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PRAIRIE SWINE CENTRE

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Prairie Swine Centre Celebrates 35 Years Driving Innovation for the Canadian Pork Industry

PRAIRIE SWINE CENTRE 35 YEARS

This year marks a landmark milestone for the Prairie Swine Centre (PSC) as it celebrates its 35th anniversary since being formally established as a non-profit corporation in 1991. Over this time the Centre has evolved into one of Canada's premier swine research facilities, delivering practical, industry focused research that strengthens the financial position of pork producers while advancing animal welfare and environmental sustainability across the Saskatchewan and Canadian pork industries.

A Foundation Built on Industry Partnership

The Prairie Swine Centre story began in 1980 when the University of Saskatchewan originally built the facility for its swine research and teaching program. The original operation consisted of two 100-sow and one 50-sow farrow-to-wean units, a 240 head feeder barn, and a small office/service building. However, it was in 1991 that PSC transformed into the organization you see today.

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Evaluating the Future of the Herd

Hannah Burlet, M.Sc.
Prairie Swine Centre

Todays sows are highly prolific and managing them is essential to optimizing productivity and profit. Starting with what is known today, the presentation outlined the current challenges and questions that float around the maternity barn. These issues include:

- sow retention,
- gilt development for lifetime performance,
- modern gilt growth rate,
- lactation feed and water intake and its impact on weaning capacity and body reserve mobilization.

Currently, sow mortality is notably high between P1 and P2, with the most stated reason for removal being reproductive issues and followed by lameness. Regarding practices in gilt development to maximize lifetime performance, the presentation highlighted the importance of having at least one heat-no-service (HNS) before 190 days of age. Because gilts are growing very quickly, it is important to start boar exposure early to stimulate heat. Using internal data, it was shown that gilts bred on the second or third heat have better farrowing rates, total born, and retention to P3. Results also showed that through genetic improvement, gilts are growing faster; this is important as gilts are reaching sexual maturity earlier and there is a greater chance that animals are getting bred too heavy, resulting in poor performance and more lost sows. Gilts should be bred in the optimal window, focusing on the correct weight, age and most important HNS. Regarding the parity 3 fertility index (total pigs born and weaned at parity 3), missing weight, age and HNS results in a marked decrease in performance compared to the ideal quadrant of breeding at the preferred age with HNS.

Energy Requirements

Regarding what PIC is currently learning, results indicated there is a clear focus on peripartum metabolism and weaning capacity. Since gilts are growing faster, there is an obvious risk of her being overweight at first breeding as outlined above. Breeding heavier gilts will result in heavier sows, which will have greater metabolic maintenance needs than ideal body weight counterparts and result in greater feed costs. Many breeding companies have recently updated their recommendations on metabolizable energy (ME) or net energy (NE) provision to gestating sows and gilts. They have also created updated caliper stickers to provide more insight into animal condition, suggesting calipers should be used to track body condition around farrowing, at weaning, and again at 30 or 40 days of gestation so that the feed curve can be adjusted appropriately. Additional research indicates sows should be getting a full feed as soon as possible after farrowing, ramping from day 1 with the goal of reaching 5 kg at day 5 and maximum consumption of 8-10+ kg by day 10.

Water

The importance of water is also clear, as the production of 1 L of milk requires about 2.5 L of water intake – at the peak of milk production, a sow may drink 45-50 L of water in a day. This puts a spotlight on the importance of good water flow in the farrowing crates, and that gilts must be familiar with the style and location of the drinker before she farrows; peanut butter or any other management technique to stimulate water intake will help the gilt locate and explore the nipple if you notice that she is not drinking.

Implementation

Key gilt development practices he highlighted included early boar exposure and puberty induction (21-24 weeks of age), combination of fence exposure or having boars inside the pen, Meishan is preferable, but any other boar line can be used, it's important to maintain boars in ideal body weight, high libido and endurance. Use of pheromones as extra stimulus, however boars are required. Finally, ensuring a good environment in gilt pens to reduce the risk of injury (space allowance and enrichment). Heat-no-service practices were highlighted once again – track and record HNS age and weight in a record system and aiming for most of the breeding aiming for the most breeding on the right fertility quadrant: proper weight between 135 to 160 kg, proper age between 190 to 220 days and proper HNS protocol on second or third heat

Regarding feed management, feed intake should not be limited to control weight, and that it should be maximized before the first service. Additionally, gilts should be fed to the caliper, ensuring ideal body condition at due to farrow, this will indicate proper feeding levels throughout gestation. In preparation for farrowing, feed level should be maintained at gestation level but provided over multiple meals, water intake should be monitored to ensure that the gilts know where the nipple is and try to load farrowing crates with gilts close together for easier gilt management during farrowing and lactation. In the first five days following farrowing, aim to identify non-eaters within the first 24h, increase feed provision and intake over the first 3-5 days, and ensure there is ample water flow to facilitate milk production.

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In 1987, the University of Saskatchewan and the Saskatchewan Hog Marketing Commission partnered to review the Centre's operations. An advisory board including industry representatives from across western Canada identified two critical needs: increased emphasis on grower-finisher research and a closer collaboration with the commercial pork industry. This vision became reality in 1991 when Prairie Swine Centre was formed as a non-profit corporation with its own budget, management, Board of Directors, mandate, and expanded research facility. The early financial commitment from Saskatchewan's pork producers was critical to the establishment of PSC. Support soon followed from the federal government (Western Economic Diversification Program) and the provincial government (Agricultural Development Fund), making the industry's dream a reality.

For 35 years Prairie Swine Centre has been focusing on research that has a positive impact on Canada's pork industry.

World-Class Research Focused on Producer Sustainability

Today, the Prairie Swine Centre operates a highly productive 300-sow farrow-to-finish swine research facility. This includes a 300-sow unit that opened in 2008, which provided an opportunity to consolidate the original sow facilities, and make the move to group sow housing.

The Centre's research programs continue to specialize in four core disciplines: nutrition, engineering, ethology and contract research — over the years focusing on methods to increase the overall sustainability (economic, animal, environmental) of the

Prairie Swine Centre 2012

Prairie Swine Centre 1992

Saskatchewan and Canadian pork industries. Whether focused on speaking directly to pork producers, the pork value chain or the research community the Centre's research programs have remained relevant by addressing issues that are timely and matter to the pork industry.

The Centre's research continues to deliver measurable economic impact. Over the past 35 years, PSC research programs have contributed an average return on investment of over $3.8 per pig per year to the Saskatchewan industry. CEO Dr. Murray Pettitt estimated the annual value of research to Saskatchewan's industry at $3.5 million, based on the province's hog marketing numbers and a research adoption rate of approximately 40 to 50 percent.

A culture of applied science

A major reason the Centre has remained relevant for 35 years is its multidisciplinary approach. Nutrition, engineering, ethology, contract research, and production economics all operate together, which allows PSC to tackle complex problems that do not fit neatly into one discipline. That integrated approach is especially valuable in pork production, where performance, welfare, health, facilities, and economics are tightly linked.

The Centre's work has also adapted as the industry changes. In the early years, much of the focus was on production efficiency and cost control. As the years passed, research programs broadened to include welfare, transport, feed management, environment, energy efficiency, and housing systems. Prairie Swine Centre helped lead discussions on group sow housing conversion, transport effects, nutritional strategies, and other issues that were becoming increasingly important to producers and consumers alike.

Knowledge transfer strength

Knowledge transfer (KT) has been central to PSC's identity since 1991. A truly unique idea 35 years ago today it is central to our mission and success. The Centre recognized early on that delivering results to producers was just as important as generating them, which led to a dedicated KT program and a

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Getting Past Our Guard – Hidden Pathways for Disease

Hannah Burlet, M.Sc.
Prairie Swine Centre

In the pork industry, the thought of disease challenge is always lingering. In his presentation titled "Geeting Past Our Guard – Hidden pathways for disease transmission" Dr. Jeff Bergermann outlined some of the obscure ways that pathogens can infect a herd. As the Veterinary Services Manager for Zoetis Canada, Dr. Bergermann has extensive experience on the topic, providing a straight-forward approach to how to identify and stop disease transmission.

Dr. Bergermann started the presentation with a review of the disease triangle. For a disease event to occur, you need three points – the susceptible host, the pathogen, and a favourable environment. Jeff highlighted that in swine production, we need to manage host susceptibility (vaccination and health status), maintain an environment that is not favourable for pathogen survival, and reduce the transmission of pathogens between regions. In addition to providing a reminder of five main routes for disease transmission – aerosols, direct contact, fomites, ingestion, and vectors – and some common examples such as sorting boards (fomite) and insects (vector).

Disease transmission

Then comes the answer on how to reduce disease transmission – biosecurity. Dr. Bergermann described the practice of biosecurity as one of the main pillars of the swine industry, as it has allowed for high productivity through disease prevention and elimination. Though biosecurity practices can feel like they are just another hurdle that makes day-to-day life in the barn a little bit more difficult, they ultimately make it a lot more difficult for a pathogen to invade your barn. Reducing the number of pathways into the barn reduces the chances for a pathogen to make it to the host. The major pathways that a pathogen can enter a barn are through air, feed and water, pests, fomites such as packages, staff and visitors, and other animals.

> "Being aware of what can come into the barn and how it is likely to enter, is part of good biosecurity practices "

Aerosolized pathogens can travel through the air, between animals or even between barns; this mode of transmission is a major concern for diseases such as PRRS, influenza, PED, mycoplasma, TGE, vesicular diseases, and ASF. The main ways that transmission through the air can be prevented is allowing for physical distance between barns and utilization of air filtration. Of course, if there is any concern for zoonotic transmission, masks and other appropriate PPE should be worn.

Continuing on with oral transmission, which occurs when an animal ingests the disease-causing agent by eating, drinking, licking, or chewing. The list of diseases/pathogens that can be contracted by the oral route is extensive yet not exhaustive – colibacillosis, Cryptosporidia, Campylobacter, cysticercosis/teneniasis, Erysipelas, leptospirosis, PCV2, PED, Parvovirus, Rotavirus, Salmonella, Brachyspira, Senecavirus A, and Foot and Mouth disease, to name a few. Interventions to reduce oral transmission include water treatment, heat treatment of feed ingredients, keeping bins closed, timely removal of deads, avoidance of assembly yards, pest control, and separation of sick animals.

Describing direct contact, Jeff reminds that some diseases can be spread through body fluids other than fecal matter, or may be transferred during breeding, in utero, or during farrowing. The list of diseases that can be transmitted through direct contact include (but is not limited to) colibacillosis, Influenza, Campylobacter, PRRS, Erysipelas, leptospirosis, PCV2, ASF, Mycoplasma, PED, Parvovirus, Rotavirus, Salmonella, Brachyspira, Senecavirus A, Foot and Mouth disease, Strep suis, and Pseudorabies. Knowing the source of any animals entering the barn, artificial insemination, avoiding contact with other animals, and pest control are all ways to avoid disease via direct contact.

Regarding fomite transmission, the presentation outlined how the most touched items are often problematic due to contamination with feces or other bodily fluids. These items include feeders and drinkers, footwear, handling equipment (sorting boards, rattle paddles), housing materials, transport surfaces, water, soil, and treatment equipment. The list of disease-causing agents that can be picked up from fomites is largely the same as those listed for oral transmission and direct contact. For the control of disease transmission via fomite, the importance of cleaning and disinfection with consideration of time and temperature is essential, to limit entry into the barn and farm premises, and being mindful of movement of objects throughout the barn.

Finally, Dr. Bergermann states that transmission via vector (usually insects such as flies, mosquitos, and ticks) is not of as much concern in Canada, and that there are fewer diseases that are commonly transmitted this way. Campylobacter, colibacillosis, PCV2, PRRS, Salmonella, Seneca Virus A, Strep suis, Brachyspira, TGE, and Japanese encephalitis virus have been known to be transmitted through vectors. Though this route is not as concerning as the others discussed, good insect management is key to reducing the risk, and should be completed as part of a good biosecurity program.

Addressing what can be done on a day-to-day basis, Dr. Bergermann suggested being aware of what can come into the barn and how it is likely to enter, and maintaining good biosecurity practices to ensure that pathogens do not make it in. To end, Jeff reminded the audience that 'a pinch of prevention is worth a pound of cure', a sentiment that enforces that it is harder to eradicate an issue than it is to prevent it from arising.

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communications model built around print, personal, digital channels, and demonstration. PSC's publications, newsletters, website, producer events, and on-farm demonstrations are all part of a system designed to efficiently provide usable information in the hands of pork producers and the pork value chain.

Value to the University of Saskatchewan

For the University of Saskatchewan, the Prairie Swine Centre represents a proud partnership demonstrating the institution's commitment to applied agricultural research. The Centre enhances the university's reputation as a leader in swine research, providing hands-on research facilities for students and faculty, and attracts significant external research funding to the institution. PSC's collaborations with the College of Agriculture and Bioresources, Western College of Veterinary Medicine, College of Engineering, College of Medicine and VIDO strengthens the University of Saskatchewan's position as a center of excellence in practical, industry-relevant agricultural research and graduate student training.

Driving collaboration

Prairie Swine Centre's long term funding support from provincial producer boards (Sask Pork, Manitoba Pork, Alberta Pork), government agencies (Saskatchewan Ministry of Agriculture, Agriculture Development Fund), and university partners (College of Agriculture and Bioresources, WCVM) are essential. It allows the Centre to pursue long-term questions, hire talented people, and maintain the scientific capacity needed to address future challenges. These do not happen by accident; they are built through partnerships, persistence, and a shared commitment to progress.

People have always been central to that progress. The Centre's history includes many scientists, staff members, students, and industry advisors who contributed to its growth. As the Centre expanded, it became not only a research hub but a training environment where undergraduate and graduate students could learn how to connect science with commercial production. That human capital has been one of the Centre's significant contributions, ensuring that knowledge continues to flow into the industry through new generations of experts.

Looking Forward: Sustaining Excellence for the Next 35 Years

As Prairie Swine Centre enters its 35th year, the Centre remains true to its founding mission: providing practical solutions to practical problems for the Canadian pork value chain. Core program funding received from Saskatchewan's Agriculture Development Fund along with long-sustained base funding from Sask Pork, Alberta Pork, Manitoba Pork and the University of Saskatchewan ensure the Centre will continue our mission for the next 35 years. The Centre's ongoing relationships with University of Saskatchewan's Colleges and research faculty will continue to provide the industry highly trained personnel and contribute to the University's research programs.

Prairie Swine Centre's success is centred around a simple key concept: organize research around the needs of the industry you serve, measure success in practical terms, keep close communication with the industry and collaborate with the University of Saskatchewan Colleges. This unique place Prairie Swine Centre holds in the Canadian pork industry and research community has enabled PSC to significantly contribute to the success of all our stakeholders.

Practical enrichments for growing pigs on commercial farms

Miranda Smit, Ph.D.
Prairie Swine Centre

Martyna Lagoda, Ph.D.
Western Collage
of Veterinary Medicine

Pigs need to be able to express natural behaviours such as rooting, chewing, exploring and nest building. Most commercial barns have limited space and a relatively barren environment which limits these natural behaviours, leading to stress, abnormal behaviours and potentially compromised welfare. Providing environmental enrichment, which is the introduction of stimuli or modifications to the environment to better meet the pigs behavioural and physiological needs, can help address these issues.

Both the Canadian Pork Council's pigCARE program and the Code of Practice for the Care and Handling of Pigs require enrichment at all stages of production. While the current guidelines are broad, stricter requirements are likely in the updated Code of Practice. At the 2026 Prairie Swine Centre (PSC) Producer Meetings, Miranda Smit (PSC) and Martyna Lagoda (WCVM) shared practical enrichment strategies for growing pigs.

Species-appropriate enrichments are effective at satisfying pigs' natural motivation to root and chew. Characteristics that make enrichments effective include destructibility, malleability, chewability, edibility, rootability, odour, cleanliness, and novelty. Size and placement also matter. Pigs should be able to grip the object with their mouth, and hanging enrichments should be low enough that pigs do not need to lift their heads unnaturally. Novelty can be maintained by rotating objects or adding scents. One example is spraying enrichments with a citrus-scented solution such as Phytozen (Probiotech International Inc.).

Seeing pigs chew on or interact with a piece of enrichment does not mean pigs' behavioural needs are being met. For example, pigs may chew on chains when no other enrichment is available, but chains lack many desirable characteristics needed to satisfy pigs' behavioural needs. They are not destructible, edible or odorous and do not provide novelty, so they may not fully satisfy chewing motivation. It is like being hungry and having a craving for something sweet, but instead of finding a cookie or a muffin, all you find are dry salty crackers. You may still eat them if you are hungry, but it will not satisfy your craving for something sweet!

> "Pigs provided with toys required fewer doses of medication than pigs housed with chains."

The effectiveness of enrichment can be measured through behavioural and physiological indicators. Positive signs include lower stress levels measured through reduced blood cortisol levels, lower inflammation and medication use as indicators of better immunity, calmer social behaviour and less harmful behaviours such as tail biting as indicators of satisfied behavioural needs.

Results were presented from two research trials; one performed at a commercial farm and one at Prairie Swine Centre. The

goal was to identify practical, low-labour enrichments for growing pigs from weaning to slaughter. Three enrichment treatments were compared:

- Control group - Chains only
- Static group – a combination of commercial toys (EasyFix Luna, PorkyPlay and EasyFix Astro) which stayed in the pen throughout the growth period and were sprayed once a week with Phytozen to maintain novelty
- Renewable group – a combination of rope, cardboard and wood, replaced once a week

Miranda Smit presenting in Lethbridge, Alberta at the 2026 PSC spring producer meetings.

What did we find?

Enrichment did not affect body weight on either farm. Pig removal rates, which included pigs found dead, pigs euthanized and pigs moved to the sick pen, were similar among enrichment groups in the nursery phase. In the grow-finish phase, however, pigs housed with only chains had the highest removal rates on both farms, although differences were not statistically significant. At the commercial barn, 7.62% of pigs in the chains group were removed during grow-finish, compared to 4.65% in the toys group and 6.12% in the renewable group (P=0.18). At PSC, total (nursery + grow-finish) removal rates were 14.2% for chains, 8.3% for toys and 5.8% for renewable enrichments (P=0.10).

Medication use showed clearer differences. On both farms, pigs provided with toys required fewer doses of medication than pigs housed with chains. The renewable group was similar to the chains group on the commercial farm, and similar to the toys group on the PSC farm (Figure 1).

Carcass data from the commercial farm showed higher average carcass weight in the chains group, likely because higher pig removal created more space and less competition at the feeder for the remaining pigs. However, when total carcass weight per group was calculated, the toys group produced about 2,000 kg more carcass weight than the other treatments. Enrichment did not affect other carcass traits.

Results indicate the renewable enrichments may not have performed as well because the rope and cardboard were destroyed within a few days. Since enrichments were only

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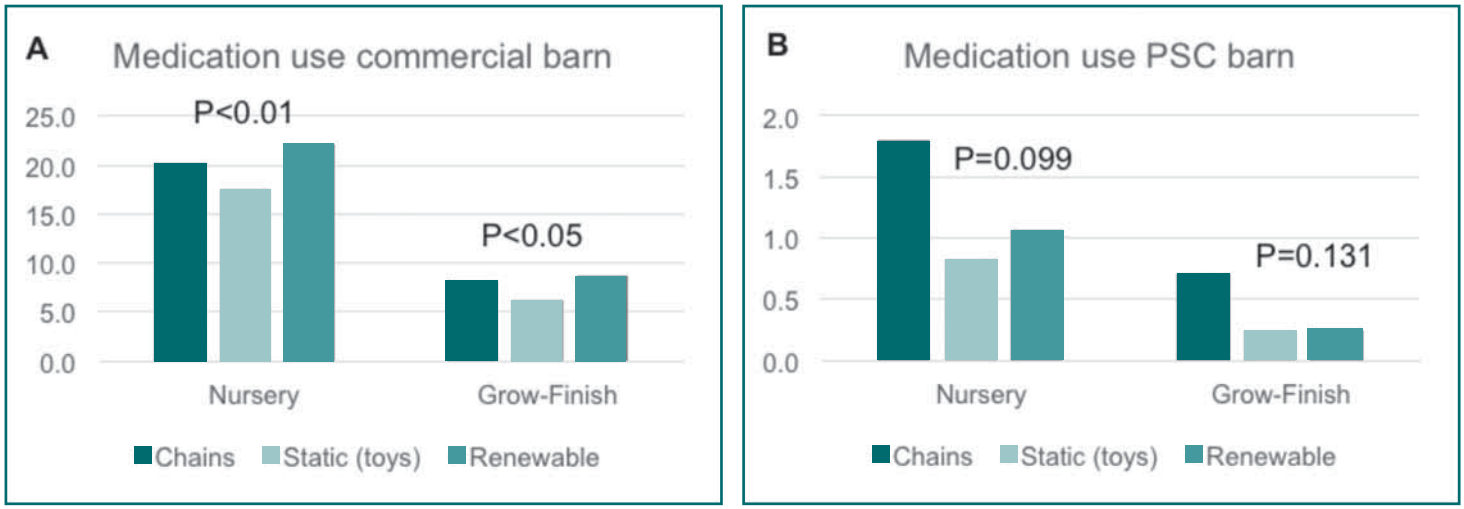
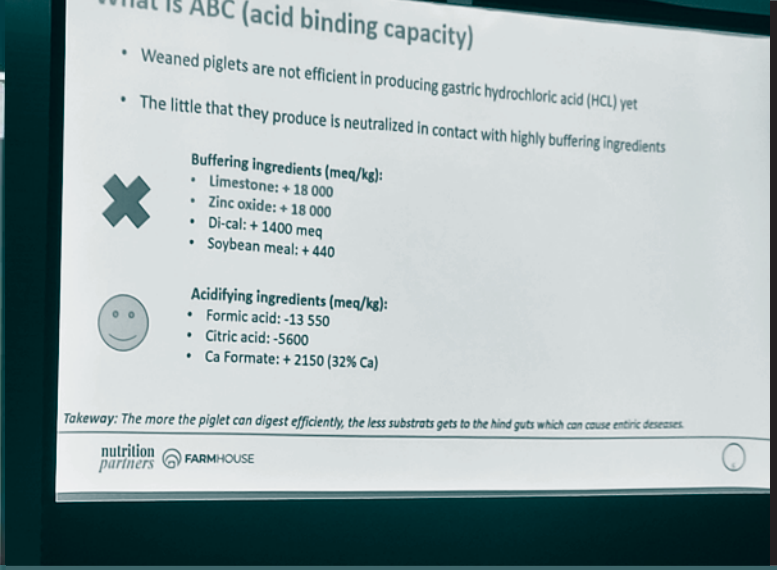


Figure 1. Medication use (# doses per pen) at the commercial barn (A) and the PSC research barn (B)



What's New in Swine Nutrition

Hannah Burlet, M.Sc.
Prairie Swine Centre

Good nutrition is a pillar of good swine production. At the 2026 Producer Meetings, Jean-Phillipe Martineau from Nutrition Partners presented on some recent research findings and provided recommendations for possible adoption into on-farm practices.

Jean-Phillipe started his presentation with nutrition approaches for nursery pigs. With new genetics, requirements are changing, with piglets needing more protein to support growth. High concentrations of crude protein (CP) can result in undigested protein substrates entering the hind gut causing disruption in the microbiome, resulting in diarrhea and reduced growth performance. The advent of synthetic amino acids can reduce the inclusion of CP in nursery diets, mitigating some of the related issues, while still meeting amino acid requirements. He emphasized that lower protein content in early nursery diets is acceptable as slightly slower growth is a fair trade for good gut health.

Having completed research trials with feed formulations to meet upcoming regulations for zinc oxide (ZO), Work is in progress that has successfully developed rations that resulted in piglets out-performing others fed a diet containing zinc. One advantage of reducing zinc concentration in rations is the increased opportunity for digestion and absorption of other comparable minerals, specifically copper (Cu). This aligns well with new CFIA allowances for a maximum of 225 ppm of copper, which has been increased 2x from previous regulations. Additional research has shown that adding the maximum allowance of CuSO4 increased ADG, creating significant payback. Jean-Phillipe noted that care must be taken in the use of CuSO4 in place of the more expensive tribasic copper chloride (TBCC), as the sulfate can have negative interactions with vitamins.

Continuing the topic of essential nutrient provision, John-Phillipe highlighted research on injectable iron. In an effort to prevent piglet anemia to in turn encourage growth, he suggested providing two doses of injectable iron – 14% of 342 piglets given one dose were considered to anemic following hemoglobin analysis, versus only 1.2% of 338 piglets given 2 doses. They also saw a significant impact on finisher end weight, leading Jean-Phillipe to call the use of affordable iron injections in the farrowing room a 'no-brainer'. At the end of this study, they saw a payback of $2.90/pig on fixed time and $1.25/pig on fixed weight, a significant increase in revenue.

> "Nutrition is ever evolving. Staying on top of new recommendations is an important part of manging performance and feed costs.."

Moving to enzymes, Jean-Phillipe described how the use of enzymes can further reduce the concentration of residual substrates in the hindgut. The enzyme phytase breaks down the anti-nutrient phytate that is found in plant matter, releasing phosphorus and increasing digestibility. This is currently the most popular enzyme out of the three discussed. He also touched on xylanase; which breaks down complex polysaccharides to increase energy release, and protease; which breaks down polypeptides, improves protein digestibility and reduces the concentration of anti-nutritional factors.

Research on enzymes has shown a possible savings of $0.25/pig when enzymes were included in the ration. Jean-Phillipe also suggested the use of salinomycin towards the end of the nursery stage (12-30kg), as its activity as ionophore antibiotic and coccidiostat promotes growth, improves feed efficiency, and can help control some intestinal infections. A positive economic benefit of $0.75/pig when providing salinomycin at 25 ppm. Consistent genetic improvements ensure nutritionists must stay on top of ensuring Pigs are being provided the necessary nutrients. In a study focusing on increased standardized ileal digestible (SID) lysine in rations during the late nursery stage, researchers found that while feeding high SID lysine content did cost more it resulted in a notable payback as well as reducing the incidence of ear necrosis, which can be attributed to reduced ear biting as the pigs were satiated.

Jean-Phillipe also covered some aspects of sow nutrition; explaining a study completed on two farms by Demeter Veterinary Services in Ontario (McClellan et al., 2025), noting that two-8mL injections of iron about 48h before farrowing resulted in a decrease in farrowing duration and fewer stillborns. This is of great interest as before the study commenced about 60% of sows were anemic, and anemic sows had lower caliper scores, had more stillborns, and were removed at a rate greater than their non-anemic counterparts. He also discussed the use of oxytocin peri-vulva for sows bred with post-cervical insemination; there was some improvement (about 1%) in both conception rate and farrowing rate when compared to a control group. Though the difference was slight, he still suggests this intervention as 1% makes a big difference over time, especially at a low treatment cost of an estimated $0.20/sow/year. Peri-vulva administration of oxytocin is suggested above mixing oxytocin into semen bottles as there is less chance for contamination or degradation of semen quality.

The use of a pre-farrow top dress allows for greater support of farrowing sows by provision of extra energy, specific fibres, laxatives, and calcium for muscle contractions. Research compared a standard feed to standard feed with a pre-farrow top dress – sows provided the pre-farrow top up had fewer stillborns. Comparing the cost of the diet to the profit from more piglets being weaned, Jean-Phillipe explained that the payback is well worth it, especially for older sows. He also noted that more research into the interaction between iron injection and top dress is needed to understand if the treatments work well together, or if only one is needed.

Moving to finisher nutrition, Jean-Phillipe focused on research highlighting non-starch polysaccharide (NSP) enzyme use, like what was done for nursery diets. He explained that use of enzymes could maintain performance by increasing the available net energy (NE) in the diet while reducing feed costs; ultimately, a net savings of $1.25-$2.20/per pig was seen. He suggested exploring the use of enzymes, specifically during summer months as… Further, he explained how new strains of hybrid rye can be used in finisher diets, with inclusion as high as 50% being acceptable without resulting in any loss of performance. He noted that rye inclusion would generally never be higher than 7-10%, but it is good to know that inclusion can be increased if necessary. Regarding iodine value (IV), Jean-Phillipe noted that some plants require a low IV product (IVP) for quality assurance. Low IVP pork is desirable as the belly fat is firmer and whiter, making it more desirable to consumers in domestic and foreign markets.

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replaced once per week, pigs were left with only chains for part of the week. This inconsistency may have caused frustration. Replacing materials more often may improve results.

Handling ease was also evaluated. Researchers measured the time needed to move pigs between rooms and administer Improvest injections. Enrichment did not affect these measures. At PSC, pigs were also given a handleability score during weighing: 1 = no issue getting into the scale, 2 = pig hesitates before entering the scale, 3 = pig tries to escape or refuses to enter the scale. The renewable group had the poorest handleability scores during the grower and finisher phases. The researchers suggested this may have been linked to frustration caused by switching from highly desirable rope in the nursery to less desirable wood later in life.

Skin lesion data from PSC supported this explanation, as there were more pigs with skin lesions in the renewable group than the other two groups, but only in the finisher phase. Tail lesion scores and pen mate ear and tail manipulation followed a similar pattern. During the nursery phase, renewable enrichments resulted in the fewest lesions and manipulation behaviours, suggesting rope effectively satisfied chewing motivation. However, scores worsened during the grower phase when wood replaced rope. No differences in skin or tail lesions were observed among enrichment groups at the commercial farm.

What is the optimal amount of enrichment?

A common question is how many pigs can share one enrichment. This has not been scientifically defined and likely depends on the enrichment type and how many pigs can interact with it at once. The commercial farm used one enrichment per 24 pigs, while PSC used one per nine pigs. Both farms saw improvements in medication use and pig removal compared to chains alone. However, only PSC showed improvements in skin, ear and tail lesions. This suggests that a ratio closer to one enrichment per nine pigs may be more effective for reducing harmful behaviours.

In conclusion, pigs that only had chains as enrichment had the highest removal rates and greater medication use than the toys group. Static toys appeared to perform better than renewable enrichments because they remained consistently available and attractive, while rope and cardboard disappeared quickly, and the wood was not as desirable. The results highlight the importance of providing enrichments that are engaging, durable and consistently accessible throughout the pigs' lives.
For enrichment ideas, you can check out the 'Quality of Life' handbook available at the Prairie Swine Centre website at https://www.prairieswine.com/2025/01/22/quality-of-life-handbook-the-use-of-environmental-enrichment/.

What do we know about creep feeding and piglet performance

Hannah Burlet, M.Sc.
Prairie Swine Centre

Creep feeding is a practice that is widely adopted across the Canadian pork industry. In his presentations from the 2026 PSC Producer Meetings, Dr. Atta Agyekum highlighted how and why the provision of creep feed can be advantageous, where variations in on-farm and in research settings arise, and what findings have been generated through research on the subject at PSC.

In a poll of the participants, most attendees stated that they have used creep feed in some form. The main reason in providing creep feed is a desire to familiarize the piglets to a pelleted diet; another major factor in providing creep feed was the need to feed large litters. In discussion with the audience, producers said they were able to measure the impact of creep feeding by how well the piglets transitioned once they were weaned, and of course by piglet growth.

With modern genetics, it is common most sows are producing and nursing large litters. This has increased suckling demand during the lactation period, creating more competition between littermates. These challenges can lead to issues with piglet growth and result in a lack of uniformity of piglet size throughout lactation and at weaning. Providing creep feed can also be advantageous if you are weaning later (26-28 days), as larger piglets will continue to demand more milk as the sow begins to dry off. These issues are key points of focus in the drive for additional creep feeding research, as well as what drives the practice of creep feeding in barns.

Why we creep feed

Dr. Agyekum outlined the four main reasons for creep feeding as follows, with no particular order of importance:

- Large litters or low milk supply;
- Helping small or compromised piglets;
- Late-weaning systems; and
- Familiarization with solid feed before weaning.

> "Creep feed use seems to have a positive impact on maintaining sow body condition."

He also highlighted that different goals and motivations will lead to different results, and each approach to creep feeding may look different.

Regarding published literature on research projects, there were three main factors attributed to the variation of results surrounding creep feeding. The first was the most obvious – individual piglet performance. This factor is controlled by genetics, individual growth capacity, litter size, and other hard-to-control environmental factors. The second factor was the application of creep feed, including the duration and timing of creep feeding. Third was variation in the actual intake of the feed provided – oftentimes, piglets will just play with the feed instead of consuming it, pushing it out of the feeder and into the pit; while this is good enrichment, it means that the feed is disappearing, but not supporting piglet growth (feed 'intake' increases, but daily gain is not impacted as expected). Some studies will use a fixed mat under the creep feed dish, but ultimately intake is the most variable factor in scientific studies on creep feeding.

Timing

Continuing major findings from the literature, Atta highlights that it has been concluded that creep feed should be offered a minimum of 14 days before weaning, allowing ample time for exploration and acclimatization to the feed. Another major factor is feed quality – the feed should be refreshed as often as possible, and feeders kept clean and dry; this can be tough to

Atta Agyekum presenting in Red Deer at the 2026 PSC spring producer meetings.

maintain on a commercial farm because of the labour necessary. Start with small amounts of feed – as low as 100 grams – to ensure that feed is not wasted, and increasing the amount provided as the piglets become familiar and start consuming it.

Form of feed

Some studies have shown that piglets prefer to interact with and consume larger pellets, a finding which has been confirmed with him by a producer practicing this approach. Related to physical form is formulation, results indicate a simpler approach using ingredients that encourage intake and are easily digestible. He also highlights that recent research has put emphasis on characteristics other than growth performance, such as gut development and resilience, which can set up a piglet for success in the nursery.

Atta took time to outline some research that has been done at the PSC barn in the past few years, as well as discussing some projects he has on the go. First, he discussed a study on feed complexity on pre-weaning performance and nursery performance. In this study, there were 4 treatment groups: control (no creep), simple creep (sow lactation diet), complex creep (nursery diet), and both (simple and complex provided in separate feeders). There was no significant difference in feed consumption between any of the groups, but piglets provided with simple creep had slightly better growth in the second week that the feed was available. After weaning, piglets from the control group grew slower than the other groups, but there was no difference in weight upon nursery exit.

The second study discussed highlighted pellet size, addressing piglet growth performance as well as blood iron status. Since larger pellets tend to use more fibrous ingredients that generally contain more iron, it was hypothesized that these pellets could help reduce the incidence of anemia. Again, there were 4 treatment groups: control (no creep), standard creep, large creep, and mixed standard and large creep. Treatment group did not have any influence on iron status, and there was no preference towards the larger pellets.

Regarding ongoing projects, Atta highlighted a project being completed by his Ph.D. student Isis Lima. This project aims to determine how piglets can be encouraged to eat more, with focus on how creep feeding benefits different birth weight categories of piglets. The pigs used in these studies will be tracked from the teat to market weight, and factors such as gut development and immune status will also be assessed. The first major study is investigating the influence of different creep additives on low (less than 1.5kg) and normal (1.5 kg or greater) birth weight piglets. The three treatments are a control diet (nursery starter), a prebiotic diet (nursery plus a canola based prebiotic compound) and a prebiotic diet plus an oregano-based additive. Based on preliminary results, there was no difference in feed intake between the diets, but only about 40% of the piglets in each litter were consuming the creep. In this study, the main driver in pig weight exiting the nursery was found to be birth weight, but low birth weight piglets from litters given prebiotic creep performed well, indicating adding the prebiotic to creep may benefit low-birth littermates . This has highlighted that more research into targeted creep feeding strategies is necessary. Atta also noted that blood, intestinal tissue and digesta samples were collected to assess gut health and immune status, and that those findings as well as findings on piglet performance through the finishing phase will be presented soon.

In the end, Atta emphasized that creep feeding is beneficial for larger litters or if a sow's milk supply is dwindling; that a simple and inexpensive diet such as lactation diet is sufficient; that providing creep feed for at least 14 days before weaning is suggested; and that creep feeding may be beneficial for factors beyond piglet growth performance such as gut development, resilience, and sow recovery.

For more information on creep feeding, visit www.PrairieSwine.com to reference the Creep Feeding Handbook and other reports on studies from PSC.

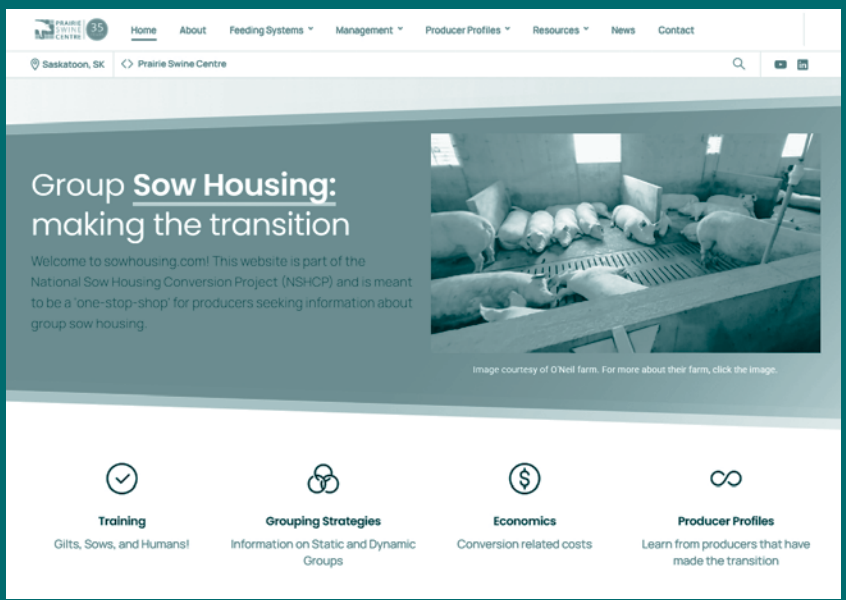
Personal Profile

Hannah Burlet, MSc.

Originally from Calgary, Alberta, Hannah moved to Saskatoon in 2018 to pursue a Bachelor of Science in Animal Bioscience through the College of Agriculture and Bioresources at the University of Saskatachewan. During her undergraduate studies, she completed a summer research project at the Western College of Veterinary Medicine, working with Dr. Matheus Costa to study a possible virulence factor related to Brachyspira hyodysenteriae, a causative agent of swine dysentery. This opened the door to her Master's research project, completed under the supervision of Dr. Costa, and through collaboration with Dr. Danyel Beuno Dalto at Agriculture and Agrifood Canada's Sherbrooke Research and Development Centre (AAFC) and the Centre de développement du porc du Québec inc. (CDPQ). This project focussed on how gestational vitamin supplementation may influence sow performance, piglet performance, and the passage of maternal immunity. Through her research experiences, Hannah has developed a diverse background in microbiology and immunology, diseases of swine, porcine physiology, and animal management. She brings a unique perspective on how nutrition, disease, and welfare intersect, and is passionate about supporting animal health through the integration of these factors.

Hannah currently acts as a Knowledge Transfer Assistant at Prairie Swine Centre, working to develop materials to disseminate research results from the barn and support best practices throughout industry. She has also recently entered into the role of Ag Education Coordinator at Sask Pork, splitting her time between roles. At Sask Pork, she translates her knowledge of swine production for public communication and is involved in the planning and coordination of events. In her free time, Hannah enjoys perfecting recipes to share with family and friends, and spending time exploring around Saskatchewan with her dog Birdie and partner Matt.

2029 is right around the corner. Looking to make the conversion?



Coming Events

Red Deer Swine Technology Workshop
October 7
Red Deer, Alberta

Alberta Livestock Expo
October 14
Lethbridge, Alberta

Sask Pork Symposium
November 3 – November 4
Saskatoon, Saskatchewan

Alberta Pork AGM
November 19
Calgary, Alberta

Prairie Livestock Expo Winnipeg
December 16
Winnipeg, Manitoba

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