

Livestock

CAAIN-funded 'Health Guardian' tracks farm traffic

Research revealed the average swine operation received between nine and 10 'visitors' a day

The Canadian Agri-Food Automation and Intelligence Network (CAAIN) mandate from Innovation, Science and Economic Development Canada is to fund technological solutions to the most significant opportunities and challenges facing the nation's agri-food producers and primary processors.

That means supporting promising efforts with the potential to provide economic or environmental value. Thus far, 129 collaborations have been nurtured and \$31M invested in 24 projects with a combined total value exceeding \$90M.

One of them is Farm Health Guardian (FHG), whose CEO Rob Hannam grew up on a family farm now operated by his brother. While he has always loved agriculture, Rob realized early on that he was less suited to farming than he was to helping producers.

Thirty years later, the lifelong learner has enjoyed an extraordinary, diverse ag-sector career that has seen him do everything from selling seed and crop inputs to running

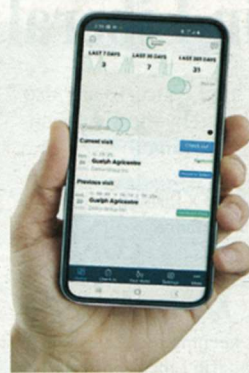
Synthesis Agri-Food Network, the highly successful agricultural communications and marketing firm he launched in 2009.

Interestingly, it was a Synthesis consulting assignment supporting an animal health initiative that spurred his interest in disease control and was the genesis of Digitizing Fomite Contact Tracing to Mitigate Pathogen Spread in Agriculture, the FHG project CAAIN is funding.

"Our consultations across Canada with a broad range of stakeholders were a tremendous learning opportunity that opened my eyes to the serious risks associated with livestock disease transmission."

"We're talking about an issue that can devastate not just individual farms but entire industries. Just look at the current impact of avian influenza on the price of turkeys, chickens, and eggs in the US. This is what is known as a 'wicked problem.'"

Rob's interest in animal health lingered, and in the fall of 2020, he didn't hesitate when the FHG opportunity presented itself. "There's an urgent need for technology that can mitigate the risks of disease transmission between agricultural facilities. This is a matter of economic, environmental, and



A new device evaluates disease transfer risk with GPS- or local area network (LoRa)-enabled technologies suitable for tracking the movement of feed and livestock vehicles

social sustainability.

Consider that the detection of Porcine Reproductive and Respiratory Syndrome, or PRRS, in a swine herd can decrease the operation's profitability by as much as 47 per cent."

FHG's reason for being is to find a technological solution that will nip outbreaks in the bud, reducing stress among farm operators and employees, as well as the veterinarians who support them. One of the factors that makes this so

important is how easily inadvertent disease transmission can occur.

The FHG team conducted research that revealed the average swine operation received between nine and 10 'visitors' a day. That can include workers, livestock trucks, and feed deliveries, among others.

Something as innocuous as a delivery person's shoe touching contaminated material can turn the footwear into a fomite - the means of disease transmission. That, in turn, can spell disaster for other stops on the individual's route.

But according to veterinarians, the most common way a pathogen of this kind spreads is direct contact between animals. And animals are moved from farm to farm by trucks, so the focus of the FHG project is to evaluate in real-world conditions GPS- or local area network (LoRa)-enabled technologies suitable for tracking the movement of feed and livestock vehicles.

CAAIN's support has allowed Rob's team to run pilot projects in Manitoba and Quebec, as well as on 26 Saskatchewan farms, where the trials launched and have, therefore, yielded the most results to date. FHG installed the trackers on 10 trucks that serviced the 26 farms, and recorded their visits

only after repeated tweaking, all of which only emphasizes the underlying complexity of tracing and stopping the transmission of animal pathogens.



What worked in one region or on one farm might fail elsewhere. But perseverance pays off, and Rob's team expects that in the summer of 2023, they will be able to offer a fully functioning system at a cost of roughly \$75 per farm per month.

Rob concludes with the following observation. "The purpose of this project is to help mitigate the risk of livestock disease transmission. And we feel we've succeeded - or are about to. But that's still reacting to an existing situation. What's even more exciting is the possibility of generating enough data that down the road, patterns will emerge that will allow us to predict and prevent outbreaks.

Then we'll be able to help farmers get ahead of the curve with predictive analytics and implement true proactive biosecurity."

CAAIN Contribution \$136,545

Total Project Value \$393,794



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Lactalis buys Marie Morin

Lactalis is buying Marie Morin, a Quebec company that makes desserts.

Its feature products are premium mousse and cheesecakes.

Marie Morin Canada has a production facility in Saint-Bruno-de-Montarville, Que. and has 52 employees.

Lactalis Canada has more than 4,000 employees and 30 operating sites including 19 manufacturing facilities in Quebec, Ontario, Manitoba, Alberta and British Columbia.

to the facilities between April and September 2022. This provided baseline movement data that was then used to simulate various disease-related scenarios.

Trace-back information that would previously have taken hours or days to generate - making it difficult, if not impossible, to halt the spread of an illness - is now available in minutes. Veterinarians often manage outbreaks, and those who have been exposed to the technology say it is a game-changer that will allow them to get ahead of an emergent situation rather than playing catch-up.

Two-and-a-half years into its existence, FHG has researched the effectiveness of various tracking solutions. Some were ineffective and others worked