\$244.00	\$227.90	\$244.75	\$259.50	\$258.30	\$242.28
* Same Month - Previous year	\$139.75	\$150.00	\$165.20	\$175.00	\$176.75	\$174.50	\$163.53

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

Value of Market Hog	\$185.18	\$194.57	\$177.24	\$151.00	\$175.72	\$212.53	\$182.71
Feed Cost	\$113.29	\$113.12	\$115.16	\$117.19	\$119.22	\$119.89	\$116.31
Other Variable Costs	\$43.42	\$43.48	\$43.70	\$43.66	\$43.83	\$44.32	\$43.74
Fixed Costs	\$25.55	\$24.55	\$24.55	\$24.55	\$24.55	\$24.55	\$24.72
Total Costs	\$181.26	\$181.16	\$183.41	\$185.41	\$187.61	\$188.76	\$184.60
Net Return	\$3.92	\$13.41	-\$6.17	-\$34.41	-\$11.89	\$23.77	-\$1.90



Swine Budget – June 2018

Compiled by Jaydee Smith, OMAFRA

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Income (\$/pig)	Farrow to Wean	Nursery	Grow-Finish	Farrow to Finish
Market Pig @ 101% of Base Price \$185.96/ckg, 110 index, 101.9 kg plus \$2 premium				\$212.53

Variable Costs (\$/pig)				
Breeding Herd Feed @ 1,100 kg/sow	\$12.93			\$14.18
Nursery Feed @ 33.5 kg/pig		\$16.93		\$17.84
Grower-Finisher Feed @ 277 kg/pig			\$87.88	\$87.88
Net Replacement Cost for Gilts	\$2.31			\$2.53
Health (Vet & Supplies)	\$2.16	\$2.10	\$0.45	\$5.03
Breeding (A.I. & Supplies)	\$1.80			\$1.98
Marketing, Grading, Trucking	\$0.90	\$1.50	\$5.76	\$8.33
Utilities (Hydro, Gas)	\$2.35	\$1.38	\$2.13	\$6.17
Miscellaneous	\$1.00	\$0.10	\$0.20	\$1.40
Repairs & Maintenance	\$1.26	\$0.61	\$2.15	\$4.19
Labour	\$6.27	\$1.85	\$4.00	\$12.83
Operating Loan Interest	\$0.27	\$0.35	\$1.21	\$1.87
Total Variable Costs	\$31.25	\$24.82	\$103.77	\$164.20

Fixed Costs (\$/pig)				
Depreciation	\$4.22	\$2.04	\$7.18	\$13.95
Interest	\$2.36	\$1.14	\$4.02	\$7.81
Taxes & Insurance	\$0.84	\$0.41	\$1.44	\$2.79
Total Fixed Costs	\$7.42	\$3.59	\$12.64	\$24.55

Summary of Costs (\$/pig)				
Feed	\$12.93	\$16.93	\$87.88	\$119.89
Other Variable	\$18.32	\$7.90	\$15.90	\$44.32
Fixed	\$7.42	\$3.59	\$12.64	\$24.55
Total Variable & Fixed Costs	\$38.67	\$28.41	\$116.41	\$188.76

Summary	Farrow to Wean	Feeder Pig	Wean to Finish	Farrow to Finish
Total Cost (\$/pig)	\$38.67	\$68.66	\$146.35	\$188.76
Net Return Farrow to Finish (\$/pig)				\$23.77
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) includes 101% Base Price & \$2 Premium				\$164.97
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) excludes 101% Base Price & \$2 Premium				\$168.40

This is the estimated accumulated cost for a market hog sold during the month of June 2018. The farrow to wean phase estimates the weaned pig cost for January 2018 and the nursery phase estimates the feeder pig cost for March 2018. For further details, refer to the "2018 Budget Notes" posted at <http://www.omafra.gov.on.ca/english/livestock/swine/finmark.html>.

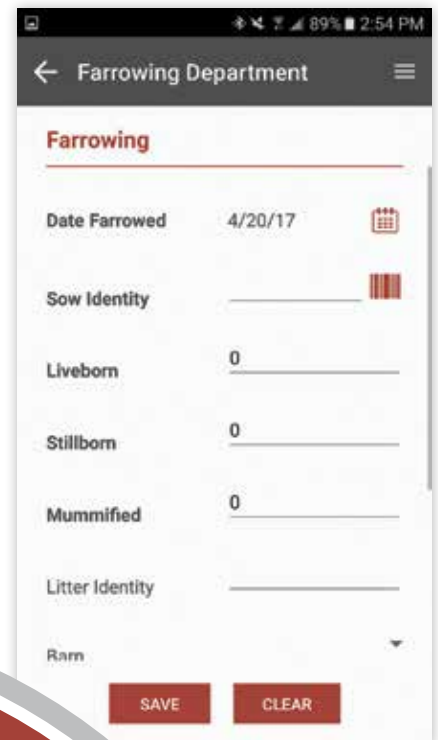


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Pathogens can be transported globally in feed ingredients, new study shows.

Major livestock viruses can live and travel in feed ingredients, new research proves. In a world where feed ingredients regularly cross oceans, that finding documents new channels for disease transmission and the need for prevention in the livestock industry.

“Viruses can live in feed for extended periods of time if you have the right combination of virus and feed ingredients,” Dr. Scott Dee, director of applied research at Pipestone Veterinary Services in Minnesota, explained during a presentation at Big Bug Day in October 2017.

He led a team of researchers from South Dakota State University, Kansas State University, the Swine Health Information Centre, Lincoln Memorial University, Iowa State University and Brazil’s Universidade Federal de Pelotas in the three-year study examining how viruses can move through feed.

The research project involved 11 significant swine pathogens and a simulation of feed ingredient movement between continents based on actual transportation routes and



National Pork Board and the Pork Checkoff, Des Moines, Iowa photo

This discovery of a new risk area for the global livestock sector underscores the need for closer collaboration between the feed and livestock industries.

material movements.

Foot-and-mouth disease tops the list of viruses of concern, followed by classical swine fever, African swine fever, influenza A, pseudorabies, Nipah, Porcine Reproductive and Respiratory Syndrome, swine vesicular disease, vesicular stomatitis, porcine circovirus type 2 and vesicular exanthema of swine.

Researchers used actual pathogens for five of the viruses. Scientists substituted surrogates for the remaining six target viruses because

of their virulence and because they are internationally reportable diseases.

The team substituted Senecavirus A for foot-and-mouth disease, bovine viral diarrhea for classical swine fever, bovine herpes for pseudorabies, Canine Distemper for Nipah, porcine sapelovirus for swine vesicular disease, and feline calicivirus for vesicular exanthema of swine.

In total, researchers chose 11 animal feed ingredients or products of animal origin known to be

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imported into the U.S. from Asia and/or Eastern Europe. The list included: organic and conventional soybean meal, soy oil cake, dried distillers' grains with solubles (DDGS), lysine hydrochloride, and pork sausage casings.

Dee's team followed timetables representative of transport from China and Poland to the United States. The trans-Pacific route included Beijing, Shanghai, San Francisco and Des Moines. The trans-Atlantic route stretched from Eastern Europe to Western Europe and then to the United States via Warsaw, Le Havre, New York and Des Moines.

"We sampled and tested multiple ways to see if the virus is alive and growing in the cells. If (the test) was negative, we put (the virus) into a pig to see whether a live animal would be more sensitive," Dee said. "We also looked at whether a virus can live by itself or whether it needs a feed matrix to protect it."

The results were similar to those found three years ago when scientists undertook the same type of work with Porcine Epidemic Diarrhea virus: overall, a number of viruses can live in feed for extended periods of time and, in fact, some feed ingredients are extremely virus-friendly.

Viruses survived best in conventional soybean meal, lysine hydrochloride, choline chloride, vitamin D and pork sausage casings, but overall survivability differed across viruses.

The most striking example of the difference in virus survival between ingredients was with conventional and organic soybean meal, Dee said. Although conventional meal showed greater survivability – potentially due to the lower fat content of conventional compared to organic meal – Dee cautioned that it is too early to draw any conclusions as to what caused the difference.

Senecavirus A, the virus the researchers chose to represent foot-and-mouth disease, appeared to be the most stable virus in feed. Other viruses, such as bovine viral diarrhea representing classical swine fever, did

not survive the transport period even though they were present in the feed at the onset.

The combination of the right virus with the right feed ingredient could be a mechanism for transboundary transmission of pathogens. This discovery of a new risk area for the global livestock sector underscores the need for better communication and closer collaboration between the feed and livestock industries.

"Ultimately, we could see a change in approach in the global feed trade, from one based on price to one where country of origin and health status of the feed ingredients play a key role in decision-making," Dee said. **BP**

Swine Health Ontario is a leadership team focused on improving and co-ordinating the industry's ability to prevent, prepare for and respond to serious swine health threats in Ontario.

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Researchers highlight options for enrichment materials for use in sow barns.

If your favorite toy growing up was a chain hanging from the ceiling, you were clearly deprived. For pigs, though, this toy is one of many forms of enrichment, which is a requirement of the revised Code of Practice for the Care and Handling of Pigs.

While much research has been done on the impact of enrichment for grower-finisher pigs, there was little focus on sows – something that needed to change in light of the new sow housing requirements in the code.

“Sows will be socially enriched by the move to group housing but, if the pens have no other forms of enrichment, you’re likely to see more aggression as the animals have few distractions and little to do,” said Dr. Jennifer Brown, research scientist in ethology with the Prairie Swine Centre in Saskatchewan.

Unhealthy competition

Because sows are fed a restricted diet, the chances of aggression are even greater, especially if space allowances are low or a competitive feeding system is used, so it is critical to understand enrichment for sows in groups.

“Using a free access feeding system, we put enrichment in the common area and took time-lapse photos of sows to assess their behaviour: Are they interacting with the enrichment? We also did live observations of stereotypic behaviour, such as bar biting and sham chewing, and examined changes in sow posture, area of the pen they were lying in, and levels of inactivity,” Brown said.

Chain reactions

For the study, enrichment was presented in four different ways:

- no enrichment
- constant enrichment with three wood pieces on a chain
- rotating enrichment every three



Prairie Swine Centre photo

“Straw is an effective enrichment and, because it can be consumed, it also increases satiety – the sensation of being full,” Dr. Jennifer Brown said.

to four days among rope, straw and wood on a chain

- the same rotation but with a sound stimulus added during each change that has been thought to increase the value of enrichment

“It was important to see how these approaches influenced habituation. If you have the same enrichment all the time, sows will habituate to it and interest will drop over time. To compare the different treatments, we rotated the sows through each of the four approaches, giving them two weeks with each one,” Brown said.

Researchers found the very presence of enrichment made a big difference with sow behaviour: sows given enrichment spent more time standing than control sows which means they are more active. The difference was large enough to show that enrichment had an effect on sows’ behaviour but not so much as to affect their feed requirements.

For gestating sows, greater activity levels are known to improve bone strength and muscle tone, making for fitter sows at farrowing.

Which enrichment is most enriching?

So is all enrichment created equal? Brown and her team found a significant increase in contact with the enrichment when straw was used, which was not surprising.

“We included straw in the rotation as a ‘positive control’ to compare against the other treatments. Previous studies have shown that straw is an effective enrichment and, because it can be consumed, it also increases satiety – the sensation of being full,” Brown said.

However, in many Canadian barns, straw is difficult to use due to concerns over manure management and biosecurity.

“Overall, we found that rotating enrichment does help to maintain

University of Manitoba photo



The very presence of enrichment makes a big difference with sow behaviour: animals given enrichment are more active.

novelty and increase enrichment use. Providing rope or wood on a chain are both suitable alternatives for group-housed sows,” Brown added.

Driven to distraction

Of course, there is not a lot of competition among sows in the free access system, so Brown feels it will be valuable to do additional studies to compare the results with enrichment use to other systems like electronic sow feeding (ESF).

“Anecdotally, though, in the commercial barns we have visited that use enrichment, sows are using it a lot when they aren’t feeding,” she said.

“Based on our observations and previous research, where there is competition among sows, enrichment can distract the dominant sows and give them something to do, which takes some pressure off the subordinate animals.”

For example, in ESF systems, the dominant sow often lies near the feeder entrance as it is considered “prime turf.” By adding enrichment, you essentially create another high-value area to attract dominant animals and assist other sows that are trying to access the feeder.

It is clear from this project that enrichment plays a big role for sows as well as grower-finishers, and that it can assume many forms.

“Enrichment is not just toys; it can be human handler interaction, sound or the social enrichment inherent in a group setting. The important thing for producers is to ensure they provide some type of enrichment and, where possible, rotate through different kinds over time to maintain sow engagement,” Brown said.

Whatever enrichment you choose, just be sure it is safe for the animals and biosecure in addition to being able to hold a sow’s attention. As with your kids, the more you can distract them, the less damage they’ll do. **BP**

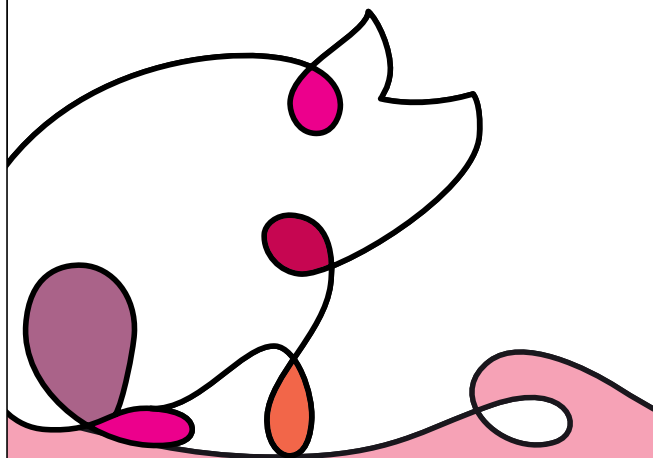
Swine Innovation Porc is a non-profit corporation committed to facilitating research in the Canadian swine sector. You may also find more resources related to the project “Optimizing flooring and social management of group housed, gestating sows” at swineinnovationporc.ca/research-animal-welfare.php.

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Canadian producer feeding 20 per cent less to the same sows, thanks to the right ESF design.

Have you been dragging your feet on your conversion to loose housing?

If so, here is some motivation: you can start saving time and feed as soon as you move sows into groups, if you choose correctly designed group pens and feeders.

Canadian pork producers who have made the switch are saving feed and labour. They are finding it easier to keep sows in optimal body condition. Farmers are seeing these benefits because they chose electronic sow feeding (ESF) systems that:

- eliminate feed theft by aggressive sows
- prevent spilled feed
- keep sows calm and easy to handle

Same sows, less feed

Dave Denys of Parkhill, Ont. knew he was using too much feed in his old stalled system but he was surprised to find out how much. He feeds the same sows about 20 per cent less since he transitioned his herd from individual stalls into one large group pen with ESF systems.

Getting rid of his drop feeders was a big step toward eliminating feed waste in his barn.

“When we were filling drops, we could see sows knocking feed out,” Denys said. “They eat while you’re filling and then they still get their whole drop. Some can get almost double fed, depending on how aggressive they are.”

Denys chose a system that pours feed and adds water at a rate Denys has set – not too slow or too fast. If a sow stops eating, the system stops delivering feed until she wants more. Each sow can eat at her own pace and finish her ration. She cannot access extra feed.

Better performance

In early 2016, Denys and his family remodeled their individual-stall barn that was built in 2002. After the



A sow enters an electronic sow feeder. It is designed to prevent sows from stealing each other’s feed, which makes it easy to keep sows in excellent body condition.

remodel, the family repopulated the barn with the same sows. Of the herd of 250 sows, about 215 are in one large gestation group, while the rest are in farrowing or breeding stalls.

Denys has more control over each sow’s feed intake in the group pen than he did in stalls. He chose an ESF system that prohibits feed theft. When a sow enters a feeder in Denys’s barn, she cannot be touched or harassed by another sow.

“With my electronic sow feeding system, I don’t have to worry about aggressive sows stealing feed from other sows, and I know exactly how much feed each animal is eating,” Denys says.

Precise feeding improves herd feed efficiency and body condition. Denys sees better sow performance since transitioning the animals to a group

gestation pen.

“We are on track to wean 28 pigs per sow per year because the sows are in better condition. That’s two more pigs per sow per year than before,” says Denys.

“An overweight sow usually bears fewer live pigs and doesn’t milk as well. We don’t have that problem anymore. We know what each sow is eating.”

Saving time

Denys has observed a marked improvement in sow behaviour since the transition. Sows are much calmer and the barn is quieter.

“No more sows banging stalls or screaming to get fed,” Denys says.

Handling animals is easier and faster because group sows are comfortable around people and are



A sow exits an ESF system that is designed to keep groups calm by preventing interaction between fed and unfed sows.

accustomed to walking.

“They’re easier to move to farrowing because they’re used to going in and out of doors,” Denys says. “We’re saving a lot of time.”

No feed waste

Not far from Denys’s remodeled barn is a new 1,300-sow barn built by Bryden Hope, a Parkhill, Ont. producer, in the spring of 2017. Like Denys, Hope chose an ESF system designed to eliminate feed waste. One factor is a feeder bowl that prevents sows from pushing feed onto the floor while eating.

“In our stall barn, where we manually drop feed, we have to scrape wasted feed every day,” says Hope. “We have literally zero feed waste in our electronic sow feeding stations.”

Hope manages the 1,300-head sow operation in dynamic groups of about 240 sows per pen. He also has 900 sows in a rented stalled

barn nearby and can compare the operations to see the difference in efficiency.

Hope was wary of jumping into loose sow housing but, after moving sows into the barn and using the system, he quickly saw how well it works.

“Overall, we’re saving two hours a day in the barn,” says Hope. “Two of my biggest costs are feed and labour. We can manage them

more efficiently with electronic sow feeding, automatic sow separation and automated heat detection.” **BP**

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WEIGHING THE IMPACT OF WEATHER AND TRADE

As trade relations continue to evolve and influence global markets, lower slaughter weights support prices.

Although the pork market was overwhelmed by trade war concerns, the saving grace early this summer was the lower-than-average hog slaughter weights. These lower weights prevented supply from overwhelming the market and depressing the prices.

American pork packers started expanding packing capacity last year, catering to the rising domestic and export demands. Indeed, continued demand from Mexico, the primary importer of American pork, as well as new demand from China contributed to the decisions to expand U.S. packing capacity.

But, by March, America waged trade wars with both nations. As a result, packers faced potentially reduced exports and larger domestic stockpiles of hogs and pork. Typically, the pork and soybean markets take the brunt of any trade war.

China threatened, in March, to impose up to a 25 per cent duty on



Natalia Mysak/Stock/Getty Images Plus photo

As expected, due to the increased packing capacity in the American Midwest, summer slaughter numbers were higher than in previous years.

American products – including pork – in retaliation for the U.S. tariffs on Chinese products.

In June, Mexico decided to impose

a 20 per cent tariff on pork legs and shoulders from American suppliers. U.S. pork accounts for about 90 per cent (650,000 metric tonnes) of Mexico's US\$1.07 billion annual imports of these cuts.

These trade wars with Mexico and China ultimately pressured prices, as exporters worried about global markets. For most of April and May, summer hog futures prices moved in a sideways channel with the trading range spanning from US\$72 to US\$82, as supplies weighed on the market but demand kept prices buoyant.

As expected, due to the increased packing capacity in the American Midwest, summer slaughter numbers were higher than in previous years. But the slaughter weights were lower than the five-year average.

Drought in many parts of the country forced livestock producers to offload hogs and cattle to packing plants, rather than keeping the animals in feedlots and fattening them. This situation boosted slaughter numbers but kept slaughter weights in check.



Into the early summer, U.S. hog slaughter numbers were higher than the five-year average due to the increased U.S. Midwest pork processing capacity.

The extended June heat wave in the American High Plains and U.S. Midwest dropped slaughter weights even further. The U.S. Department of Agriculture's (USDA's) average hog carcass weight for the week ended June 9 was 213 pounds (97 kilograms), which was lower than the five-year average for the same week. As a result, lean hog futures experienced a two-week rally in the first half of June.

The USDA forecast 2018 American pork production to be 26.715 billion pounds, the department's June WASDE report said. This figure will be higher than that in 2017 by 1.131 billion pounds, the USDA predicted.

But, in June, the department lowered its annual production estimate by 55 million pounds from its May prediction. This drop resulted from the pace of the second-quarter slaughter and the expectation of lower commercial slaughter in the third quarter.

The USDA expected heavier hog carcass weights in the third quarter of the year.

Mexico continues to serve as the pacesetter for American pork exports. As of June, the USDA expected 2018 pork exports to rise by 359 million pounds from those of 2017. The



American packers have planned further capacity expansion for this year and next, at least partially to cater to expected higher export demand.

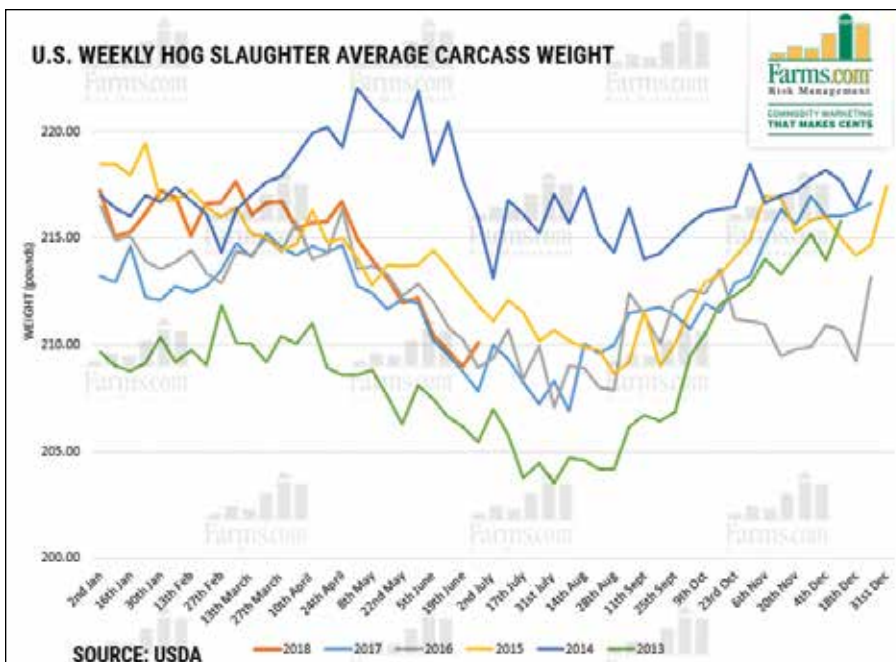
department forecast this jump as it expected a continuation of strong shipments to key markets, including Mexico. The trade war, though, threatens to decrease U.S. pork exports to that country.

American packers have planned further capacity expansion for this year and next, at least partially to cater to expected higher export demand. As a result, market participants think hog slaughter rates will continue to rise. But packers will only chase hog supplies if robust domestic and export demands exist for pork.

For the sake of hog prices, as 2018 continues to be a warmer-than-

normal year, let us hope that lower hog carcass slaughter weights continue to come to the rescue. **BP**

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Spring and early summer 2018 U.S. hog slaughter weights were lower than the five-year average.

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by
**RICHARD
SMELSKI**

TRACING THE HISTORY OF PIGS

While pork remains a staple in many diets around the world, scientists continue to find new uses for pigs.

johan10/iStock/Getty Images Plus photo



In many parts of the world, wild pigs have become invasive species.

Ever wonder about the origins of the pig? After all, it is one of the most populous mammals in the world, and its population usually hovers around one billion.

People domesticated pigs over 10,000 years ago in Eastern Asia. At that time, nomads started to settle with permanent farming sites.

A very diverse genetic base of pigs remains globally, and the greatest variation exists between the wild and the domesticated species.

Scientists have identified about 16 wild pig subspecies across the world. The wild boar in the United States, for example, resulted from escapes of domestic pigs and imported wild pigs. These animals exist even in some very northern climates, such as Siberia.

In many parts of the world, wild pigs have become invasive species. Upon a recent visit to Japan, for example, I learned how problematic wild hogs can be. Local residents fear the animals.

In total, hundreds of breeds of domestic pigs (*Sus scrofa domesticus*) exist globally. Hernando de Soto, a Spanish explorer, first introduced pigs

into North America in the 1500s.

Today, we are most familiar with three major breeds: Yorkshire, Landrace and Duroc. However, the most prolific breeds in the world are actually Erhualian and Meishan, both of which are from Asian lines.

Globally, people eat more pork than any other meat, the Food and Agriculture Organization of the United Nations says.

Indeed, pork comprises over 36 per cent of the world's meat consumption. Poultry follows closely behind at about 35 per cent and beef accounts for roughly 22 per cent of meat intake.

China produces and consumes more than half of the world's pork. Together, China, Hong Kong and Macau had an average per capita consumption of 88.1 pounds (40 kilograms) of pork in 2017. Canada, in contrast, had an average of 53.2 pounds (24.1 kg).

And what does the future of pork production look like?

First, let's look at the developments with CRISPR, which is a gene-editing technology. Scientists can use CRISPR to easily alter DNA sequences and

modify gene functions.

Scientists can use the protein Cas9 (or "CRISPR-associated") to cut DNA strands. Researchers can "edit" genes by incorporating these strands into other organisms. Genetic manipulation offers the opportunity to increase production efficiencies and enhance pork quality.

However, CRISPR technology also raises ethical concerns. While the technology can cut the DNA strand accurately, a chance exists of not getting a precise edit.

Second, pigs can serve as ideal organ donors because their organs are similar in size and function to those of humans. In 2016, 260 Canadians died while waiting for organ transplants, a federal government website says.

Doctors have used pig tissue for cardiac surgery, insulin-producing pancreatic cells, corneal transplants and kidney transplants. Scientists can use CRISPR to create even more specific tissues or organs. **BP**

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



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