

SIP Offers Roadmap for Success

By Geoff Geddes for Swine Innovation Porc | April 22, 2021



SIP's Chair Stewart Cressman moderates a SIP-organized health session in Banff, Alberta in 2020. Photo: SIP

Progress without research is like hiking without a compass: you may keep moving, but likely in the wrong direction. In celebrating 10 years as Canada's leading facilitator of pig research, Swine Innovation Porc (SIP) remains on the cutting edge of the ever-changing pork industry. By supporting research to enhance profitability and sustainability, the non-profit entity - whose corporation members include the Canadian Pork Council and eight provincial pork producer organizations - acts as a guide to keep producers and industry on the path to success.

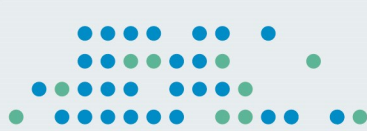
Since 2010, SIP has facilitated three national swine research and development programs that encompass over 50 projects, more than 100 researchers and \$51 million of investment in the swine sector.

While a number of factors led to the formation of SIP, it was the power of collaboration that really drove its development.

In the beginning...

"Prior to SIP, the provinces had worked jointly on a national trucking project to evaluate pigs in transport," said Stewart Cressman, chair of SIP. "In doing so, we realized we had similar priorities, so how did it make sense that we each did research separately? It was clear that we could save money and get better results by combining our resources."





As chair of Ontario Pork's research committee at the time, Cressman was approached by the head of a Quebec research group who felt swine was not receiving research dollars from the federal government at the same rate as other commodities. Ontario Pork was asked to join them in approaching Agriculture and Agri-Food Canada (AAFC) about boosting funds for swine research.

Also at this time, Cressman was invited to join the Canadian Swine Health Board (CSHB).

"The CSHB was the start of regular collaboration among swine industry representatives from around the country," said Cressman. "One of our guiding principles was 'national standards with regional implementation'. We could look at national solutions, but implementation had to occur locally in light of significant regional differences across Canada. As an organization, we benefited from a diverse membership that included veterinarians, processors and representatives from AAFC, among others, so we had the full supply chain at the table."



SIP's Chair Stewart Cressman (seated right) is interviewed by agricultural broadcaster Bruce Cochrane. Photo: SIP

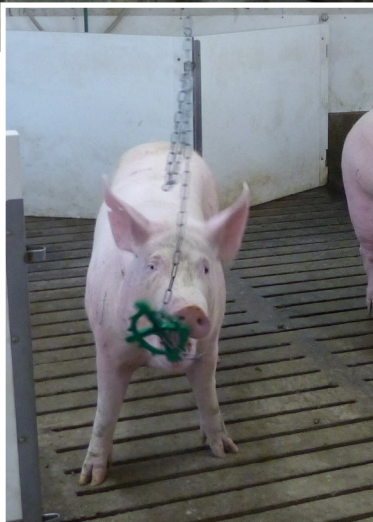
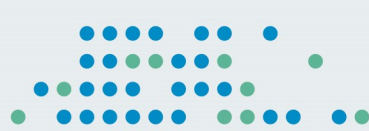
In the midst of greater activity in the swine research sphere, the federal government was working on a national research "cluster" program for the agricultural sector, and SIP became one of those clusters for the swine industry.

"The government was looking at research as being demand driven, where industry would determine their highest priorities and then cost share with the government to carry out the research required," said Cressman.

That cost share arrangement was usually 25% from industry and 75% from government. In return for contributing the lion's share of the funds, the government was quite prescriptive of what could and could not be done from a research standpoint.

"We would come to them with a Christmas list of the funding we wanted, and they decided how big the Christmas 'gift' would be," said Cressman. "In preparation, we circulated a set of priorities to the research community every five years and asked for a three-page proposal or letter of intent. From there, after a stringent scientific review and industry input, we made recommendations to the government on which projects to support."

Thus SIP was initiated as a cluster management board that administers funds received from the federal government and matching dollars from industry. They have now embarked on a third cluster program and have developed considerable expertise in coordinating research programs and bringing researchers together with industry.



Sows interacting with enrichment objects, a focus of several projects/activities supported by SIP.

*Photo credits:
Above: Prairie Swine Centre.
Left: John Van Engelen*

Smoother sailing

“The current cluster program is working very smoothly compared to the first iteration, and I credit AAFC for listening to our feedback and making improvements to the cluster program,” said Cressman.

To continue with this spirit of collaboration, SIP introduced regular meetings among researchers from different institutions to discuss their findings and any modifications in analysis that might be helpful.

“We see senior researchers mentoring the rookies at these meetings, and new researchers bringing fresh ideas to the table,” said Cressman. “The result was a good exchange of ideas and an increased level of cooperation among swine researchers across Canada, which has been very valuable to the industry.”

Also of value to the pork sector is the aspect of knowledge transfer, something SIP has stressed from day one.

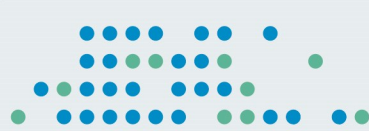
“We can’t assume that national research efforts meet every individual need of each province, but we hope we can provide results that our partners, researchers and provincial pork organizations will disseminate to their stakeholders for the benefit of all,” said Cressman.

To date, those benefits have flowed from a wide range of projects representing every aspect of the pork industry. Below are a few examples of some practical outcomes from SIP-supported projects:

Sow enrichment

Enrichment has been an ever-increasing focus for the pork sector since the revised Code of Practice for the Care and Handling of Pigs was released. Since most of the research focused on grower-finisher pigs, however, sows were the subject of a study by Dr. Jennifer Brown, research scientist- ethology with the Prairie Swine Centre. The move to group housing and the restricted diet for sows can often lead to greater aggression, making enrichment more important than ever.

The study employed four forms of enrichment in a free access feeding system: no enrichment; constant enrichment with three wood pieces on a chain; rotating enrichment every 3-4 days among rope, straw and wood on a chain; and the same rotation but with a sound stimulus added



during each change that has been thought to increase the value of enrichment.

Sows were rotated through the four options, and just the presence of enrichment was found to increase their standing time, meaning they were more active. This was important, as more activity enhances bone strength and muscle tone and produces fitter sows at farrowing.

This study added value for producers by demonstrating the impact of enrichment on sows, the importance of rotating that enrichment to maintain engagement, and the fact that effective enrichment can take many forms.

Phase feeding

Given that a good chunk of producer revenue is consumed by feed, SIP has made reducing feed costs a priority topic for its research efforts. In one project on parity-segregated phase feeding, the team looked at limiting overfeeding of gestating sows while still meeting their needs for amino acids and energy. While the standard approach in the pork industry is to give gestating sows one diet to follow throughout gestation, this project offered them two separate diets in recognition that sows have different nutritional needs at various stages of gestation and parity.

The result was a saving of \$5.69/sow/year with parity-segregated phase feeding over a conventional program. Since feed prices are prone to fluctuations, the project team used financial model-



*Two feed lines used in phase feeding in an on-farm demonstration activity supported by SIP.
Photos: John Van Engelen*



ling to gauge the impact of changing corn and soybean meal prices over a five-year period. When the numbers were crunched, phase feeding again came out on top, with an annual savings of \$1.66 to \$10.06 per sow versus conventional feeding. For the producer feeding 10,000 sows every year, those numbers should offer much food for thought.

Truck washing

As PEDv and other diseases spark a greater interest in biosecurity, a prime target for SIP research has been the trucking sector, where the risk of disease transfer is ever present. To address this challenge, a comprehensive study was undertaken, led by Dr. Terry Fonstad, P.Eng, P.Ag., associate dean - research and partnerships for the College of Engineering at the University of Saskatchewan.

One of the study's key findings was that while dry heating of pathogens for 15 minutes at 70°C could inactivate most of them, greater intensity was needed to address PEDv. As a result, researchers recommended heating trucks to 75°C for 20 minutes in every section of the trailer.

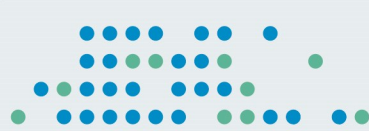
The project also worked on developing an automated cleaning system to prevent workers having to enter trailers to clean them, or at least limit their time in the trailer. The result was a manually operated system that allows cleaning of each level of a trailer by one person with 250 litres of water and a high-volume vacuum.

As well, Dr. Fonstad's team conducted a trailer survey that led to recommendations for improving biosecurity and comfort.

Work on the survey, trailer heating and the cleaning system is continuing. At a time when disease threats are top of mind, this project will mean fewer losses for producers and greater welfare for their animals; truly a win-win.



*Equipment used in the truck washing project.
Photos: Prairie Agricultural Machinery Institute*



Detecting African Swine Fever

As scary as PED is for producers, another acronym could pose an even greater threat. In light of its highly contagious nature and mortality rate of almost 100%, African Swine Fever (ASF) has been deemed a global animal health priority. While it can seriously impact the pork sector on both a local and international level, there is currently no vaccine or effective treatment for the disease. This has made ASF a top priority for research, including a current study led by Dr. Aruna Ambagala, research scientist, National Centre for Foreign Animal Disease (NCFAD) in Winnipeg.

Given the significant amount of pork that Canada produces, the arrival of ASF would cost billions of dollars and have a devastating impact on farmers and other workers affected by the trade restrictions that accompany the virus. To help minimize the damage, Canada would engage in zoning and/or compartmentalization, along with active surveillance, which would allow pork exports to continue from unaffected areas of the country.

Unfortunately, active surveillance based on individual pig sampling is labor-intensive and costly, making it impractical to apply on a large scale. In seeking a viable alternative, researchers are turning to pen-based oral fluid (rope) testing, which is non-invasive and much less expensive in terms of financial and human resources. Over the course of the study, they hope to determine the feasibility of using oral fluid samples for active surveillance to claim/maintain ASF free areas during zoning, as well as validating oral fluid field testing in an ASF-affected country.

Though a cure for ASF may still be elusive, an affordable means to keep trade flowing for producers is the next best thing.



Above left: Group sow housing workshop held in Winnipeg in 2018 for a Swine Cluster 2 project.

Right: Kiosk at the Banff Pork Seminar.
Photos: SIP



Above right: Researchers and industry stakeholders meet during a SIP organized networking meeting for a Swine Cluster 2 project.

Photo: SIP.



Building blocks


While these projects represent important progress for the swine sector, SIP is committed to building on its foundation.

“We continue to develop as an organization, enhancing our communication and trying to expand the sources of funding we can tap to conduct swine research,” said Cressman.

Adapting to the current financial climate also means making the best possible decisions when it comes to future research.

“You never arrive at a point where everything has been addressed, but hopefully we have an attitude of continuous improvement,” said Cressman. “Our ask for cluster three was \$26 million, and our current program is worth about \$18 million. For that money, we have letters of intent amounting to \$80 million for prospective projects, so we must determine priorities and identify which projects will have the greatest impact on the industry. In some cases, you also have to do some ‘blue sky’ research. I would say we aim for 75% - 80% of projects where the outcomes can be applied now, and about 25% that may bear fruit further down the road. We must do what is needed to develop and maintain capacity in certain areas, while recognizing that the ‘itch of the day’ might not be the itch 10 years from now.”

Through all the planning and prioritizing, the common thread may come down to a simple question: So what?

“We will always be guided by how a project can be implemented at the farm level and whether it will make a meaningful difference,” said Cressman. “It’s about ensuring that the money being spent will advance the science and contribute to answers. At the end of the day, we hope to have findings that can be shared for the benefit of all, while having the greatest possible impact on producers.” 

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Please do not hesitate to contact us at Swine Innovation Porc if you have any questions about our activities or supported projects. [You can find our contact information on our website by clicking here.](#)

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