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LETTERS FROM A FAMILY FARM

NAVIGATE THE CHALLENGES

When market conditions become poor or volatile, we may hear the resurgence of some simple advice.

"Just focus on reducing expenses and increasing revenue," some people might say.

While well meaning, this type of comment can come across as a platitude as we seek to deal with challenges in our operations. After all, things are often never quite that simple in our industry as we work with living things.

A decrease in a crop input, for example, might lead to increased disease, weed, or insect pressure, or perhaps a nutrient deficiency. In turn, we'll likely experience a yield and/or quality – and thus revenue – drop.

Similarly, in the pork sector, producers often seek the best ways to manage their feed costs. Any changes in feed programs, however, can have ripple effects on producers' herds and operations.

This month, staff writer Jackie Clark connects with industry representatives for a grounded discussion of the factors producers should consider as they review their feed programs. Hopefully this article proves beneficial as you prepare for upcoming meetings with your swine nutritionist and broader advisory team.

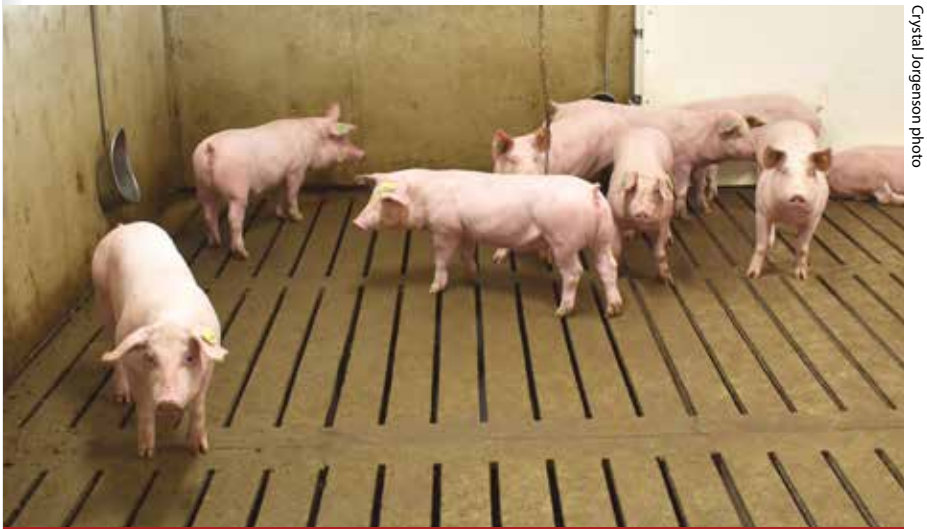
As we seek other practical ways to streamline our operations, we can revisit our benchmarking processes. Staff writer Kate Ayers dives into this topic, exploring the strengths and weaknesses of current benchmarking systems.

She also highlights possibilities for further system advances.

Through a close review of both internal and external production data, we can identify potential areas for improvement. Then, we can draw on the expertise of our teams and advisers to make calculated incremental changes that will help us increase our resiliency.

As always, I encourage you to get in touch to share your thoughts on this edition of *Better Pork* or to pass along story ideas. I appreciate connecting with our readers!

Andrea



Crystal Jorgenson photo

Scientists at the University of Manitoba seek ways to help farmers overcome challenges in the pork industry. See "The role of essential oils in gut health" on page 41 to learn about some of the latest research.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CDN. PORK INDUSTRY SHARES COMMENTS ON CUSMA

The Canadian pork sector is pleased with the finalized results of the new North American trade agreement.

The Canada-United States-Mexico Agreement (CUSMA) took effect on July 1, replacing the North American Free Trade Agreement (NAFTA).

Unlike the situation for Canadian dairy farmers, the country's pork industry was left essentially untouched during the CUSMA negotiations.

Status quo in pork relations with Mexico and the United States is good, said **Andrew Dickson**, the general manager of **Manitoba Pork**.

"We're very relieved that the governments involved have signed the agreement and, from our perspective, it's business as usual," he told *Better Pork*.

"We now have some breathing room for a number of years which will hopefully help bring certainty to the market."

In addition, the pork industry can also benefit from some of the mechanisms within the trade pact.

One part of the agreement, for example, allows member countries to resolve their own disputes.

Previously, members may have needed to file expensive formal complaints with organizations like the **World Trade Organization** over trade disputes, Dickson said. Now, panels agreed upon by all the parties involved can resolve issues in a timely manner. **BP**

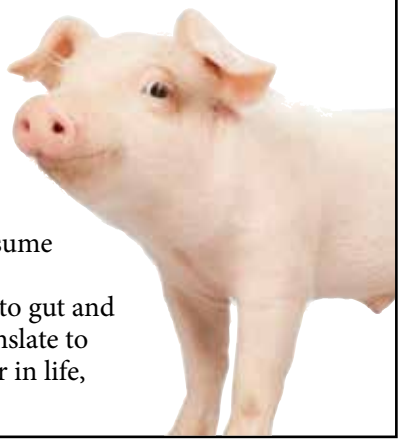
COLOSTRUM CRITICAL FOR PIGLETS

The first day of life may determine the survival rates and performance of piglets.

The first feedings of colostrum within 24 hours of birth provides livestock with antibodies, also known as immunoglobulins, which help to boost their immune systems, an August article from the **USDA's Agricultural Research Service** (ARS) said.

Piglets must consume colostrum as soon as possible after birth because the mother's production of immunoglobulin decreases by 90 per cent after delivery. As time passes, newborns also cannot absorb colostrum's benefits, the article said.

"The newborn gut is permeable to large molecules at birth but, within 24 to 48 hours, (the gut) becomes impermeable to them," **Dr. Jeff Vallet**, the ARS national program leader for food animal production, said in the article.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Piglets that do not acquire enough colostrum may have a mortality rate as high as 80 per cent, the article said. In addition, these piglets are more susceptible to diseases compared to litter mates that consume enough colostrum.

A lack of these first antibodies can lead to gut and uterine development issues, which can translate to lower feed and reproductive efficiency later in life, the article said. **BP**

ADDED TESTS TO MONITOR FOR ASF

Provincial swine health organizations are helping to promote CanSpotASF, a new national African swine fever (ASF) monitoring tool.

"It's a national surveillance pilot," **Dr. Christa Arsenault** told *Better Pork*. She's a lead veterinarian of animal health and welfare with the **Ontario Ministry of Agriculture, Food and Rural Affairs**.


Sinhyu/iStock/Getty Images Plus photo

"We already had a great surveillance program in place for foreign animal diseases but this one is geared specifically at enhancing what we had for ASF," she said.

Veterinarians or lab pathologists may simply add an ASF test to "samples that are already being submitted to the lab for other reasons," Arsenault said. For example, if a swine veterinarian submitted a sample to be tested for porcine reproductive and respiratory syndrome, the lab techs may also test the sample for ASF.

"The goal is early detection of disease," Arsenault added. Farmers should be aware that "this type of testing will happen if their case submissions … meet criteria that makes them eligible for the testing. Outside of that, (producers) do nothing different."

This added testing should allow for rapid identification of ASF should it enter Canadian herds.

"The more we can do to detect disease as early as possible, … the better off we'll be," Arsenault said. **BP**

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How to achieve high growth without zinc

High protein, plus high ABC4 in weaning feed results in low feed intake and low daily growth. As protein content is reduced, which in turn reduces the ABC4 value, feed intake and daily growth increase. However, a different protein source makes it possible to increase the protein content while reducing the ABC4 value. This protein source can be used to increase the protein content by up to 21.7% during the 4-12 kg phase, which optimizes feed intake and daily growth - particularly in the final phase from 12-28 kg, where trials have shown daily growth of 700-739 g. When using feed with high ABC4 values, the daily growth in this final phase is only around 650 g.

Trials have demonstrated that the greatest impact on feed intake and growth is not apparent during the growth period when piglets are given AX3. The big difference becomes apparent in the final phase, once the piglet has developed greater growth potential and the ability to digest large amounts of ordinary protein sources.

Without the use of ZnO, the risk of weaning diarrhea is high. A very common strategy to reduce weaning diarrhea is to reduce crude protein content and supplement feed with absorbable synthetic amino acids. This strategy reduces the strain on the digestive system of the weaning piglet. The piglet is better able to produce sufficient pepsin as well as other digestion enzymes. The piglet is better able to produce sufficient pepsin as well as other digestion enzymes, thereby reducing the amount of undigested protein entering the hind gut and significantly reducing the risk of diarrhea. "This practice does not take full advantage of the piglet's growth potential," says Gilles Langeoire, consulting engineer, adding "If you use highly metabolizable feed with a low ABC4 acid binding capacity at pH 4), you can achieve growth and reduce the risk of weaning diarrhea."

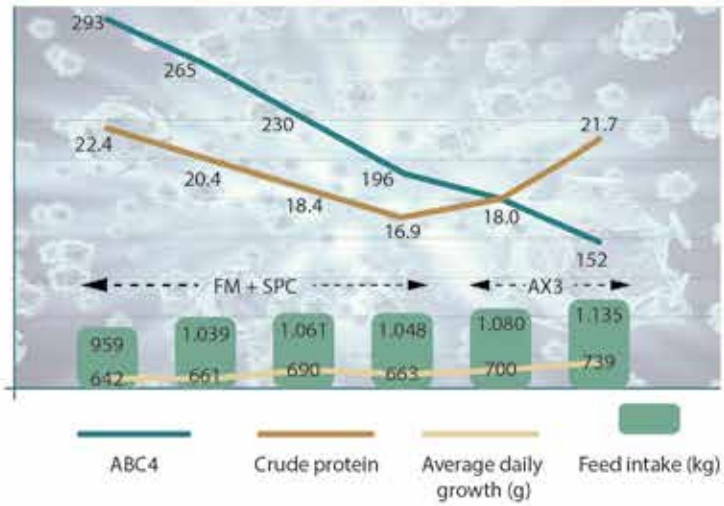
ABC4 and protein content impact feed intake and daily growth

Many trials show that low protein content in feed for weaning piglets reduces diarrhea. However, these trials also show a reduction in daily growth and thereby a lower final weight when the piglets leave the nursery. Figure 1 diagrams the results of six trials to illustrate how the crude protein content and ABC4 value of feed (all without zinc) for 4-12 kg piglets ultimately impact feed intake and daily growth during the final phase (12-28 kg).

Managing ABC4 in feed

The ABC4 value of feed is a key factor in the strain on weaning piglets as they acidify feed to the optimum pH in the stomach. The lower the ABC4 value of the feed, the less hydrochloric acid must be released in the stomach to achieve the optimum pH.

Figure 1: Effect of protein content and ABC4 in weaning feed (4-12 kg) on feed intake and daily growth in the subsequent period (12-28 kg)



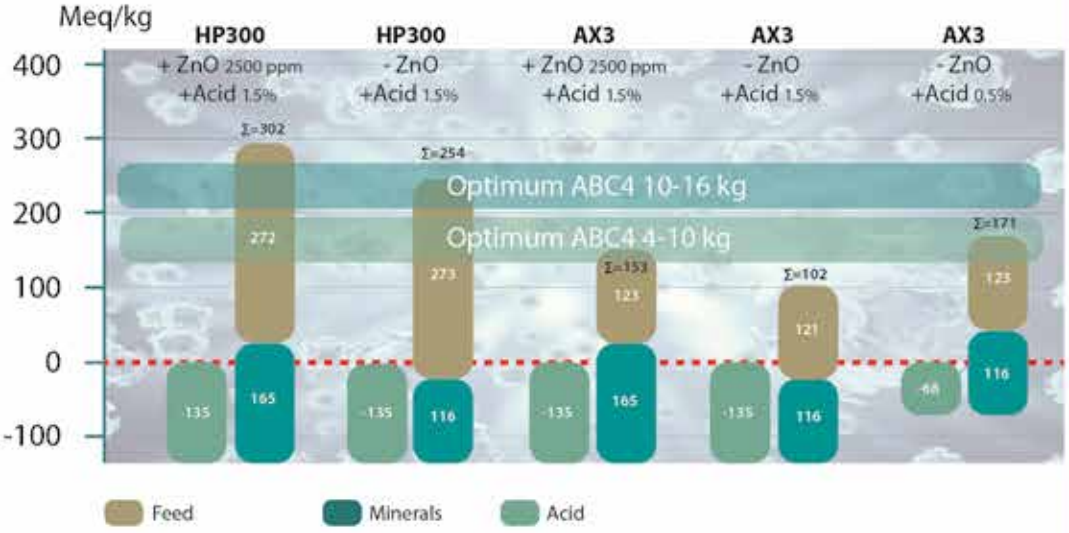
Acidification of water

Acidifying drinking water can be a good idea for managing the total bacterial count.

"I believe that the microbial quality of drinking water in the nursery is extremely important," says Langeoire. "Acidified water with a pH under 5 is considered safer than water with a pH over 6, as the risk of bacterial contamination and growth is reduced at the lower pH level. Most additives used for acidification are a mix of inorganic and organic acids that clean the pipes and reduce the pH of the water. A pH level that is too low can reduce the desire to drink, but acidifying the drinking water does not impact the ABC4 value of the feed."

Example:
When using acidified water, the weaning piglet would have to drink 10 litres of water per kg of feed to have any impact on the ABC4 value of the feed. The average water consumption during the weaning period is 2.5 litres of water per kg of feed.

Figure 2: ABC4 in weaning feed (4-10 kg) with 20.5% crude protein



"When the pH in the stomach is too high, the amount of undigested protein that can be fermented in the large intestine will increase. This creates favourable conditions for the growth of pathogenic bacteria in the intestine, which in turn increases the risk of weaning diarrhea," says Francesc Molist, research director, Schothorst Feed Research. The recommendation is 140-200 meq/kg for 4-10 kg piglets and 200-250 meq/kg for 10-16 kg piglets.

"In the short term, lower ABC4 values can cause reduced appetite. The long-term effects include bone demineralization, which can ultimately result in bone fractures," says Langeoire.

The choice of ingredients directly impacts the ABC4 value of feed, which is illustrated in Figure 2 (calculated using https://animine.eu/abc4-calculator/). The standard feed (4-10 kg) has 20.5% crude protein, 2,500 mg ZnO, and 1.5% acid. Removing ZnO somewhat reduces the ABC4, but not enough to reach the optimum level.

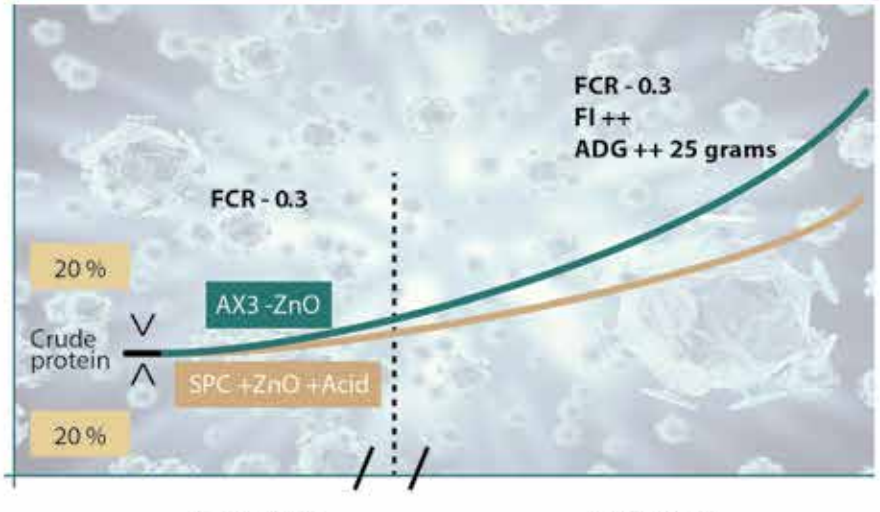
Changing the protein source from HP300 to AX3 gives a very significant reduction, and reduces the ABC4 value below the optimum level. If you only add acid for probiotic purposes and not to lower the pH level, the ABC4 value rises to the optimum level. As shown in Figure 2, feed containing zinc can maintain the recommended ABC4 level if the protein source is AX3.

By choosing the right protein source, the optimum ABC4 level can be achieved in zinc-free feed without using large amounts of acid.

Delayed effect

The outlined strategy of replacing zinc in feed while maintaining a high level of crude protein is made possible by using AX3 as the protein source until 12-16 kg. Trials have demonstrated that the greatest impact on feed intake and growth is not visible during the growth period when piglets are fed AX3. The big difference becomes visible in the final phase, once the piglet has developed greater growth potential and the ability to digest large amounts of ordinary protein sources, see Figure 3.

Figure 3: Feed intake and daily growth with two different feed strategies: AX3 without ZnO and SPC with ZnO



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Increased growth without zinc

It is important to focus on what happens in the piglet's digestive system during the critical weaning period. This fact has been overlooked as the industry made huge advances in productivity over the past decades.

In the next issue of Better Pork magazine, we discuss the importance of knowing what happens in the stomach and small intestine, and the importance of your choice of protein source. We explain how you can eliminate the need for zinc, prevent diarrhea, and even achieve higher growth with high protein content in the feed.

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OUR
NCHMARKING
TO THE NEXT LEVEL

by KATE AYERS

Producers can increase operational resiliency by identifying key performance indicators and tracking improvements over time.

Although benchmarking is a familiar concept in pork production, we still have significant opportunities to maximize the benefits of this data collection and analysis strategy, some industry experts say.

Producers can further optimize their operations by digging deeper into their data and using all information to its full potential.

Benchmarking "starts with an internal plan. What are you trying to achieve?" asks Matthew Rooda, the president and CEO of SwineTech.

Benchmarking "helps us know where we are, how we stack up against others and helps us identify things that we want to target, track and fix over time. You can't go somewhere successfully if you don't measure" progress.

SwineTech is an Iowa-based ag-tech company with software that pork producers can use to develop more efficient farrowing operations. Users can also predict and manage costs and maximize revenues to address labour and process inefficiencies, Rooda says.

This month, *Better Pork* speaks with benchmarking experts to learn how producers can use their data effectively, make meaningful comparisons and achieve their goals.

Benchmarking basics

Pork producers can use internal and external benchmarking to monitor progress and enact changes in their businesses.

Through internal benchmarking, producers can measure and track improvements in their operations over time. Through external benchmarking, producers can compare their processes and performance metrics to databases containing aggregate data from participa-

ting farms, Rooda says.

Benchmarking "helps us better understand what everyone else is doing, compare key drivers for production and profitability, and allows us to best understand how we can set goals for the next quarter, year, and so on," he says.

Technological advancements have helped to streamline and simplify the benchmarking process. Producers can use monitoring equipment, such as sensors, to constantly collect information. Farmers can track such parameters as "daily high and low barn temperatures, humidity, heater run times and water consumption," says Dr. Tom Stein.

He and his team developed PigCHAMP software, a swine production management program. (PigCHAMP is a Farms.com company, as is *Better Pork*.) Now, Stein serves as the senior strategic adviser at Maximus Systems in Saint-Bruno-de-Montarville, Que.

This company provides producers with automated solutions to ensure animal well-being, optimize results, and improve the environmental footprint of operations.

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

"Consistency is key when benchmarking," says John Molenhuis.

Producers can also record feed, supplement, and medication amounts, live and carcass weights, and hog purchase and sale numbers, adds Michel Vignola. He's the director of swine technology application at Trouw Nutrition Canada in St-Elzéar, Que.

This company offers species-specific nutritional solutions including feed concepts, products, nutritional expertise, benchmarking, and production modelling.

As a result of developments in automated systems, pork producers don't have to do a lot of physical record keeping anymore, says John Molenhuis. He's the business analysis and cost of production specialist for the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), and is based in Brighton.

Producers can use benchmarking data to "identify strengths and weaknesses that exist at technical" or financial levels, says Vignola.

"Once you have identified where you are better or weaker than others, you can develop a plan based on your priorities and make decisions based on long-term goals," he says.

Barriers and benefits

As with any technology or new practice, users may need some time to adjust to updated system operations. But producers can realize the full potential of farm optimization tools through routine use and consultations with professionals.

One of the biggest challenges that farmers may face with operational benchmarking is ensuring they compare apples to apples, says Stein.

Each information or data collection system has its own calculation methodology and the pork industry does not have a uniform set of regulations or national standardization for benchmarking. So, farmers must ensure they compare their production parameters to those of similar-sized operations or find a group of producers who use the same information system.

Otherwise, farmers may "chase the wrong rabbit" or miss issues that affect their bottom lines, Vignola says.

"Consistency is key when bench-

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marking. Some producers have farm management groups they work with. In a group of 10 to 20 farmers, everyone collects and reports data" in the same format, says Molenhuis.

"PigCHAMP, for example, has a standard benchmarking template and report."

To streamline this process, pork producers should ensure they have solid understandings of their record-keeping practices before benchmarking with others.

Some "people start to look for external benchmarks before they have good handles on their own numbers. Get a good understanding of what your operation looks like and then you can compare data to operations you want to be competitive with," Molenhuis says.

In addition, "the data is only as good as the accuracy with which it is entered," says Rooda. And context is important when producers make comparisons with other farms; benchmarking data is only a snapshot of operations' production records.

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

"You can't go somewhere successfully if you don't measure" progress, says Matthew Rooda.

Some producers may think that "all the variables in the farms they benchmark against are exactly the same and so the numbers stack up the same," Rooda says. But "so much goes on in those other barns. The biggest challenge is planning based on the information you get from benchmarking. To truly know where you stand amongst other farms, you must look at more than just the numbers.

"We must take a step back to try and understand the various factors," such as staff turnover, disease presence and operating practices, "that give us an advantage or disadvantage," he says in an interview.

Some production systems may not accommodate benchmarking as well as others. "In large operations that work in batches and do all-in and all-out production patterns, it's much easier to measure and generate data and benchmark," says Vignola.

Some "farrow-to-finish operations, in contrast, work in a continual flow basis and have pigs in the barn all the time." Producers who manage this type of operation have fewer benchmarking resources, he says.

Also, farmers who own and operate multiple enterprises may find it

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challenging to collect, allocate and analyze the copious amounts of data needed to calculate costs of production for each commodity, Molenhuis says.

Producers can use various software options to address this challenge, he adds. OMAFRA also has cost of production calculations and budgets that farmers can use to "split out how the different enterprises are performing," he says.

While benchmarking depends on mass amounts of quality information, farmers need to be careful they do not get "swamped by data," Vignola says.

"Some technologies produce a lot of data but then producers have to make the time and have the discipline to regularly review and analyze the numbers. Sometimes, too much data is not better than not enough" data.

Producers who understand their information systems, record quality data, and make meaningful comparisons can use benchmarking to enhance their profitability and long-term sustainability, Vignola says.

Producers can use "benchmarking as a tool to enhance training on farms so that employees understand the variables in pork production that impact specific production metrics," says Rooda.

"Hand-held devices that allow for on-farm data entry are more robust and easier to use than ever before. These devices can help producers reduce labour, streamline processes, and improve the quality of care given to sows and piglets."

Since farmers can participate in larger benchmarking groups, they "can build relationships and collaborate and brainstorm together," says Rooda.

Companies that build information systems for the industry may offer additional resources for pork producers who use their software.

PigCHAMP, for example, helps producers "set performance goals, and provides a percentile ranking for each farm value based upon comparisons to other eligible herds on a quarterly basis," says Susan Olson. She's the PigCHAMP knowledge software information services manager and is based in Ames, Iowa.

Overall, "the goal of benchmarking is not to be the best, but rather to improve" over time, Vignola says.

Molenhuis agrees.

"It is important that producers have feedback loops," he says.

"Identify parameters, make changes, and evaluate what those changes did for you. Then, farmers can make tweaks to those changes to improve" their operations moving forward, based on operational priorities and performance goals.

Level up

While the longer-standing benchmarking approaches offer clear benefits, further technological and analytical advances could drive even greater operational success, some stakeholders say.

Farmers could find benchmarking

even more useful if systems could help them determine the production and management factors that contribute to higher profitability and operational resiliency.

"The high-productivity farms are the ones that have high litter sizes, high farrowing rates, and low prewean mortality rates. Those aspects are clear and easy to see," Stein says. But benchmarking data does not show "how those top-ranking operations are different from the lower-ranking farms. What specifically are the top-ranking operations doing?"

In the pork industry, "we don't have the 'enabling factors' – the factors that lead to outcomes that we want. For example, how do we organize our insemination practices? What are our breeding protocols? How do we train people? How long does it take us to process a feed invoice? These areas are where the insights are, and we aren't using this information for benchmarking," Stein says.

"We need to move to a strategic benchmarking approach."

Another advancement that could enhance the benefits of benchmarking in the industry is collecting data on staff's barn protocol compliance in real time.

The pork industry has "many SOPs (standard operating procedures) that are proven to work, and yet we see a good amount of inconsistencies within operations around these SOPs. Poor insights, poor training, disease outbreaks, labour turnover, etc. can account for these inconsistencies. I do not see improvements happening in these areas without the use of digital tools," Rooda says.

"Implementing tools that allow for real-time data capture could help pork producers understand which management processes are truly being followed. This capability will create a new-found ability to compare to operations that are as similar as possible."

Real-time data collection on SOPs "exposes a whole new suite of KPIs (key performance indicators) that can be tracked for the benefit of producers and the pigs in their care," he says.

Fortunately, stakeholders continue to update information systems to meet the diverse needs of pork producers. PigCHAMP, for example, is upgrading its benchmarking software to analyze more production parameters, Olson says.

Some developments include investigating genetic differences in reproductive data (i.e., total born, farrowing rate, etc.) and linking these genetic traits to grow-finish performance, analyzing historic trends of reproductive performance, examining historic trends of seasonal performance, and considering performance differences based on facility type or equipment, Olson says.

Overall, when it comes to the on-farm application of benchmarking data, producers get out what they put in. "Dive deeper and try to reduce the number of variables that impact success," Rooda says. **BP**

PI
FEE

Pork producers can adjust their feeding strategies to save money during short-term market disturbances, and to support long-term profitability.

LAN TO DIAL IN YOUR ED PROGRAMS

by JACKIE CLARK

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

Hog farmers have persevered through uncertain and difficult times in the industry. Economic downturns, volatile markets and increasing input prices can shift the cost of producing pigs close to, or even higher than, their market value.

As feed is the greatest input cost for pork production, farmers may seek to adjust their feed strategies when market challenges decrease the profitability of hogs. Those adjustments, however, are often not as simple as swapping out or omitting high-priced ingredients.

Ensuring that you transition to a feed program that is both economically feasible and nutritionally sound requires careful consideration and consultation with industry experts.

For example, when marketing became difficult because of pork processing plant closures during the COVID-19 pandemic, many farmers moved to "holding diets, where we fed the pigs very low-cost diets," Dr. Michael Tokach tells *Better Pork*. He's a professor and extension specialist in swine nutrition at Kansas State University in Manhattan.

Dr. Michael Tokach

The holding diets involved "high feed costs per pound of gain but we didn't want the pigs to gain at all (in the short term). … We had to be very cognizant that, as soon as we weren't in that situation, we wanted to get the pigs off those diets," he says.

In contrast, when marketing opportunities exist but the price of hogs is low, producers want the lowest cost per pound of gain, he explains.

When hog market prices rise and pigs are profitable, "we want to start thinking about our economic drivers for feed cost. What's the greatest marginal return? What gives the greatest net profit? … That, many times, means that feed cost per pound of gain increases because the value of the gain is higher," Tokach adds. "Where that switch point is depends on the individual operation."

This month, *Better Pork* consults with swine nutrition experts and a farmer to navigate the decisions pork producers make to manage feed costs.

Where to start

"When ingredient costs are high or hog prices are low, … we start those conversations by looking at the producer's expectations in terms of growth performance, feed efficiency and options for feed ingredients," says Dr. Laura Greiner. She's an assistant professor and expert in swine extension in the department of animal science at Iowa State University in Ames.

"Interestingly, we don't always look at feed efficiency. … What we really look at is trying to optimize cost per kilogram of gain or kilogram of carcass gain."

This approach may not optimize feed efficiency "because we might use ingredients that are significantly lower in cost, but they might result in slightly elevated feed efficiency. In the long run, (this strategy) will save us money," she explains.

Evaluating the market situation and deciding on production and economic targets to meet that situation will help with decision-making.

"Our goals change when we move from a higher market price to a situation … where we're operating at or below the cost of production," Tokach says. "We have to question whether we would want to keep doing anything we were doing to improve pigs' growth rate."

For example, farmers and their swine nutritionists may opt to immediately remove growth-promoting feed additives, especially those ingredients with low nutritional value, that mostly aim to drive pigs' feed intake.


Jan Geurts

Feed for grow-to-finish pigs typically represents the majority of feed costs on a farrow-to-finish swine operation, so adjusting feed programs during that stage will "probably will have the biggest impact" on costs, says Jan Geurts, the director of swine nutrition at Nutrition Partners Inc.

This livestock feed and nutrition company is based in Airdrie, Alta., with additional offices in Brandon, Man., and Saint-Apollinaire, Que.

When considering feed for "sows and nursery pigs … the range of error is a little bit smaller," says Geurts. These groups have more specific nutritional requirements, and you may not be able to use as many low-cost alternatives.

Short-term strategies

If producers are considering changes in their feeding programs, "we start by looking at what's going on at the barn or pig level," says Greiner.

This process includes examining barn temperature, ventilation, pen spacing, and health status. These factors can all affect the ability of pigs to turn feed into gain.

"We also look at the feed type. Are we feeding a mash or a meal form, or are we feeding a pelleted product? That might be something we can change quickly" if it would offer an economic advantage, says Greiner.

For example, switching from a meal to a pelleted feed can increase feed efficiency by 4 to 6 per cent. If the cost to switch is lower than the feed savings gained through increased efficiency, this switch would be economically advantageous.

Farmers should also ensure their feed strategies minimize waste. "There can be between 2 and 20 per cent feed wastage on a pig farm," so the cost can add up quickly, says Geurts.

Graham Learn, a pig farmer in Oxford County, Ont., highlights the importance of monitoring feeders. "Make

Jodie Aldred photo

"Check your feeders. Make sure you're not underfeeding or overfeeding your pigs," says Graham Learn.

sure you're not underfeeding or overfeeding your pigs," he says.

Learn runs a farrow-to-finish operation with 850 sows in two barns, one with pens and the other with group housing.

Another practical tip to avoid wasting feed is to aim to match feed programs and quantities to pig batch size to avoid leftover feed when you ship hogs, he adds.

Improving health status or adjusting feeder type are longer-term solutions that may require six months or a year to enact or observe changes in the herd.

In the short term, however, producers can "make sure our health programs are in place and the environment in which we raise those pigs is as optimal as we can make it. Then we start looking at the diet," in terms of form and formulation, says Greiner.

When considering ingredients, "the major cost in a pig diet is the energy and protein sources. So, you want to look very closely at any of those" ingredients, Tokach says.

For example, "added fat is very difficult to pay for in most situations right now because, even though it improves feed efficiency, it often costs you more money to increase energy den-

sity in many areas of North America. You have to really question whether you're getting any benefit."

Producers may also consider replacing corn with lower-cost grains, he adds.

Together with your nutritionist, consider all possible changes within the current market context.

"Replacing soybean meal with synthetic amino acids or other protein sources often saves you money, (but recently) soybean meal has dropped in price. So, you have to be careful," Tokach explains.

Although one feed ingredient may usually be cost effective, shifts in the market may mean strategies must change.

Locally, pig farmers may be able to find alternative products available at a low cost.

"I encourage producers who are near manufacturing facilities to think a little bit outside the box," Greiner says.

Many farmers use distillers grains, but in Greiner's region "there are other options. We can certainly look at things like pet food manufacturing. Sometimes their dry pet food can't be used for whatever reason and that can be fed to swine."


Dr. Laura Greiner

Tightening feed costs can involve "finding those ingredients that can work economically and nutritionally, and … that can be delivered and handled appropriately," she adds.

Who to ask for help

Of course, you should make any changes in your feed programs in consultation with a swine nutrition expert, and talking with your broader swine advisory team is also beneficial.

"The more that I farm, the more that I realize you need good people to work with," says Learn.

When discussing feed changes, "we generally sit down with four key elements: our vet company, our genetics company, our premix company and our bulk commodities" supplier, he says.

"Those are the four that you really need to work with. They're all different companies but they all have to have an idea of what the others are doing or what you're doing so they can help you."

Tokach and Greiner agree.

"You don't want to drop any ingredients that are absolutely necessary without consulting a nutritionist and making sure that those changes are correct," Tokach says.

Producers should "work with their nutritionists. ... They understand what can and can't be as easily substituted," adds Greiner. Most substitutions aren't one-to-one replacements, and additional adjustments will be necessary to meet nutritional needs.

Peer benchmarking groups can also assist in examining feed strategies and costs, says Learn.

Geurts suggests calculating your Farm Feed Conversion ratio, which

"is basically all the feed that you need from birth to shipping the pig. (This ratio) takes into account all the sow feed, all the nursery feed, and all the grow-finisher feed," he says.

This figure gives producers a way to objectively compare feed costs to other farms where management strategies may be different, he adds. "You can make better comparisons, plus you have a better view on your bottom line," he says.

Longer-term solutions

As ups and downs in hog markets are a veritable guarantee, how can farmers build a lasting strategy to manage feed costs over time?

Learn and his family adapted to economic challenges a decade ago by transitioning to making their feed.

"We have a grain elevator and dryer, so we store all of our corn. Ten years ago, we built a feed mill and have all the bulk commodities. We pre-mix on-site and mill and deliver all of our feed," he explains. "We were looking at wanting to survive and future expansion (opportunities. On-farm feed production) was another way of keeping more dollars on our farm."

The Learns use the feed mill to control their feed quality, and "we can adjust our rations based on price, quality, or new information that we get," he adds.

"It's not for everybody, there's definitely risk with making your own feed. You have to do it well," says Learn. "A lot of people think that milling your own feed is a lot cheaper. It's more (like) paying yourself to do the job, instead of paying someone else."

Jodie Aldred photo

"Any time we're looking at substituting an ingredient, we have to understand several factors," including potentially harmful components like mycotoxins, nutritional soundness, economics and availability, Dr. Laura Greiner says.

Learn has also adopted precision sow feeding.

"We weigh and backfat all of our sows after they're weaned. That gives us a backfat score of what condition that sow's in, so we adjust the feeders in the barn as needed," he explains. This strategy keeps sows in optimal condition and "we've actually brought down our total (feed) usage. … Over the year, doing that extra step of precision feeding can add up to a lot of dollars in savings."

He encourages farmers to collect more data about their pigs to help improve their feed programs.

"It's really hard to adjust anything on your farm if you don't have any information or data to draw from," he says. The collection and analysis of production data "has made our farm more successful and more sustainable."

Geurts agrees. Since grow-to-finish pigs account for the greatest portion of feed costs, he thinks producers may find success through collecting more data on that group.

"We need information to determine where the strong and weak points are, and where can we improve the bottom line the most," he says.

Data and precision feeding involve an initial time and technology investment, but can pay dividends in feed savings and other benefits.

"We often assume that crude protein is an important cost in the diet of the pig and, when we can adjust the crude protein of the feed, we can decrease the cost of it," Dr. Aline Remus tells *Better Pork*. She's a research scientist with Agriculture and Agri-Food Canada in Sherbrooke, Que. who studies the precision feeding of pigs.


Dr. Aline Remus

Amino acid requirements change over pigs' lifetimes, she explains.

A traditional feeding system in Canada may involve three growing phases of 28 days when the pigs are 25 to 110-120 kilograms (55 to 242-264 pounds).

In Remus's research, however, the team uses only two diets but adjusts the ratios between the two feeds to meet pigs' daily requirements. By taking this approach, the scientists both reduce feed costs (as they purchase two types of feed instead of three) and meet the changing nutritional needs of the pigs, she says.

Nutritional requirements vary from herd to herd, and even between animals in the same litter due to sanitary status, genetics, behaviour, and intrinsic variation that scientists still do not fully understand, Remus explains.

"When we're able to adjust the diet for each farm or tailor the diet for each herd, we can feed the animals closer to their requirements and decrease the (feed) cost," she says.

Farmers thinking about adopting precision feeding should evaluate the level of technology and automation that makes sense for their operations.

"For some producers, group precision feeding, which is adjusting the diets daily for a group of pigs, can be a good option. (This system) requires less automation than dealing with individual pigs," Remus says.

Precision feeding for each individual pig generates more data, and so is "a viable option for producers who are comfortable with a high level of automation on their farms."

In her research, Remus finds that precision feeding can decrease feed costs by 12 per cent, or about $8 to $12 per pig.

"The feeder cost can be gradually recovered over the production cycle," she says. Precision feeders could become more affordable over the next five years, she adds.

Precision feeding can lead to other cost-saving benefits, such as decreased labour requirements, and the ability to quickly adjust feed programs to speed up or slow down growth rate to "help you deal with variations in the market," Remus says.

Value-added opportunities may also exist in the future. "Over time, we can probably brand pigs that are precision fed because they increase their nutrient efficiency. … Therefore, they have a smaller environmental impact," she says.

Finally, the data collected from precision feeding can aid in early detection of disease, reducing veterinary and herd health costs, she adds.

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

Feed for grow-to-finish pigs typically represents the majority of feed costs on a farrow-to-finish swine operation, so adjusting feed programs during that stage will "probably will have the biggest impact" on costs, says Jan Geurts.

Potential pitfalls

"We always want to caution producers, when they're trying to lower their costs, to make sure they don't take steps that end up increasing (costs) in the long run," Tokach says.

"Make sure you have somebody who understands the amino acid and energy requirements of the pigs to help make those decisions."

Greiner agrees. "Any time we're looking at substituting an ingredient, we have to understand several factors" including potentially harmful components like mycotoxins, nutritional soundness, economics and availability, she says.

Producers should avoid making multiple changes to pig diets in too short of a period, she adds. "Sudden changes can potentially cause (pigs) to go off feed and can affect their growth and performance. … We really want to make sure that we're thinking about this fully, and not just making a knee-jerk reaction."

In consultation with relevant professionals, producers should revisit their feed strategies every three or four months. Be proactive with plans to enact if the markets hit certain checkpoints or trends, Greiner says.

To weather hard times, "we don't want to get caught in a 'low cost is always best' kind of mindset. Really, we want to look at optimizing performance while minimizing cost," she adds.

Thoughtful short-term adjustments, while collecting more data and collaborating with other producers and swine experts in the long term, can help farmers tighten feed costs and produce profitable hogs.

"The more information you gather, and the more benchmarking and precision (strategies) that you (implement) on your farm, pays – plain and simple," says Learn. **BP**

by KATE AYERS

PORK BELLIES, BERRIES AND NICHE MARKETS

A Nova Scotian farm family have diversified their operations to help weather changing market conditions.

kadmy/iStock/Getty Images Plus photo

The Millens entered the swine sector to supply pork for a market planned to open nearby.

Arguably, Jonathan Millen and his brother Brandon have experienced the best of both worlds in farming.

After the pair finished high school, they started an operation called J and B Millen Farms. Curtis and Ann, Jonathan and Brandon's parents, wanted the next generation to run a separate operation so they could make mistakes and learn by experience, Jonathan says.

Curtis and Ann continue to manage the original operation, Millen Farms Ltd.

While maintaining the separate businesses, all family members now work together to ensure everything runs smoothly.

In total, the family grow 160 acres of strawberries for Sobeys Atlantic. The Millens supply between 75 and 80 per cent of the company's strawberries for four months of the year. During the typical strawberry season, the Millens provide the retailer with between two and four tractor-trailer loads of berries each day.

The farm is CanadaGAP certified. Companies that produce, handle and broker fruits and vegetables must comply with this national food safety program.

The Millens also grow 800 acres of wild lowbush blueberries, 500 acres of cereal crops and 35 acres of rutabagas in Great Village, N.S.

To help manage these crops, the family hire about 300 foreign workers, mostly from Jamaica. However, the COVID-19 pandemic caused significant challenges for Jonathan and his family in hiring the experienced staff they need.

"This year, we plowed up many acres of strawberries due to the labour shortage," Jonathan says.

In addition to crop production, the family also raise hogs. The Millens entered the swine sector to supply pork for a market planned to open nearby. When those plans fell through, the Millens had to develop a new strategy to keep this part of their operations viable.

The family started their swine operation with 50 sows. The Millens grew the herd after joining duBreton's Rustic Farm pork program. The

Millen family now have a 150-sow farrow-to-finish operation.

Farmers who participate in duBreton's program must maintain herds in environments that accommodate crate- and antibiotic-free care. Producers can make no physical alterations to animals and pigs must have access to straw and other enrichment materials, duBreton's website says.

The Millens buy between 20 and 30 per cent of their animals' feed and grow the rest.

The family are thankful for their neighbours Rosemary and Mark Franklin, who help manage the pigs. The Franklins used to operate their own pig farm but transitioned to caring for the Millens' herd about 15 years ago.

While the Millens navigate ongoing challenges created by the pandemic, the family continue to find solutions, provide safe working environments for their staff, and produce quality food for consumers.

How many people does your farm employ?

My mom, dad and brother are all active on the farm.

Typically, we hire about 300 foreign workers each year and we have four full-time office staff members.

What are your roles on your farm?

My brother manages people and does office-related tasks.

I look after the fields – applying nutrients and spraying pesticides, for example.

Hours you work per week?

Too many. (Laughs.)

A short week would be between 65 to 70 hours and a long week would be around 90 hours.

Hours in the office per day?

I might spend two hours in the office per week.

Email or text?

Text messaging. I usually work on my phone and it's a pain to try to send emails on a phone.

What do you like best about farming?

The challenge. If it was easy, everyone would do it.

It's all about the losses and rewards. Farming is kind of like playing a game in that sense.

What do you like least?

The stress.

You have good days and bad days. On bad days, frost could be in the forecast, something could break, or you could have issues with people. These problems can stress you out a little bit.

What does your family think of farming?

We're growing the operation, so we all enjoy it.

What's your top tip about farm transition planning?

We're just leading into that discussion right now.

We haven't really sat down and discussed the nuts and bolts of transition planning yet.

What's the most important lesson you've learned?

When the sun shines, you better make hay!

If today is the day, you must do what you can to make the work happen in your operation. Farming doesn't wait.

What are your top goals?

Have a good season, make sure the bank is happy, pay off debts and ensure our people are happy.

How do you define success?

You're happy doing what you're doing and you're making a living. Success is finding something you're passionate about.

Money is part of success, but it's not everything.

What are the biggest challenges you face in the industry and how have you addressed them?

I would say COVID-19 and the fact that our margins keep getting squeezed.

Wages and equipment prices are going up, but food prices are not increasing at the same rate.

We manage these challenges through farm diversity. We grow berries and are involved in an animal welfare program with duBreton. It's hard to afford to feed pigs in Nova Scotia because of the higher cost of cereals. So, we enter niche markets to help cover costs.

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

I served on the Wild Blueberry Producers Association of Nova Scotia, but I don't have the time anymore. So, I stepped down.

If you could send a message to non-farmers, what would you say about the industry?

Food is taken for granted in Canada and the United States.

Some people in Canada want to be paid more, but don't want to pay more for quality, locally produced food. It's hard for local farmers to compete in the market.

Some consumers think that all farmers have deep pockets, but some producers just scrape by.

Taras Dovhych/iStock/Getty Images Plus photo

The family grow 160 acres of strawberries for Sobeys Atlantic. The Millens supply between 75 and 80 per cent of the company's strawberries for four months of the year.

If you weren't a farmer, what do you think you'd do for a living?

I might work in construction.

How do you support your mental health during the busy times of the year?

I don't do enough to support my mental heath. I just keep going.

But I should take some more time for myself and get away for a couple weekends with my family.

What are your hobbies or recreational activities?

Camping.

What was the last book you read?

I can't remember the last time I sat down and read a book.

I read reports, studies, blogs and articles online about topics that I am interested in. (I seek) to learn things that might work in our operation.

How often do you travel?

Typically, I try to get away once a year. And my family usually travels two or three times a year to see something new or to go to a farm show.

Where did you last travel to?

I went to Quebec to check out a barn that duBreton built.

Is your farm vehicle messy or neat?

I wouldn't say that it's messy but it's definitely dusty inside right now. A few wrenches and some napkins are on the floor and some dust is on the dash.

To me, the truck looks pretty good right now.

What was the last piece of equipment you bought for your shop?

A fertilizer spreader.

What's the best time of day?

The morning. I like to get started and get going.

What was your most memorable production year? Why?

Every year is memorable on our farm because our operation is so diverse.

Strawberries could be the best thing we've ever seen this year, but blueberries or turnips could be poor and then it could be the exact opposite situation next year.

Each year, we always have something that does well and something that is fair. Since our operation is diverse, we do not depend on one commodity. **BP**

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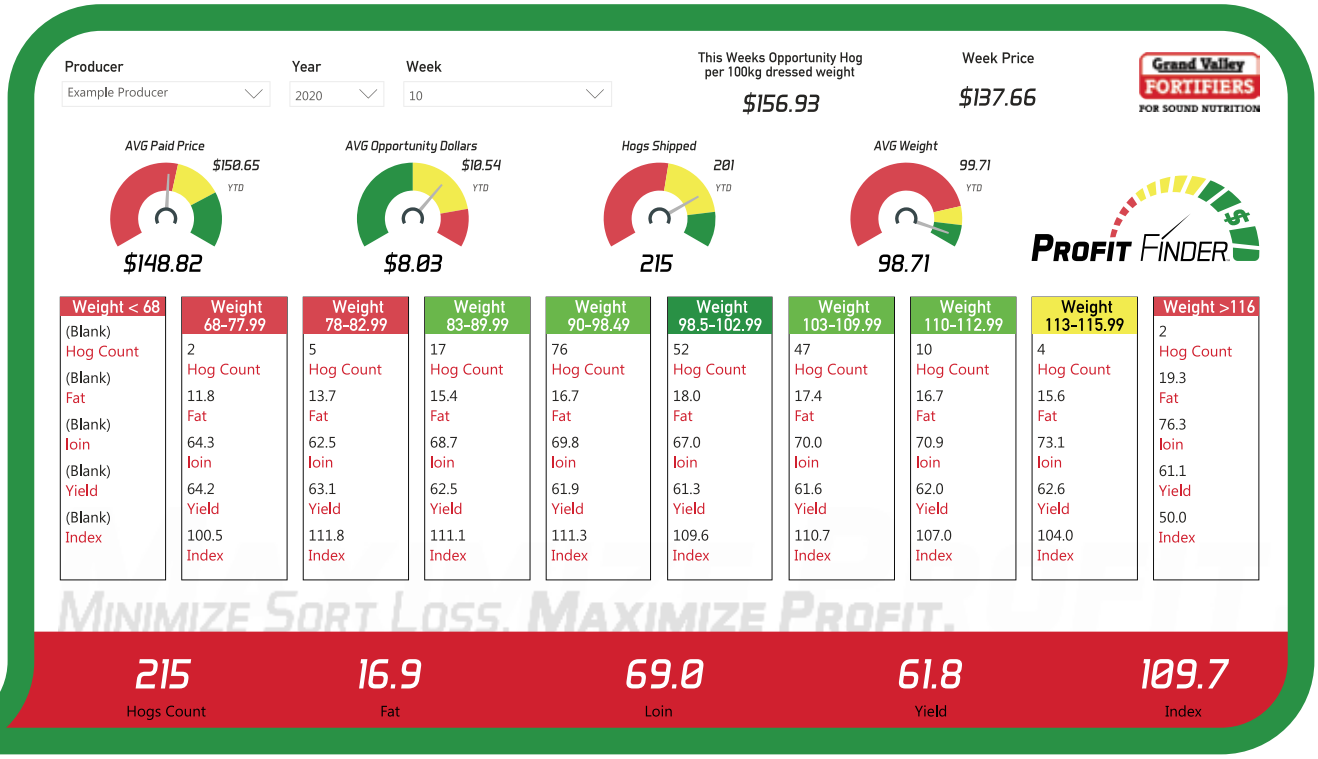

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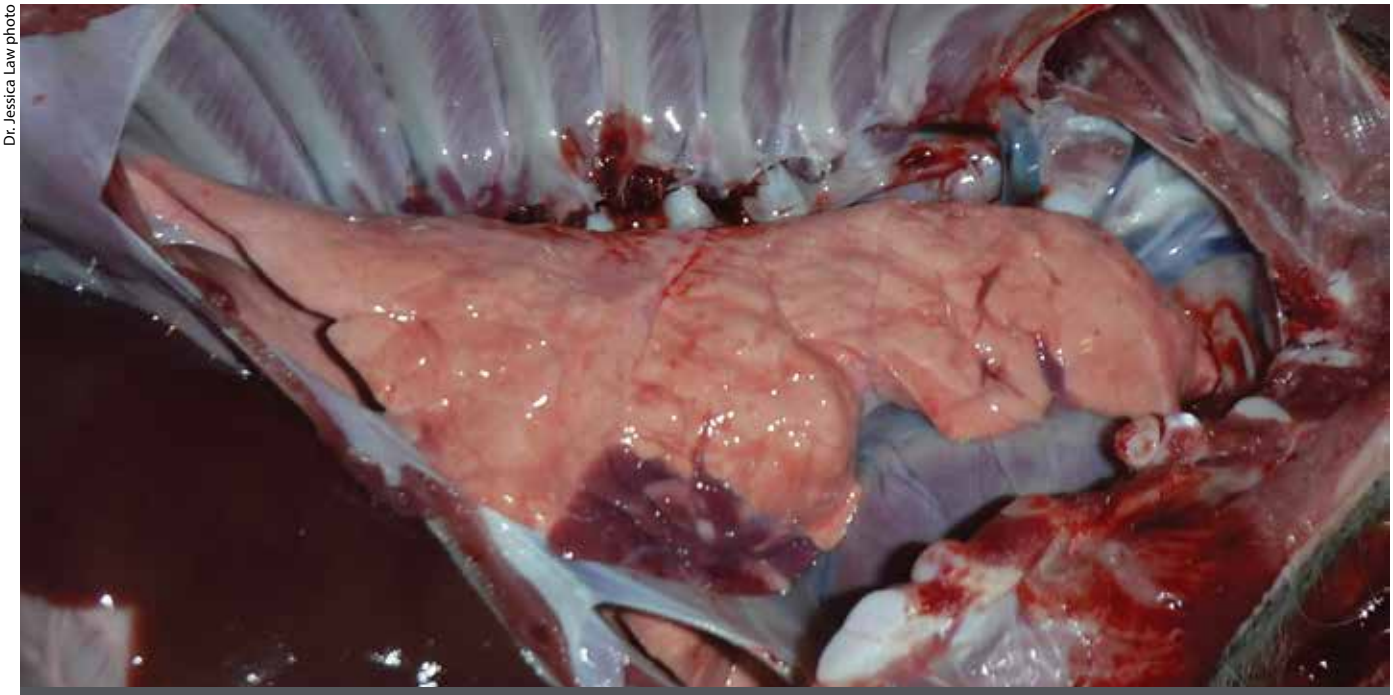
by
DR. HOLLYN MALONEY

HOW TO IDENTIFY AND MANAGE INFLUENZA

For the health of our teams and herds, we must practice good biosecurity.

Dr. Jessica Law photo



This pig has pneumonia. The dark portion of the lung is abnormal compared to the bright pink portions. The clear line of demarcation between normal and abnormal areas of the lung is common with influenza.

Influenza is a common cause of respiratory disease and can affect pigs of any age. The number of cases usually increases in the fall and peaks in early winter. Then, cases typically drop in late winter and peak again in late spring.

Symptoms

Symptoms develop within one to three days after infection. Influenza spreads rapidly so most pigs in a barn will be affected around the same time.

Affected pigs can have a fever of 40.5 to 41.5 C (105 to 107 F). They can exhibit reduced feed intake, inactivity, coughing, rapid breathing or discharge from their eyes and nose. The cough will sound deep and dry.

Abdominal muscle contractions can accompany coughing and may cause rectal prolapses.

Pigs' decreased feed intake will reduce their growth, and feed efficiency will decrease because the animals will need to devote more energy to fighting off the infection.

Influenza can decrease reproductive performance. You may see increased abortions, weak-born litters, stillbirths and infertility. The high fever and the sow's diversion of energy away from reproduction cause these symptoms.

Herd mortality is low if the outbreak is not complicated by other diseases. Influenza can damage the respiratory tract, which makes it easier for bacterial diseases to become established. *Streptococcus suis, Pasteurella multocida, Mycoplasma hyopneumoniae, Haemophilus parasuis* (Glasser's disease), and *Actinobacillus pleuropneumoniae* (APP) are bacteria that can occur with influenza.

A secondary bacterial infection can worsen pigs' symptoms and increase mortality. A change in nasal discharge from clear to opaque white or yellow, or a change in the cough from dry to wet, may indicate a concurrent bacterial infection.

Pigs will normally recover around five to seven days after influenza symptoms appear. A secondary bacterial infection will increase animals' recovery time.

Diagnosis and treatment

Laboratory technicians can detect the virus in lung tissue, nasal discharge and oral fluids. The latter fluids are a mixture of saliva and secretions from the respiratory system. Your veterinarian may collect nasal discharge with a swab or oral fluids with a rope.

If using the latter option, your vet would tie ropes in a pen for pigs to chew on. Once the ropes are saturated, the vet or vet tech can wring the fluid of out them. Your vet can use these samples for diagnosis or surveillance.

Your veterinarian may find pneumonia upon postmortem examination. The affected sections of the lung can be dark purple and feel solid because of reduced air fill.

Antibiotics are not effective against influenza because

Dr. Egan Brockhoff photo

This pig has crusting around its eye from clear discharge. Opaque discharge may indicate a concurrent bacterial infection.

it is a virus. Your vet's treatment plan will focus on controlling the fever so pigs are comfortable and start eating again. Your swine veterinarian may prescribe an anti-inflammatory drug that reduces fever.

Together with your vet, you can reduce negative reproductive outcomes in your herd by managing the fever. You should use a rectal thermometer to check the temperature of any sow that is off feed. Early detection of a fever can facilitate quick treatment and thereby reduce abortions.

Your veterinarian may recommend an antibiotic if diagnostics indicate a bacterial infection is involved.

Finally, ensure the air quality and temperature in your barn is appropriate. Increased levels of ammonia or dust can irritate the lungs and make it harder for pigs to recover. If the barn is too cold, pigs will become chilled and recover slowly.

Prevention and control

Influenza is primarily transmitted through direct contact with nasal discharge or oral fluids from infected pigs. The virus can also be transmitted in aerosolized droplets produced when pigs cough. The animals begin to shed influenza before they start showing symptoms, so the virus can spread before you know it is in your barn.

New pigs introduced to your herd can be a source of the virus. Quarantine all pigs prior to introducing them to your herd. They may be shedding influenza even if they appear healthy on arrival.

If new pigs are infected with influenza, symptoms will be seen in the first week of quarantine. However, quarantine all new arrivals for a minimum of eight weeks to protect your herd from other diseases as well.

People also shed influenza in nasal discharge and droplets from coughing. Staff or visitors can infect pigs if these individuals are in the barn while sick with the flu. Anyone who shows flu-like symptoms should not be permitted in your barn.

People also shed the virus before we show symptoms. Staff should get annual flu vaccines to reduce the risk of bringing influenza into the barn prior to feeling sick.

Pigs can be vaccinated for influenza if the virus is diag-

nosed in your barn. Many strains of influenza exist and a vaccine for one strain does not provide full protection for other strains. Your veterinarian will help you choose a vaccine and develop a protocol based on the strain found on your farm.

Commercial vaccines are available for certain strains. Alternatively, laboratory staff can develop an autogenous vaccine from the virus isolated on your farm if an appropriate commercial vaccine is unavailable.

You can vaccinate all pigs over three weeks of age. Pigs under three weeks of age receive some protection from the immunity passed to them from their sows.

The goal of control strategies is to minimize the effects of influenza, not to eliminate it. Elimination is not practical because influenza is already prevalent in pigs and people, and the virus spreads so easily.

Regular surveillance testing can determine how well control strategies are working and monitor for changes in the strain on your farm.

Public health implications

Pigs can also spread influenza to people and the virus can pass to and from poultry. If a person or animal is infected with multiple strains of influenza at the same time, the strains can exchange genetic material. This situation can lead to the development of new variations of influenza.

New variants are particularly concerning when the original strains are from different species, such as humans and pigs or poultry. New variants can be more contagious or cause more serious disease in people than the original strain.

You should wear a mask and gloves in the barn. Wash your hands after handling pigs or equipment and before eating. Avoid touching your face. Remove dirty clothes and boots prior to entering homes, offices or break rooms.

If you also have poultry, you should use separate equipment and clothing for each species. You should wash your hands when moving between species.

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

Wash your hands after handling pigs or equipment and before eating.

Biosecurity and on-farm disease management are essential to protect yourself, your team and your pigs from influenza. **BP**

Dr. Hollyn Maloney is a veterinarian with Prairie Swine Health Services in Red Deer, Alta.

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by LILIAN SCHAER

REVAMPED DISEASE-TRACKING SYSTEM IN ONT.

The updated system enables faster, more accurate swine disease-status monitoring in the province.

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One of the biggest changes in the relaunched system is that the mapping software now uses a Google platform. So, the map looks and works just like Google Maps.

The Ontario swine industry has improved and simplified its disease-status tracking through the relaunch of the province's online monitoring system.

An updated version of the Ontario Area Regional Control and Elimination (ARC&E) program makes it easy for registered users to learn more about the disease status of participating herds.

The diseases tracked through the program are porcine reproductive respiratory syndrome virus (PRRSv), porcine epidemic diarrhea (PED) and porcine deltacoronavirus (PDCoV).

The ARC&E program is a voluntary project. It links disease status information with a geographical information system to improve disease tracking and help the industry control and eliminate swine diseases in the province.

"The new system is designed to be click and point – easy to use and convenient. It is now also mobile-compatible," explained Dr. Bethany Davidson-Eng, the manager of Swine Health Ontario. "The goal is to provide producers with more and better information to help with their decision-making on the farm."

One of the biggest changes in the relaunched system is that the mapping software now uses a Google platform. So, the map looks and works just like Google Maps.

Registered ARC&E users can look at presumed positive, confirmed positive, presumed negative and confirmed negative farm sites overlaid on a Google map. Users can sort by disease as well as by six production types: farrow to wean, farrow to finish, nursery, breeder/gilt, finish, and hobby production (farms with fewer than

25 pigs). A county overlay can be added to the map, too.

If users click on a site on the map, they will see the site's health status for the diseases tracked within the ARC&E program, the date of the most recent disease status update, production type, farm name, and veterinarian and vet clinic name. All dots identifying farm sites are colour- and shape-coded for disease and health status.

The colours identify disease status, while the shapes identify production type.

A new dashboard-style home page will identify any actionable items, such as updating the disease status of a particular site, a user may have for his or her operations. The dashboard also features a news feed that identifies any disease status changes that occurred in the system.

A new status and premises page shows users all the premises they're associated with in one spot on the site, with all key information.

The ARC&E program is now connected with AgManifest, Ontario Pork's automated movement management system, which enables disease status to be updated as appropriate when producers move animals.

"AgManifest data will now trigger disease status changes in ARC&E. For example, if animals from a positive nursery move to a negative finishing site, the system notifies the vet to update the status," Davidson-Eng said. This new feature "helps keep the system as current as possible."

On each premise's detailed information page, producers now have the option of adding, removing, or changing their veterinarian information. As well, producers can add a premise associate, such as a barn manager or another person with management responsibilities, to each premises. This designation gives that individual access to all the site's information in the system.

Users also have the option of receiving daily, weekly or biweekly updates on any disease status changes for a county of interest or all of Ontario. Previously, ARC&E grouped that information into a single update that was distributed weekly across the province.

Swine Health Ontario's leaders encourage producers to consider joining the ARC&E program to help make the system more robust and the associated information more useful for the industry. The program is open to anyone who is registered as a producer with Ontario Pork.

"We want to provide producers with disease-status information that is as current as possible, so they know what's happening around them to help inform management decisions," Davidson-Eng said.

Veterinarians also benefit from having more access to disease-status information as it helps in identifying new outbreaks, she added.

For more information or to register, visit onarce.ca or contact Swine Health Ontario at info@swinehealthontario.ca or 519-767-4600 ext. 1401.

This project was funded by the *Canadian Agricultural Partnership*, a five-year federal-provincial-territorial initiative. Swine Health Ontario and the Ontario Pork Industry Council also provided support. **BP**

National Pork Board, Des Moines, Iowa photo

"We want to provide producers with disease-status information that is as current as possible, so they know what's happening around them to help inform management decisions," Dr. Bethany Davidson-Eng said.

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

PRAIRIE SWINE CENTRE

NEW TECH SHOWS HOW STRESS AFFECTS PIGS

Researchers studied how handling a herd and mixing unfamiliar groups of pigs affected the animals.

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

Regardless of stress induction, pigs' water consumption increased as the trial progressed.

As part of a larger Swine Innovation Porc project, titled "Use of novel technologies to optimize pig performance, welfare and carcass value," scientists developed and pilot-tested various technologies in different Canadian universities and research centres. The Canadian Centre for Swine Improvement coordinated this work.

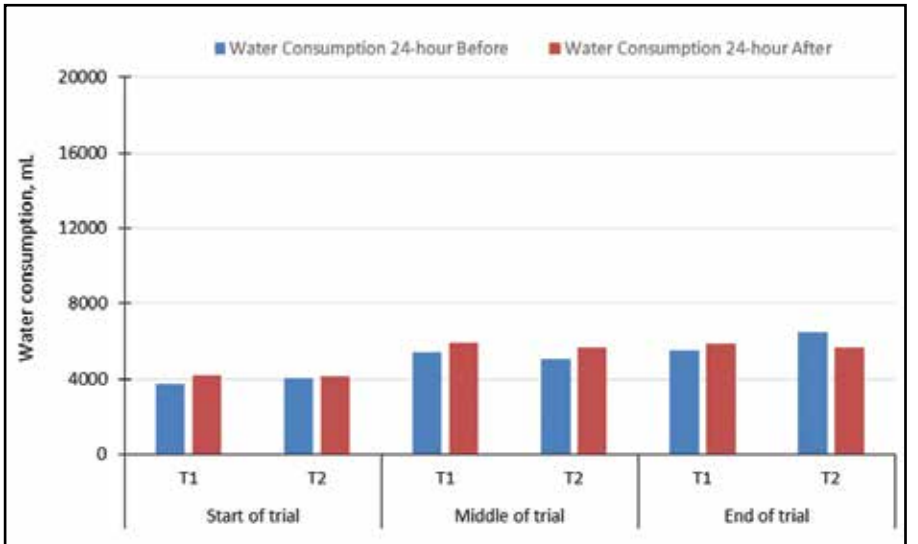
Researchers installed two novel technologies, consisting of an individual water-consumption system (IWCS) and an infrared thermography system (ITHS), in a grow-finish room at the Prairie Swine Centre. The room had six pens containing 14 pigs per pen.

Technicians transferred pigs into the room when they weighed 20 to 25 kilograms (44 to 55 pounds). The pigs remained in the room for 10 weeks, by which time the animals reached 105 to 110 kg (231 to 242 lbs.).

The technicians had IWCSs in each pen. These systems had nipple drinkers attached to water flow meters, and RFID (radio-frequency identification) readers and antennas to capture individual pig data.

The ITHS had two types of infrared cameras: a C3 camera (FLIR C3

Figure 1



The graph shows the average water consumption of pigs 24 hours before and 24 hours after the moving activity during the start (n=12), middle (n=12) and end (n=10) of the trial.

compact thermal imaging camera) and an A325 IRT camera (FLIR A325sc infrared camera). The A325 IRT camera captured images of all the pigs in the pen. The C3 camera, installed on top of the drinker, captured images of individual pigs while drinking.

After the researchers completed their pilot studies, the next step was to conduct commercial trials. Researchers selected some of the tools, installed them in a production environment and evaluated them under typical commercial practices. Through these commercial trials, researchers had the opportunity to adjust the technologies, facilitating their adoption in commercial barns.

To assess whether the novel technologies could detect pigs that may be stressed due to routine practices, researchers introduced two stressors during the trial.

First, technicians moved pigs to the barn hallway and handled them through a pre-defined route for 10 minutes. Second, technicians mixed unfamiliar groups of pigs.

Water consumption and pig handling

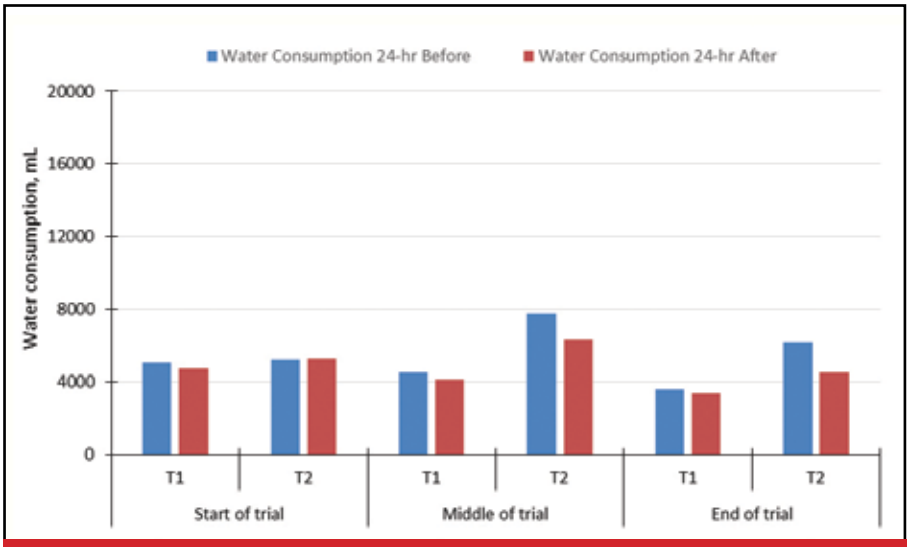
Figure 1 on page 36 compares pigs' average water consumption before and after the moving activity.

Regardless of stress induction, pigs' water consumption increased as the trial progressed. At the start of the trial, grower pigs had an average water consumption of about 4,014 millilitres (120 fluid ounces) per day; this figure increased to 5,876 ml (176 fl. oz.) per day towards the end of the trial when pigs neared market weight.

At the start and middle of the trial, pigs tended to consume more water after the moving activity. On average, pigs consumed about 3,890 and 5,226 ml (117 and 157 fl. oz.) 24 hours before technicians induced stress at the start and middle of the trial, respectively. The animals' water consumption increased to 4,138 and 5,878 ml (124 and 176 fl. oz.), respectively, 24 hours after the technicians introduced the stress. These results may imply that grower pigs consume more water when stressed.

Researchers observed no apparent trend in water consumption towards the end of the trial.

Figure 2



The graph shows the average water consumption of pigs 24 hours before and 24 hours after technicians introduced unfamiliar pigs into the pen during the start (n=16), middle (n=16) and end (n=12) of the trial.

Water consumption and mixing

Figure 2 above compares pigs' average water consumption 24 hours before and 24 hours after technicians introduced unfamiliar pigs into the pen.

In contrast to the moving activity,

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

Towards the end of the study, when pigs were close to market weight, researchers observed a slight increase in pigs' body temperature after the moving activity.

pigs' water consumption generally decreased 24 hours after technicians mixed unfamiliar pigs into the pen.

Pigs consumed an average of about 5,387 ml (162 fl. oz) of water per day prior to the mixing activity; this consumption decreased to 4,738 ml (142 fl. oz.) of water 24 hours after mixing occurred.

The decrease in water consumption might be due to aggression that occurred after mixing, which prevented some pigs from drinking.

In contrast to the handling activity, technicians noted no apparent change in water consumption from the start to the end of the trial focused on introducing unfamiliar pigs into the pen.

Infrared thermography – results from handling

Technicians did not observe any considerable change in pigs' body temperatures during the start and middle of the trial. Towards the end of the study, when pigs were close to market weight, researchers observed a slight increase in pigs' body temperature after the moving activity.

Before the moving exercise, pigs' average body temperature was 36.5 C (97.7 F). This temperature increased to 36.8 C (98.2 F) after the mixing activity.

This minimal change in body temperature could indicate that the moving activity was not strenuous enough to cause a marked change in body temperature.

Conclusion

1. Using the individual water consumption system, researchers observed that grower pigs tend to consume more water when stressed. Regardless of stress induction, pigs' water consumption also increased as the animals grew, the system confirmed.
2. In this study, the installation of the IWCS and ITHS, and inducing stress due to moving and mixing the herds, had no considerable negative effects on pig production performance.

Acknowledgements

We would like to acknowledge the financial support from Swine Innovation Porc for this research project.

The authors would also like to acknowledge the collaboration of researchers from the Canadian Centre for Swine Improvement, the Centre de développement du porc du Québec, and the Lacombe Research and Development Centre in carrying out this study.

The Saskatchewan Pork Development Board, Alberta Pork, Ontario Pork, the Manitoba Pork Council and the Saskatchewan Agriculture Development Fund provided strategic program funding.

In addition, we wish to acknowledge the support of the production and research technicians at Prairie Swine Centre who made it possible to conduct this study. **BP**

Dr. Bernardo Predicala is an engineering research scientist at Prairie Swine Centre Inc. (PSC) and an adjunct professor in the department of chemical and biological engineering at the University of Saskatchewan.

Ken Engele is the manager of knowledge transfer at PSC.

The centre conducts near-market research that can be applied by the pork industry within a one- to seven-year time frame.

VENTILATION DESIGN FOR YOUR SOW BARN

by
RICK
McBAY

Consult a ventilation expert to select the best system and ensure continued support for your operation.

The group pen layout tends to favour natural or dual ventilation since this layout allows sows to move about freely to find comfort zones with no drafts from incoming air. The facility in this photo is naturally ventilated.

You have many factors to consider when designing a ventilation system for your dry sow or breeding facility to ensure your barn will provide an optimal environment for your pigs. The three basic options are natural, dual or power ventilation.

You must first consider housing type when deciding which type of system to use. Do you plan to use gestation stalls or group penning?

The group pen layout tends to favour natural or dual ventilation since this layout allows sows to move about freely to find comfort zones with no drafts. A straw-bedding design provides animals with the additional advantage of nesting in the straw if they feel cold. In a natural ventilation design, you can add a small volume power system to operate in the cold weather to compensate for this potential issue.

The tighter temperature control provided by power ventilation may ensure more comfort for animals with restricted movement in a stall design.

Power ventilation systems usually have most, if not all, the intake air entering the livestock zone from the attic space. This design allows the warmth of the attic, which is created by sunlight warming the steel roof, to warm the air before it reaches the animals. The use of properly designed and laid out fresh air ceiling inlets creates an air pattern that allows for proper air exchange without creating drafts.

Another factor when selecting your ventilation system would be how much natural light you need. If this consideration is important to you, then natural or dual ventilation systems that use translucent or clear panels are your best choice. These systems still allow light in when the panels are closed in cold temperatures. Of course, Mother Nature takes care of providing light in warmer weather when the panels are open.

As always, economics play a part in all these decisions. The initial costs of the equipment in a natural or dual system versus a power system will be very close, experience shows.

The difference becomes apparent in the ongoing operating expenses, as power ventilation systems have much higher costs to run. You may want to consider a standby power source to keep your power ventilation system running in the case of hydro outage.

The tighter temperature control provided by power ventilation may ensure more comfort for animals with restricted movement in a stall design.

You should also consider post-sales support and service when making your decision. Given the advanced control systems in modern ventilation systems, it is important to work with people who can provide you with the proper setup and programming of your system.

As no two systems are the same, these individuals must be available to adjust and fine-tune your system over time. With the advent of online connections for many of today's computer control systems, specialists can often safely troubleshoot off-site. This arrangement helps eliminate biosecurity risks, which is a huge benefit given the current environment in the hog industry.

In summary, as you work through the design of your new building, review the types of ventilation systems available to find the one that meets your needs and priorities.

In the process, be sure to talk with one of the industry's experienced ventilation specialists.

While you can provide input on your specialty and animal husbandry, the ventilation expert can present all possible options that could meet your operational and budgetary needs and design requirements.

The selection of a system isn't a clearcut decision, as one type of system is not simply better than the others. A knowledgeable professional can help you make the right choice.

After all, you and your pigs will depend on this investment for years to come. **BP**

If natural light is important to you, then natural or dual ventilation systems that use translucent or clear panels are your best choice. The swine facility in this photo is dual ventilated.

Rick McBay is the natural ventilation specialist for Faromor – a Canarm company. For 40 years, he has worked with livestock producers to provide them with equipment and ventilation solutions. During the last 25 years, Rick has contributed to the design and development of natural ventilation systems used worldwide.

THE ROLE OF ESSENTIAL OILS IN GUT HEALTH

by
DR. CHENGBO YANG

If properly delivered to the intestinal tract, essential oils can support resiliency in piglets.

Antibiotic resistance challenges the sustainability of the pork industry. Due to environmental, health and safety concerns, the public demands antibiotic-free pork (e.g., raised without antibiotics).

In 2018, observations that scientists and officials in Canada and other countries are considering actions to reduce or eliminate the use of antibiotics in pig feeds led Faith Omonijo and collaborators, as well as Yousef I. Hassan and collaborators, to orientate their work in that direction.

As most Canadian pork is destined for export, the swine industry needs alternatives to the use of antibiotic growth promoters to remain competitive in the market.

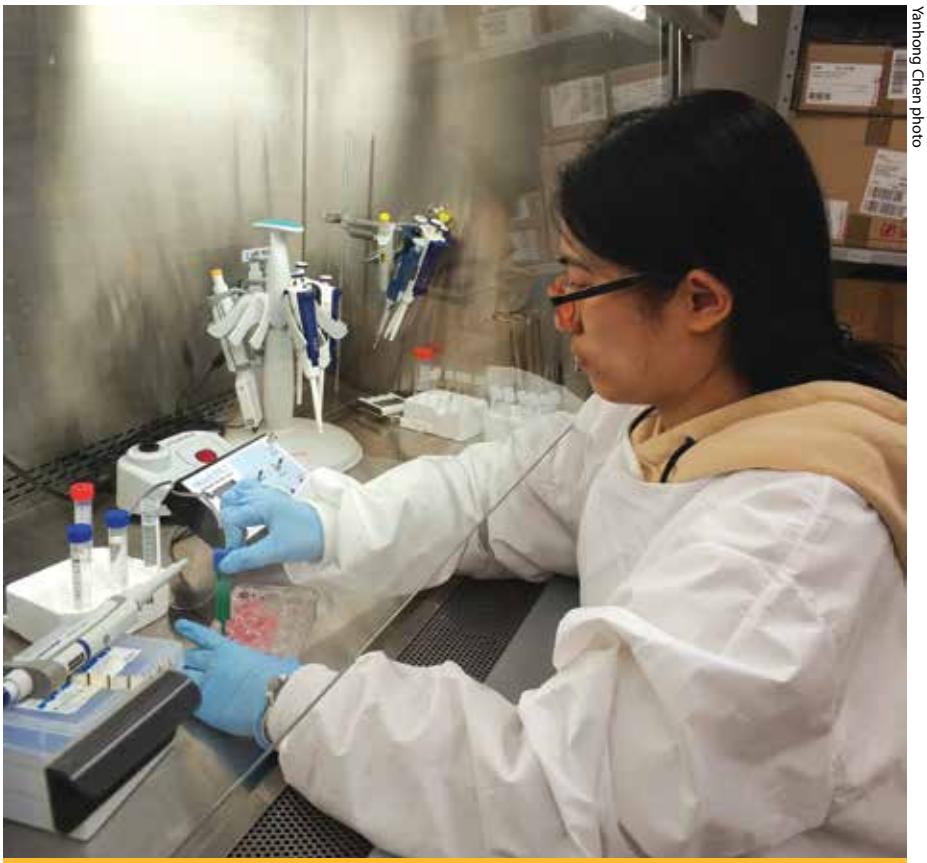
However, the withdrawal of antibiotics from feeds can result in several challenges including compromised gut health and increased gut diseases. So, researchers must develop antibiotic alternatives that can improve gut health and reduce gut diseases.

Viable alternatives to in-feed antibiotics must be safe for the public, cost-effective for producers and friendly to the environment, Omonijo and collaborators said in their 2018 article.

So far, we do not have a single "magic bullet" that can replace in-feed antibiotics.

Scientists have widely considered probiotics, enzymes, antimicrobial peptides, essential oils, organic acids and plant extracts as potential alternatives to in-feed antibiotics. However, the efficacy, consistency of results and cost-effectiveness of applying these alternatives warrants further investigation.

We must make fundamental advances in understanding the biological mechanisms underlying these products' antimicrobial and anti-inflammatory functions before widespread adoption can occur in the pork industry.



Yanhong Chen photo

Yanhong Chen, a graduate student, measures barrier function during lipopolysaccharide-induced inflammation in the porcine intestinal epithelial cells.

Essential oils (e.g., thymol and eugenol) have antioxidative, anti-inflammatory and antimicrobial properties. Researchers have widely investigated some essential oils (e.g., thymol, eugenol and cinnamaldehyde) as alternatives to antibiotics in swine production mainly because of these essential oils' antimicrobial properties.

However, solely based on these antimicrobial properties, results from laboratory and field studies are highly inconsistent.

These inconsistencies mainly stem from four potential causes:

1) variations in the dosages investigated across studies and commercial trials
2) differences in trial conditions
3) lack of definition of the essential oils used in the study and the proper characterization of the associated active compounds
4) inconsistency in their practical inclusion levels in feeds in regard to their minimal inhibitory concentration values (killing enteric pathogens) since it may become too high for optimal feed intake or for their cost in swine production

The influence of living microbes on swine health is undeniable but antimicrobial properties should not be the only criteria of selection for alternatives to antibiotics in swine production.

Lipopolysaccharides, also called endotoxins, are cell wall components

of Gram-negative bacteria (e.g., *Salmonella* and *Escherichia*) that have received much attention due to their ability to stimulate a low-grade inflammation in pigs. One of the negative consequences of inflammation at the intestine level is increased intestinal permeability, or "leaky gut," associated with impaired nutrient absorption and increases of diarrhea incidence.

In addition to antimicrobial properties, thymol (50 µM, 7.5 mg/kg) and eugenol (100 µM, 16.4 mg/kg) can reduce inflammation associated with lipopolysaccharide and prevent "leaky gut" in weaned piglets, Omonijo and collaborators in 2019, and Qianru Hui and collaborators in 2020, said in their respective articles.

Since the industry's acceptance of essential oils to optimize pig performance and health also depends on inclusion cost, those results in line with these financial considerations are encouraging for researchers and producers. They can use lower doses of essential oils to prevent inflammation and "leaky gut" induced by lipopolysaccharide.

The use of essential oils is already a good option but the combination with other additives should lead to higher advantages. For two reasons, a combination of other alternatives with essential oils holds the most promise as a substitute for antibiotics in pig feeds.

First, we have not found a single antibiotic alternative to cover all properties that antibiotics have. Second, a combination of products can have a synergistic effect that will reduce effective dosages required to combat pathogens (e.g., organic acids and essential oils).

For example, essential oils can change the structure and functions of bacterial cell membranes. This action leads to swelling and thus increased membrane permeability, leading the bacteria towards an increased susceptibility to organic acids.

Moreover, the hydrophobicity (water-repellent property) of an essential oil is increased at a low pH. Combining essential oils with organic acids will enable the essential oils to more easily pass through the lipids of the bacterial cell membrane.

Crystal Jorgenson photo

The Glenlea Research Station, pictured here, is part of the University of Manitoba's suite of pig research areas.

Essential oils exhibit great potential to prevent post-weaning diarrhea. However, their direct inclusion in pig diets has compromised efficacy because of such factors as low stability, poor palatability and low availability in the lower gut. Therefore, an effective and practical delivery method is very important for the use of essential oils in swine production.

In collaboration with chemists and polymer scientists, my team developed a formulation of microparticles to effectively deliver thymol and lauric acid to the pig intestinal tract that Omonijo and collaborators described in a 2018 article. Lauric acid not only acts as a carrier for thymol but also has synergistic antibacterial effects with it.

The optimized encapsulation techniques will serve as a gateway to more research on how to protect and deliver other bioactive compounds (e.g., enzymes, amino acids and probiotics) to the animal gut.

With the latest work of Janghan Choi and collaborators in 2020, we also evaluated the stability of thymol in commercial lipid matrix microparticles (encapsulated essential oils and organic acids) during feed pelleting and feed storage and determined the intestinal release of thymol.

In this study, the thymol concentration was not significantly different in the mash and pelleted feeds, suggesting that the pelleting of feed did not affect total thymol in those lipid matrix microparticles. Microencapsulation improved the stability and bioavailability of thymol for piglets.

Encapsulated thymol was also stable in simulated pig gastric fluid (26.0 per cent thymol released). The rest of the thymol was progressively released in the simulated intestinal fluids until completion, which was achieved by 24 hours.

In our trials, 15.5 per cent of thymol was released in the stomach, and 41.9 per cent of thymol was delivered in the mid-jejunum section, demonstrating a slow release. Only 2.2 per cent of thymol was recovered in feces.

The lipid matrix microparticles maintained the stability of thymol during the feed pelleting process and storage, and allowed a slow and progressive intestinal release of thymol in weaned pigs.

The microencapsulation process effectively delivers essential oils to the pig gut and improves the efficacy of essential oils in swine production.

Subsequent studies conducted in 2020 by Yetong Xu and collaborators, as well as by Choi and collaborators, further investigated the effects of this commercial lipid matrix microparticles on growth performance, immune system, gut barrier function, nutrient digestion and absorption in disease-challenged weaned piglets. The supplementation of those lipid matrix microparticles showed anti-diarrhea effects in disease-challenged weaned piglets, the researchers demonstrated.

To summarize, a microencapsulated essential oil and organic acid combination can be a useful alternative to antibiotics in swine production, our latest findings suggest. **BP**

Dr. Chengbo Yang is an associate professor in the department of animal science at the University of Manitoba. He conducts research in the area of gut health and nutrient use relevant to non-ruminants.

Ontario Pork News & Views
Prepared and Edited by the OMAFRA Swine Advisory Team
ONTARIO PORK
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Continuous Corn Growers Should Check Fields for Rootworm Resistance to Bt Hybrids

The following is reprinted from a post on Field Crop News (www.fieldcropnews.com).

Canadian Corn Pest Coalition News Release:
Corn rootworm (CRW) has historically been one of the most important pests of corn in Canada and can cause extreme economic loss and increased management costs. High CRW pressure in Ontario in 2020 is challenging current Bt corn rootworm hybrids and several growers of Bt rootworm hybrids are reporting unexpected injury by CRW to trait providers and research and extension scientists. Specifically, several fields in Huron, Perth and Durham Counties have been identified with injury to various Bt rootworm traits, providing an early warning of possible resistance development by CRW to some Bt traits. There is the potential for resistance development to be occurring in other regions of Ontario where use of Bt rootworm traits in continuous corn is prevalent.

Corn rootworm resistance to Bt traits are widespread in the United States and resistance may be a factor contributing to unexpected injury on Bt corn rootworm hybrids in Canada. While most of the injury by CRW larvae has already occurred by August, growers should still scout their fields as soon as possible to determine whether root injury, lodging, goosenecking, or high levels of adult CRW beetles are present. Scouting will help determine if these fields need to be managed differently next year to reduce the risk or spread of resistant populations. In these potential resistance scenarios, growing Bt rootworm corn may not be an effective tool for 2021. Beetles from this year will have already laid large numbers of eggs in these and surrounding fields which will hatch to become next year's problem. Scouting now will help determine the best management practices to implement in 2021.

Scout these high priority/high risk fields first:

1. **Continuous corn production and repeated use of Bt** corn rootworm hybrids – Continuous corn planting can promote higher populations of CRW. Fields or areas with a long history of corn after corn production and/or repeated use of Bt rootworm hybrids are at high risk of resistance development.
2. **High adult CRW populations** – Fields with high numbers of CRW adults observed the previous year and where a lot of egg laying likely occurred.
3. **Lodging or Goosenecking** – Because lodging/goosenecking often occurs in fields with high rootworm pressure, root digs are needed to determine if root injury was the result of larval CRW feeding or other factors (e.g. high winds).

Scouting Guidelines to Determine Possible Rootworm Resistance: *https://fieldcropnews.com/2020/08/rootworm-scouting-guidelines/*
In cases where CRW injury to a Bt rootworm hybrid is suspected, growers should report the issue to their seed supplier and inform the executive or provincial members of the Canadian Corn Pest Coalition (CCPC; https://www.cornpest.ca/contact-us/executive-members/).

Guidelines are being developed to help guide growers on cropping and management decisions for the 2021 growing season. These will be distributed by OMAFRA, GFO, the CCPC, seed providers and others to ensure information is available to those growers impacted. Following these guidelines will be the best way to reduce the spread of resistance and preserve the longevity of Bt rootworm hybrids for Canadian corn growers.

Additional resources

- Canadian Corn Pest Coalition Website
- Insect Chapter of the Agronomy Guide to Field Crops, OMAFRA Publication 811
- Manage Resistance Now- How to Manage Insect Resistance in Bt Corn.
- Manage Resistance Now – Bt Corn 101

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CanSpotASF - Enhanced Surveillance to Protect Canada's Pig Population from ASF

The Ontario Animal Health Swine Network (OAHN swine network), as part of CSHIN (Canadian Swine Health Intelligence Network), has been asked to help distribute information on CanSpotASF and the first tool being launched in an ASF surveillance pilot project. This will enable Canadian Animal Health Surveillance Network (CAHSN) labs such as the Animal Health Lab

(AHL) in Guelph to conduct "Risk-based early detection testing" on samples submitted to the lab that meet eligibility criteria. The goal of this surveillance project is geared at early detection of disease if ASF were to be detected in Canada.

CanSpotASF is an enhanced passive surveillance system designed to detect ASF early, ease the transition to outbreak surveillance if required and it aims to protect the commercial swine sector from ASF impacts. As a producer, you can help ensure a successful early detection of African swine fever and limit the extensive impacts that this disease would have on the Canadian swine sector.

You can help with African swine fever surveillance!
Before mortality is seen, ASF can look like other diseases commonly found in your barn. ASF surveillance aims to ensure early detection and rapid response, while avoiding spread of disease. Therefore, surveillance is one important tool to protect the commercial domestic swine sector.

How may my swine operation be a part of the ASF surveillance?
Part of the plan to enhance early detection of ASF is for approved laboratories to test. Therefore, samples from your farm sent to diagnostic laboratories for routine testing may also be selected to rule-out ASF. For example, if your veterinarian suspects a PRRS problem in your barn, and submits samples to confirm the diagnosis, the laboratory may do an extra test for ASF.

What happens if a laboratory rule-out test is positive?
The ASF test is very good; however, no laboratory test is perfect and in very rare cases a laboratory test can be positive without the disease present – this is known as a false positive. To ensure that the first confirmed case of ASF in Canada is a true case, a positive test is followed by further tests and thorough investigation:

- Additional ASF tests will be performed at the CFIA's National Centre for Foreign Animal Disease laboratory in Winnipeg. This may require collecting samples from additional pigs.
- A local CFIA veterinarian, along with your farm veterinarian, will immediately check the health of your animals. This may be through a phone call or a farm visit.
- CFIA will place movement restrictions on your farm while awaiting the additional test results (48 to 96 hours expected wait time).
- If ASF is confirmed by further testing and investigation, CFIA will maintain movement restrictions on your farm and initiate response activities.

CanSpotASF Toolbox:
The CanSpotASF toolbox provides several tools that can be implemented by region and population. Implementation will be stepwise and prioritized based on risk and logistical feasibility. Enhanced surveillance will be an iterative process and will include pilot projects; more tools may be added as implementation progresses.

- APPROVED LABS
  - Rule-out testing at Canadian labs approved for ASF testing
- ABATTOIRS
  - Risk-based testing in provincially- and federally-inspected slaughterhouses
- ON-FARM
  - Outreach
  - Small-holder networks
  - Education
  - Sample submissions
- OTHER TOOLS
  - Wild pig stakeholder network
  - Enhanced sampling capacity

For further information, there is a one page CanSpotASF overview and a description for producers document available. Links to these can be found in my blog post on this topic at this link: www.on-swine.wordpress.com.

If you have any specific questions about this project please don't hesitate to reach out to your veterinarian.

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Regular Facility Maintenance is Easy – and Profitable!!

The success of a swine operation has a number of contributing factors that all require "repairs" from time to time. However, maintenance of the infrastructure is sometimes low on the priority list. This can have a significant negative effect on the operation as a whole.

Facility infrastructure is a large capital investment. Regular facility maintenance can contribute to the longevity of the infrastructure and have a positive effect on production. The better the environment provided, the easier the pigs can do their job. The consequences of poor maintenance can be a barn fire that destroys the operation, a damaged flex-auger that wastes feed and labour each day, or a poor indoor environment that sacrifices feed efficiency and increases energy costs.

Regular facility maintenance is easy when made part of the regular routine. Let's look at the basic steps:

Inspection and Documentation:
Problems need to be identified and documented. Make a checklist of daily items and use it when checking on the animals each day. Check other items in conjunction with some other regular task – like washing down a room. Include a review of each pig room, common hallways, mechanical rooms, feed rooms and outside.

Prioritize and Schedule Repairs: Repair safety issues immediately. Divide non-safety issues into those that can be repaired with pigs in the room, and those that cannot. Further divide issues into those items that you can repair yourself, and those requiring a specialist (electrician, engineer, contractor). Schedule time for each item, and make appointments with any required specialists. Be realistic with the schedule – taking care of a few small items each day for a week is easier than trying to do them all in one day.

Make the Repairs: Repairs can include anything from cleaning, to adjustments, to replacements. Complete all repairs in a safe and workmanlike manner – "band-aid" solutions don't last and waste time and money in the future. Hire qualified specialists when required, and have the work area ready for their arrival.

What to Look For and How Often

Penning, gates, feeders and water nipples can clog, malfunction or be damaged by the pigs overnight, and should be checked daily. Weeds can grow up around the perimeter of the facility quickly in the spring, while snow can block driveways to feed bins and shipping doors – these items should be checked at least weekly. Dust and dirt build-up on air inlets, exhaust fans, heating appliances and electrical equipment may accumulate over a period of weeks or months, while adjustments to your heating and ventilation controllers may only be required once or twice a year.

Though the infrastructure works as a complete system, an inspection of each individual element is a practical approach for a maintenance program. Identify each element and create inspection checklists. The following list includes the basic items in most swine facilities:

- **Penning, Feeders, Water Systems, Augers, Feed Storage:** Keep these items clean and serviceable. Damaged penning can injure animals or allow unwanted mixing of groups. Protect water systems from freezing. Protect feed stores from moisture and rodents;
- **Ventilation and Heating Systems:** Keep all systems clean to minimize deterioration and maximize efficiency. Have a specialist periodically service heaters and fans, and test and adjust inlets, fans, sensors and controllers to maximize efficiency of the equipment and quality of the indoor environment;
- **Insulation, Vapour Barriers and Cladding:** Insulation restricts heat flow out of the barn (during winter) and into the barn (during summer) and pre vents condensation. Vapour barriers keep moisture from damaging insulation and the structure. Cladding protects both of these items from birds, rodents and physical damage. Make repairs as soon as possible to reduce long term damage and energy use;
- **Doors and Windows** can work against heating and ventilation systems due to unwanted air infiltration. Inspect weather stripping and door hardware regularly. If replacing older doors, upgrade to an insulated model to reduce heat transfer to the outdoors;
- **Electrical Systems:** Failure of electrical systems is one of the major causes of barn fires. Inspect for rodent damage, corrosion, dust and dirt build up regularly to prevent overheating or short circuits. Some insurance companies offer thermographic inspections (during operation/peak load) to identify hot spots. Have a qualified electrician make any repairs;
- **Structural Systems:** This is what holds everything up, and includes foundations, slatted or solid floors, concrete sandwich walls, stud or post and beam walls, and roof trusses and cladding. The enemies of the structure are moisture, manure and physical damage. Investigate wood elements for rot, chewing or wear from machinery. Check steel items for signs of corrosion from moisture or manure gases. Manure acids and gases can cause concrete to deteriorate and possibly crack or flake off. Any deterioration of structural systems should be considered a safety issue. Have

Birds and rodents will damage unprotected insulation.

a professional engineer complete an inspection and provide you with recommendations for repair strategies;

- **Outdoors:** Ensure that downspouts and the ground surrounding your facility slope away from all buildings to limit water infiltration. Maintain all driveways to feed bins and loading doors. Keep snow plowed to ensure access for the fire department. Ensure weeds and debris are removed from the perimeter of buildings. Repair any cracks or gaps in the building to protect against rodents and have a pest control program. Ensure exhaust hoods and inlets are free of debris and dirt to ensure efficient operation.

A routine maintenance program will identify and correct issues before they become big problems. Some issues are safety issues and need to be addressed immediately. Others affect the function of the facility and can affect profitability. Regular facility maintenance is easy – and profitable! Adopt a program for your operation and start reaping the benefits

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Breeding Herd Management – Tips and Tricks to Improving Productivity

The National Hog Farmer held a series of webinars recently where they brought in industry experts to talk about challenges facing producers. Specifically, one of the webinars was "Management Considerations to Improve Breeding Herd Productivity".

The speakers were Dr. Kara Stewart from Purdue University and Dr. Aaron Gaines of Ani-Tek. The importance of proper gilt management was stressed throughout as a critical point in any farm's breeding cycle. The weight and age of the gilt are a few main factors that any producer looks at before breeding, but the heat cycles and sexual maturity play a big part in the longevity of the animal. Dr. Stewart reviewed a study that focused on increasing the productivity of gilts. She explained that when you 'Heat No Serve' (HNS) at least one time, then in three weeks when the gilt comes back into heat, she will be more viable for a better overall litter. The speakers suggest that recording HNS and making sure that the gilt has daily boar exposure after 160 days of age will help a producer improve breeding herd performance. Having consistent boar contact is standard practice and helps the gilt to come into heat earlier as well as get used to the boar.

Planning breeding targets was a key component of the speakers' outline for quality management of a herd. There are a few helpful ideas that were talked about, such as having information on what percentage of your sows are coming into heat in the 4-7 day period after they are weaned. By taking that average and looking at which pigs are about to cycle back from HNS in the given week you can have a reasonably firm idea of how many pigs you will breed. This allows producers to know if they're going to be above or below their breeding target, which can be crucial for the overall flow of your operation to be maximized.

Maintaining sow health post farrowing/wean was of the utmost importance when the speakers were talking about sustaining a healthy breeding herd. The key focus that was outlined was a strict feeding regimen. During lactation, the sows need a lot of feed to keep up with the needs of the growing number of piglets that we see in litters, especially gilts. Even in the summer when the feed intake of sows goes down, they still require an ample amount of feed. A newer practice that has been adopted is top dressing gilt feeders with soybean meal to help increase the protein consumption during the lactation period. After the sows are weaned and back into the breeding section of the barn the first 30 days is where you should aim to get the sows back to pre-wean weight to ensure the health of the animal is maintained. Dr. Gaines recommends that you should cut feed for the first few days they are back in the breeding stalls and then begin a regimen of getting the sows back to weight. Every producer does feeding differently but ultimately you should be working closely with your nutritionist to execute a schedule for your herd.

Seasonal Infertility

Seasonal infertility is a problem that almost every producer faces during the late summer months. The causes of seasonal infertility are related to natural behaviors in pigs that would occur in nature. A wild pig will not breed in the later months of summer and early fall because by the time they farrow it will be winter, which will be catastrophic for the litter. Even over years of adaptation, the domesticated pig in barns will still convey these behaviors to some degree. Some of the other factors such as hot and humid weather can cause sperm count to go down in boars and less embryo survival in the gilt or sow.

There are ways to help minimize the effects according to the National Hog Farmer article on this topic. A common solution is to water the pigs down with misters or water drips (as well as increasing the readily available water for drinking) so that the pigs always have a way to cool off since they cannot lose

body heat through sweating.

On the breeding side of seasonal infertility, a practice that mainly occurs in the U.S. is the use of hormonal supplements when the sows are weaned. This will raise the LH levels in the sow and result in a greater chance of pregnancy post insemination. Skipping over a pig that is in heat, especially a sow, can become costly on the production side but can ultimately lead to an increased conception rate and larger litter in these summer months according to article.

The full article can be found at this link: https://www.nationalhogfarmer.com/animal-health/best-practices-manage-seasonal-infertility

Ben Robinson
OMAFRA Livestock Assistant - Swine

Fine Tuning Your Operation

Note: The following is an excerpt from the May 2020 issue of Prairie Swine Centre's "Centred on Swine" newsletter. Some of the numbers are Western Canadian data, but the principles are applicable to any farm in Canada. PSC has a range of Factsheets available at www.prairieswine.ca.

Ideas to Fine Tune Your Operation

During these unprecedented times producers are challenged with maintaining operational efficiency and assessing external factors that directly impact their operations. By taking an inward approach we may be able to find little things that can positively impact the bottom line. As we start to find our way forward these cost saving strategies will help us reinvest in our operations and industry sooner. The following resources provide a good starting point on ways to look at your operation to drive cost out of the production system. Originally produced as survival strategies in 2008, we have updated this publication as many of the topics remain relevant today. If you have any questions or comments we are always available to hear from you.

PRAIRIE SWINE CENTRE

Survival Strategies – When Every Penny Counts
Prairie Swine Centre

Introduction

It is a significant challenge to suggest how a Canadian pork producer in today's economic environment can turn a loss into a profit. Indeed the "perfect storm" of pork prices impacted by global challenges have made losses of $20-$40/hog this spring. It is the intent of this paper to reinforce production practices backed by research and actual commercial practice that can produce savings of not just $2-3 per market animal but multiples of that. Too often do we hear "I am doing everything possible already" in reference to cutting costs. Production systems are living entities with fluctuations in productivity, management and staff that are overwhelmed with daily distractions, and in-barn procedures which evolve whether you want them to or not.

There are opportunities, and every dollar saved is one less dollar borrowed under the present conditions. The following is a checklist to take to the barn and help you evaluate where the opportunities exist in your operation.

The focus is on the cost areas with the greatest potential for payback for the efforts invested. These are in order of importance and relative size of annual expenditure: feed (52.7%), wages & benefits 11.2%, and utilities & fuel 4.7%. These three account for nearly 70% of all expenditures on a typical farm in western Canada. So our approach to addressing costs will be confined to these areas.

Feeding Program

This begins with defining the objective of the feeding program that can be any one of the six objectives in Figure 1. The purpose of defining the program makes it possible for the nutritionist to assist in diet formulation and ingredient selection to achieve that end. The first opportunity for cost reduction is - Are we formulating to minimize operational losses? This includes a review of selecting optimum energy levels, defining lysine:energy ratios, define other amino acid levels to lysine, setting mineral levels (even withdrawing in late stage finisher diets) and making use of opportunity ingredients. The outcome should be a feed budget similar to Figure 2. The regular matching of actual feed usage by diet type to the budget is the exercise in Figure 3 that shows that after a five-month period in fact this 600 sow farrow-to-finish farm had excessive use of some of the most expensive diets on the

Figure 1: Objectives of the feeding

1. Maximize return over feed cost/pig sold
2. Maximize return over feed cost/year
3. Maximize expression of genetic potential
4. Achieve specific carcass characteristics
5. Achieve specific pork characteristics
6. Minimize operational losses
Action #1: Feeding program objectives must be clearly defined; Objectives can and indeed will change over time

farm and resulted in an average cost increase of almost $6 per market hog. But the owner thought they were doing "everything they could" because a competitive feed budget was developed. The problem was not the budget but the fact it was not being adhered to for any number of reasons. Perhaps as simple as not explaining to the person making or delivering the feed that the number of pigs in the nursery was below budget, in this case because of a PCVAD outbreak.

Other aspects of the feeding program that you need to evaluate include the energy content of the final diets and implementing the Net Energy system, seeking to further increase savings by crediting the most accurate energy value available to each ingredient.

Reformulating frequently is important when commodity prices move up or down. The general 'rule of thumb' is to reformulate whenever the main grain and protein ingredients move by a predetermined amount (for example $5-10 per metric tonne).

Alternative feed ingredients at times can be the single largest opportunity to reduce feed costs. This includes co-products of the ethanol, bakery and food processing industry but also includes common ingredients like corn. Currently in western Canadian diets implementing a change from wheat to corn could save as much as $4-5/pig marketed depending on your local cost of wheat.

Once you have formulated diets, there are still opportunities to reduce costs by observing particle size stays within the 650-700 micron range to ensure optimum digestibility. Frequently due to screen wear, improper screen size, or hammer wear, the feeds milled on farm are significantly over the 700 micron threshold (surveys show a range of particle size 700-900 microns Figure 4 – not shown, see original publication for data). For every 100 microns under 700 the feed conversion improves 1.2%. With feed costs today of at least $90 per finished hog, moving from say a 3.0 F/G to a 2.96 F/G (the effect of 1.2% improvement, or 100-micron reduction in feed particle size) is worth $1.00 per pig marketed.

Please view our industry publications on our website www.prairieswine.ca for more tips like:

- Moving from 2 phases to 4 phase feeding programs can easily save $1-2/pig
- Use of phytase and reduction of dicalcium phosphate in diet has saved $0.50 per pig or more under some market conditions

Figure 2: Example of a Typical Western Canadian Feed Budget

Select phasing of the diets					
Diet	**Pig Wt., kg**	**Days**	**A.D.G., g/d**	**A.D.F., g/d**	**Feed, kg/pig**
St #1	6	4	115	125	0.5
St #2	7 to 8	6	300	330	2.0
St #3	8 to 14	13	475	620	8
St #4	14 to 22	13	600	870	11
St #5	22 to 35	17	765	1,224	21
Gr #1	35 to 50	16	865	1,900	31
Gr #2	50 to 65	16	920	2,300	38
Fi #1	65 to 80	16	930	2,600	46
Fi #2	80 to 95	16	930	2,850	46
Fi #3	95 to 105	11	880	3,000	38
Fi #4	105 to Mkt	12	830	3,000	32

Marketing

Which is more important - breeding sows or shipping pigs? Although the question is not which is more important it does point to the two areas where our people have a significant impact in our success as a production unit. Figure 5 (not shown – see original publication) shows one farm's analysis of how management and labour have to respond when market conditions change. The most profitable hog, in terms of weight will change across time-period - dependent on your average hog and feed prices. Once the new target is established, consistently hitting the target is important.

Utilities

Utilities are the third largest expense in pork production after feed and labour. This cost area has seen significant increases across Canada in recent years. The Centre did extensive analysis on the effect of ventilation rate, and set point temperature adjustments that can save on energy costs. At the time we found losses of $1 per pig marketed were likely when a finishing barn was overventilated by just 10% in the winter. As electricity prices continue to rise, our opportunity for savings of up to $3 per hog marketed is possible by ensuring our ventilation systems are performing properly.

An extensive analysis of utility costs was undertaken in a variety of barns across Saskatchewan. The

results reported in Figure 6 (not shown – see original publication) show that the range of energy use is four-fold across various farrow-to-finish operations. Although disappointing for those farms at the high end it does indicate that there is significant opportunity to reduce costs incurred for utilities at least $3-5 per pig marketed. Some of the differences contributing to these vast differences in cost include:

- Limit use of heat lamps in farrowing and move to heat mats
- Move from incandescent to CFL or LED bulbs
- Reduce the number of hours of light or amount of light in nursery and grow finish rooms
- Select replacement fans based on energy efficiency.

Most farms do not receive a water bill but waste here also contributes to farm costs. Scientific and industry surveys both point to the fact that about 40% of the water delivered to the nipple is wasted. This wasted water ends up as slurry and increases our manure hauling costs by at least $0.70 per pig. The things to look for:

- In a recent survey 20-70% of nipples provided flow rates in excess of recommendations.
- This excess water is beyond the pigs capacity to consume it resulting in higher waste.
- Water disappearance is 34% less on wet/dry feeders compared to dry feeders and wall mount nipples.
- Nipples installed at 90° to the wall should be located at shoulder height, nipples located 45° to the wall should be located 2 inches above the shoulder (a well-positioned nipple will reduce water wastage to 25% of total volume delivered).
- Replacing nipple drinkers with swing drinkers, bit-ball nipples or bowls have shown to decrease wastage.

Productivity

When prices are low and losses are high, it is easy to turn our attention away from the demanding management of sow reproduction, "so what if we wean a few less pigs, they are not worth anything any way". However, each pig contributes to carrying the overhead of all those fixed costs our barns incur, assuming we are meeting our variable costs of production. In fact, outside of feed and transportation, you can classify the rest of the costs as fixed. Therefore, the impact of sow productivity is profound.

Conclusions

There are opportunities for savings on every farm in Canada. Finding these savings takes a methodical and careful process of comparing our targets to what we are actually achieving - doing this on a regular basis will frequently find opportunities to save. Perhaps savings of $7-9/hog are possible. These savings do not all exist on all farms but some of these exist on some farms and it is our job to find them and correct them. Then next month look again and find those that escaped our gaze the first time, and be committed to doing it repeatedly as we work to maintain margins in a challenging commodity market.

Survival Checklist

1. Feeding program objectives must be clearly defined; objectives can and indeed will change over time.
2. Selecting the correct dietary energy concentration can lower costs by $1 - $13 per pig.
3. Adoption of Net Energy system of diet formulation can reduce feed costs by $1 and $5 per pig.
4. Aggressive adoption of a variety of ingredients can reduce feed costs by up to $5 per pig.
5. Regular re-formulation of diets can reduce feed costs by $3 to $4 per pig.
6. Track implementation of feed budget can reduce costs by $5 per pig.
7. Cost of particle size deviation from target can exceed $1 per pig.
8. Ensure you maximize your margin over feed cost for your grading grid and current feed budget.
9. Operating procedures and equipment can both contribute to excess power consumption. Turn lights off, switch to heat mats and reduce heatlamp use.
10. Improper minimum ventilation (10% above requirement) adds up to $3 per pig
11. On average 40% of water delivered to the nipple is wasted, that is an additional $.70/pig in slurry hauling costs.

Figure 3: Reconciliation of actual feed usage versus budget.

Diet	Budget	Actual (5 mo avg)
Wean diet	2.5	3 3*
Starter 1	8	9.1*
Starter 2	11	12.8*
Starter 3	21	23.4*
Grower 1	31	40.1*
Grower 2	38	43.3*
Barrow fin1	46	41.6
Barrow fin2	46	42.9
Barrow fin3	38	43.1*
Barrow fin-mkt	32	46.5*
Gilt fin1	46	48.0
Gilt fin2	46	46.6
Gilt fin3	36	46.1*
Gillt fin-mkt	30	47.4*
Gestation	37	18.1
Lactation	22	18.3
Cost/pig marketed	$83.42	$89.35
Difference: $5.93		Difference: $5.93

Numbers in RED* are greater than 10% over budget

Ontario

Swine Budget – August 2020

Compiled by Jaydee Smith, Swine Specialist, OMAFRA *jaydee.smith@ontario.ca*

Income ($/pig)	**Farrow to Wean**	**Nursery**	**Grow-Finish**	**Farrow to Finish**
Market Pig @ 101% of Base Price $130.38/ckg, 110 index, 102.96 kg plus $2 premium				$151.14
Variable Costs ($/pig)				
Breeding Herd Feed @ 1,100 kg/sow	$14.20			$15.58
Nursery Feed @ 33.5 kg/pig		$16.59		$17.48
Grower-Finisher Feed @ 287 kg/pig			$84.51	$84.51
Net Replacement Cost for Gilts	$2.97			$3.26
Health (Vet & Supplies)	$2.16	$2.10	$0.45	$5.03
Breeding (A.I. & Supplies)	$1.80			$1.98
Marketing, Grading, Trucking	$0.95	$1.60	$6.01	$8.74
Utilities (Hydro, Gas)	$2.40	$1.41	$2.17	$6.29
Miscellaneous	$1.00	$0.10	$0.20	$1.40
Repairs & Maintenance	$1.35	$0.61	$2.34	$4.46
Labour	$6.27	$1.85	$4.15	$12.98
Operating Loan Interest	$0.33	$0.29	$0.91	$1.58
Total Variable Costs	**$33.44**	**$24.55**	**$100.74**	**$163.28**
Fixed Costs ($/pig)				
Depreciation	$4.51	$2.04	$7.79	$14.88
Interest	$2.53	$1.14	$4.36	$8.33
Taxes & Insurance	$0.90	$0.41	$1.56	$2.98
Total Fixed Costs	**$7.94**	**$3.59**	**$13.70**	**$26.19**
Summary of Costs ($/pig)				
Feed	$14.20	$16.59	$84.51	$117.57
Other Variable	$19.24	$7.96	$16.23	$45.72
Fixed	$7.94	$3.59	$13.70	$26.19
Total Variable & Fixed Costs	**$41.38**	**$28.14**	**$114.44**	**$189.47**

Summary	**Farrow to Wean**	**Feeder Pig**	**Wean to Finish**	**Farrow to Finish**
Total Cost ($/pig)	**$41.38**	**$71.20**	**$144.09**	**$189.47**
Net Return Farrow to Finish ($/pig)				**-$38.33**
Farrow to Finish Breakeven Base Price ($/ckg, 100 index) includes 101% Base Price & $2 Premium				**$163.89**
Farrow to Finish Breakeven Base Price ($/ckg, 100 index) excludes 101% Base Price & $2 Premium				**$167.29**

This is the estimated accumulated cost for a market hog sold during the month of August 2020. The farrow to wean phase estimates the weaned pig cost for January 2020 and the nursery phase estimates the feeder pig cost for March 2020. For further details, refer to the "2020 Budget Notes" posted at: http://www.omafra.gov.on.ca/english/livestock/swine/finmark.html

PORK INDUSTRY SEES RECOVERY IN DEMAND

by
MOE AGOSTINO
& ABHINESH GOPAL

While 2020 American restaurant sales haven't fully recovered, retail demand for pork remains strong.

As of the late summer, the American pork industry saw signals of strengthening market demand and prices.

This situation, however, followed a very difficult period stretching back to the economic shutdown that began in the late winter. As a result of the pandemic, restaurants and food services closed dine-in seating. These closures weighed heavily on meat demand.

Prior to the pandemic rearing its ugly head, Americans consumed about 50 per cent of all the country's meat outside of homes, industry estimates suggested. The pandemic, of course, significantly reduced the demand for restaurant dining.

Consumers also became wary of spending money on readymade meals and started to reduce expenditures. Americans spent more of their "meat dollars" at retail stores and cooked at home more. This habit will likely continue for some time.

In mid March, American restaurant dining fell by about 100 per cent versus the previous year, market analysts estimated. This figure only saw meaningful recovery beginning in early May. Despite regional differences, as of the first half of August, the year-over-year (Y/Y) drop in American restaurant dining "improved" to a 55 per cent drop.

The gradual reopening of the U.S. economy since May caused a V-

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Prior to the pandemic rearing its ugly head, Americans consumed about 50 per cent of all the country's meat outside of homes, industry estimates suggested.

Source: QT Info Systems Inc, Chicago, IL

On Aug. 20, lean hog futures broke out of their recent trading range and established a gap higher on the price charts due to improving post-COVID-19 hog sector fundamentals.

shaped recovery in demand at food services and restaurants. Though retail sales of food continued to be strong since early March, the slow return of demand from the food service sector was good news for overall meat demand in the country.

Between January and July, American retail store sales of food and beverages were US$494.9 billion (C$648.2 billion), U.S. Census Bureau data showed. This figure is a 12.8 per cent increase Y/Y. But, over the same period, restaurants and bars saw sales drop 21.4 per cent Y/Y to US$347.9 billion (C$491.1 billion).

Despite the increase in American unemployment, government COVID-19 aid measures like unemployment benefits and financial aid supported the increased retail consumer spending. But those government programs will not continue forever.

Through the summer, the reopening of the U.S. economy boosted employment and thus put money in the pockets of consumers, who could spend it at the reopened restaurants. However, not all restaurants reopened and the ones that had could not operate at full capacity due to COVID-19 safety restrictions.

Despite higher pork production, a steady increase in demand led pork cutout values (or the wholesale prices for pork cuts) to improve over the summer. Food service demand improved in this period and market analysts forecast this demand would continue, unless we have more COVID "shocks."

RocksterWho/iStock/Getty Images Plus photo

Through the summer, the reopening of the U.S. economy boosted employment and thus put money in the pockets of consumers, who could spend it at the reopened restaurants.

The higher pork cutout values boosted American hog packer margins, which meant that packer demand for hogs was strong.

This situation led to strong weekly hog slaughter numbers during the summer, which were also needed to reduce the longer-term backup of hogs on American farms caused by the COVID-19 disruptions.

Between June 1 and mid August, U.S. weekly hog slaughter numbers increased by 1.4 million head Y/Y or 6.1 per cent. In July and early August, U.S. hog carcass weights declined, suggesting the industry was beginning to get on top of the backlog of pigs.

The recovery in American meat consumption due to increased demand from the restaurant and food services sector added gloss to the impressive demand factor of exports, particularly to China.

That country's tremendous demand should continue through the year, market analysts predicted. The Phase 1 U.S.-China trade deal and the lower U.S. dollar, which makes American exports quite competitive in the global market, should aid these export numbers.

Some industry analysts actually worried that the United States may experience a shortage of hogs due to the increasing domestic demand. Higher overall demand and lower supply will tighten American pork stocks and could fuel rises in hog prices through the rest of 2020 and into 2021.

As an indicator of increasing demand, in July, American pork inventories in cold storage fell to the lowest monthly level in nine years. This decrease occurred even though pork packing plants, which shut earlier in the year as a result of COVID-19 outbreaks, came back online over the summer.

In total, American cold-storage facilities housed 458.9 million pounds (206.5 million kilograms) of pork at the end of July. This figure decreased from a total of 460.2 million lb. (207.1 million kg) in June and 611.7 million lb. (275.3 million kg) in July 2019.

The July 2020 cold storage report showed the normal trend of high pork demand during the summer grilling season and the increased Chinese import demand.

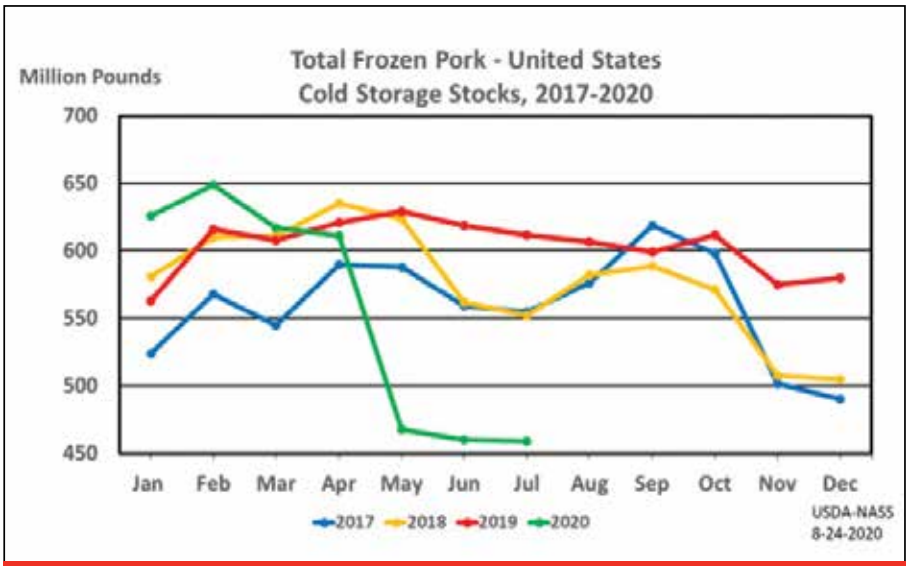
U.S pork belly supplies in cold storage fell by 20 per cent in July to 42.4 million lb. (19.1 million kg). That figure contrasts to 52.6 million lb. (23.7 million kg) of pork in July 2019.

Pork belly values depend on restaurant and food service demand. Despite the continued challenges for U.S. restaurants, they benefited from increased business since the economic reopening.

On August 20, lean hog futures broke out of their recent trading range and established a gap higher on the price charts due to improving post-COVID-19 hog sector fundamentals. Market demand played a key role.

The U.S. economic outlook continued to show encouraging signs. As of late August, job recovery and the slowing of COVID-19 cases boded well for meat demand.

U.S. consumers will likely continue to spend more of the money they allocate to meat purchases to spending at retail stores until the COVID-19 challenges dissipate. But the restaurant and food services sector recovery gathered steam as of late August, which was great news for pork demand. **BP**



Source: U.S. Department of Agriculture – National Agricultural Statistics Service

In July, U.S. pork inventories in cold storage fell to the lowest monthly level in nine years.

Maurizio "Moe" Agostino is chief commodity strategist with Farms.com Risk Management and Abhinesh Gopal is head of commodity research. Risk Management is a Farms.com company.

Visit RiskManagement.Farms.com for more information.

by
RICHARD SMELSKI

HOW OBSERVANT ARE YOU IN THE PIG BARN?

Don't underestimate the importance of trusting your senses when working on the farm.

What do you sense when you walk through a pig barn? What do you see, smell, touch, hear and perhaps even taste?

The many producers I walked through barns with served as my best teachers. I listened to their observations and learned much along the way.

For example, as I walked down an alleyway, one producer scolded me for not being observant enough. "How can you look at both sides of the alley and see anything? Pay attention to one side. Remember, you will walk back!"

The key to being observant is to slow down. You must be a persistent student, always seeking a better way. You should also change your routine to evaluate your workplace with fresh eyes.

Can you see the pecking order in the pen? Have you observed the "actual" air pattern in the room?

To better understand what we may miss when we work too fast, quickly try this popular brain teaser. How many letter Fs do you see in the sentence that follows?

FINISHED FILES ARE THE RESULT OF YEARS OF SCIENTIFIC STUDY COMBINED WITH THE EXPERIENCE OF YEARS.

Most people see three. Upon closer inspection, however, you should find six Fs.

Smell is another difficult sense to measure because we become immune to smells when we are exposed to them for extended periods.

In the barn, we must be mindful of four main gases: ammonia, carbon dioxide, methane and hydrogen sulfide. Methane is lighter than air, and both methane and carbon dioxide are odourless. Ammonia has a pungent smell while hydrogen sulfide has a rotten egg smell.

When we spend long hours in a barn, however, we can become both mentally and physiologically complacent. We must always be mindful of potential dangers and monitor our ventilation systems.

Obaba/iStock/Getty Images Plus photo

The key to being observant is to slow down. You must be a persistent student, always seeking a better way.

I considered another herdsperson I visited to be a pig whisperer because she was so skilled at quickly identifying and reacting to the sound of a piglet in distress. However, this individual was immune to the more routine sounds of her workspace and couldn't hear the fans struggling with the dirt and dust on them.

A dirty fan uses 20 per cent more energy, I estimate.

Although some people are gifted in their ability to observe and understand pigs, most individuals must learn how to observe and use pig signals.

Over the years, many industry leaders have created factsheets, conducted research reviews and made presentations about moving pigs. Yet, the same habits – and, often, language – reoccurs when we load pigs.

Ask yourself if a better way exists. What does the pig see from its point of view?

On farm visits, a colleague used to crawl into a farrowing pen or dry stall to display design flaws. This individual was 260 pounds (117 kilograms) and stood 6-5 (1.9 metres).

Can you have a different point of view if you get down to the pig's level?

Even after you carefully observe your surroundings, you need to digest all the information and decide when to intervene. While the need to treat underprivileged pigs is usually somewhat obvious, the challenge is to observe the details to prevent a problem from occurring in the first place.

Perhaps you could have someone walk through your barn with you to provide a fresh perspective on how to do things more resourcefully. Of course, be sure to adhere to all biosecurity and personal protection protocols in the process. **BP**

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

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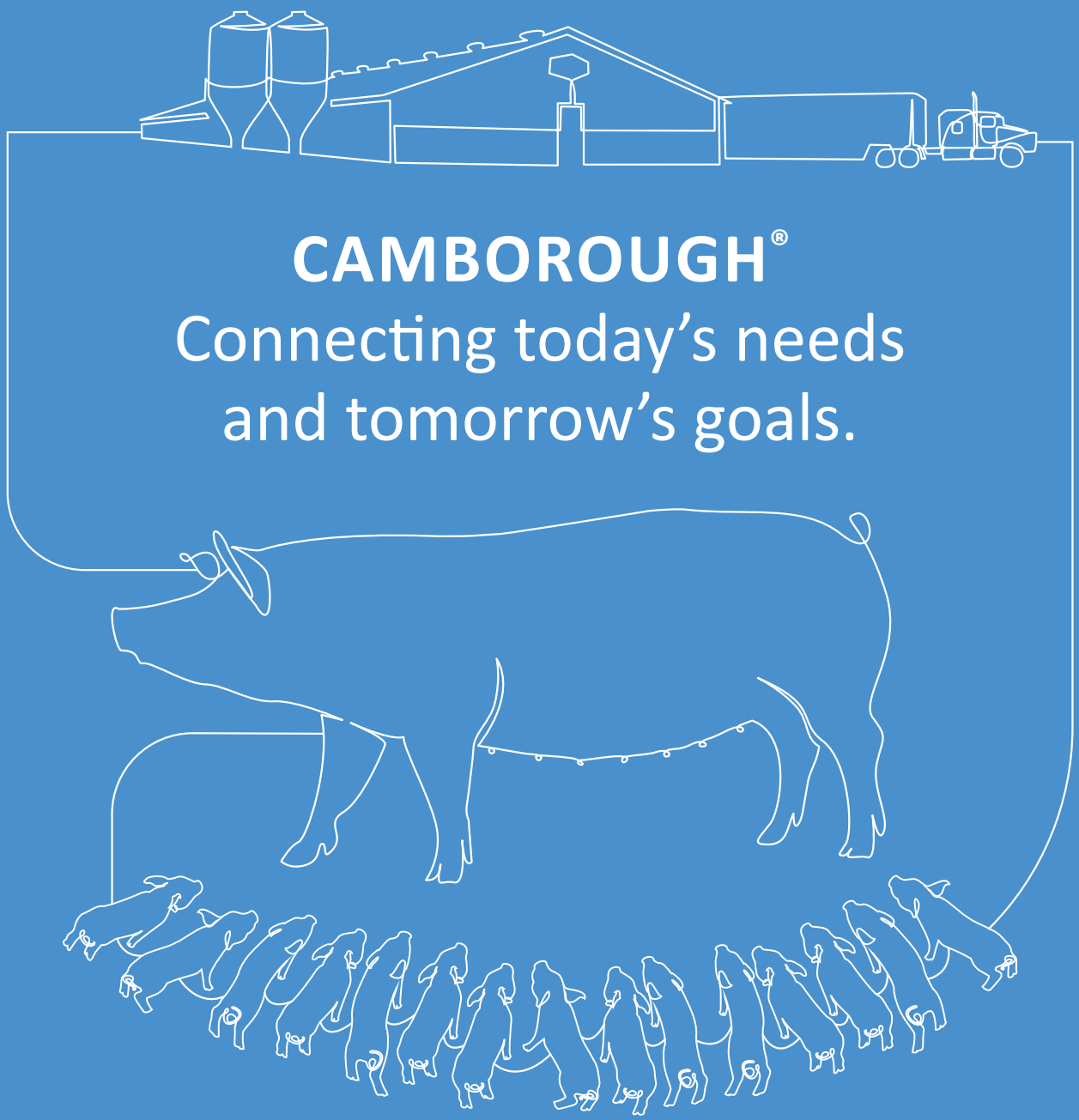

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