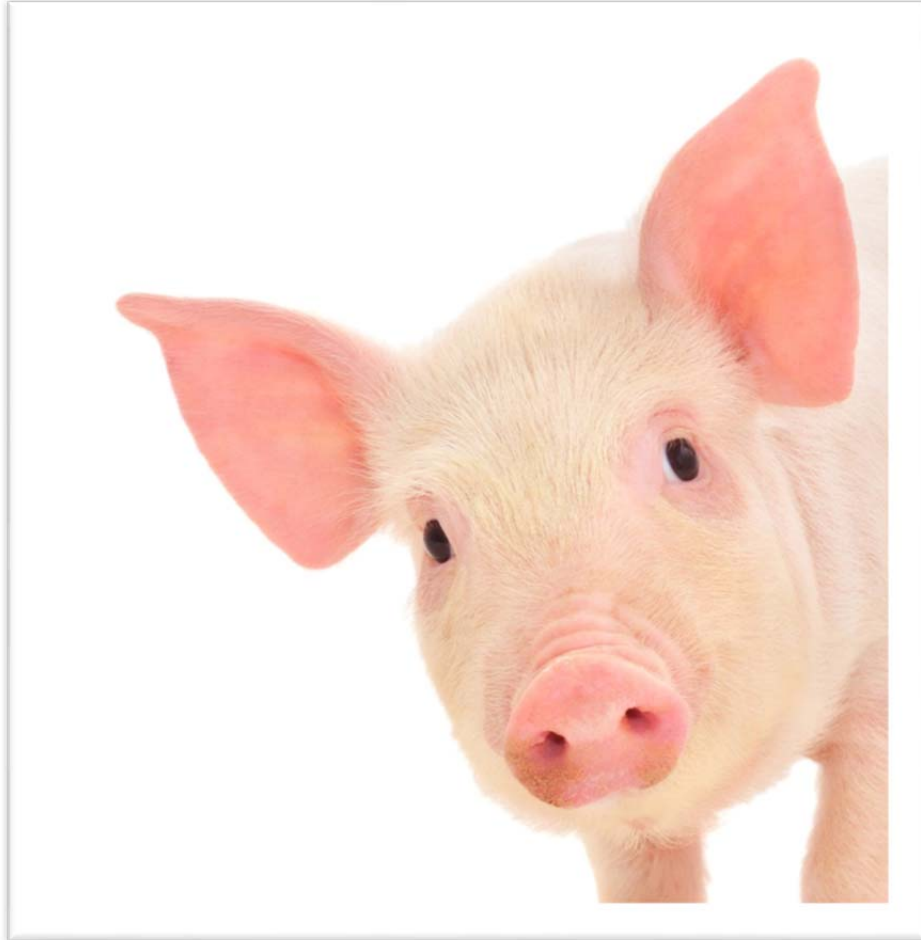


Canadian Swine Research Lead User Project

Final Report

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Helen Thoday, Prairie Swine Centre
Collaborators:
Ken Engele, Prairie Swine Centre
Marie Vachon, Swine Innovation Porc



Swine Innovation Porc

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Canada



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1. Project Background and Objectives

1.1. Background

By undertaking this project we increased the speed in which technology is incorporated into the commercial swine industry. Through incorporating lead-users it directly encouraged other producers, as lead-users were able to speak of their experience with these technologies to others within the pork industry. Canada remains as one of the most competitive places in the world to produce pork, however in order to maintain or increase this advantage we need to be on the leading edge of adopting new technologies in the industry.

The project was built upon research projects funded through the Canadian Swine Research and Development Cluster (CSRDC). The Lead-User project identified CSRDC funded projects with short term results and developed a strategy to incorporate these projects on commercial pork operations throughout Canada. These demonstration farms became lead-user farms for new technologies, increasing the level of comfort associated with these technologies, and speed the adoption by pork producers. The Lead-User project was a national effort involving the collaboration of 10 organizations and Universities and 11 commercial pork producers striving to enhance the competitive position of the Canadian pork industry.

Five lead-user projects were identified within the CSRDC projects. Once projects were identified for lead user application, requests for potential lead user farms were advertised and approached for involvement regarding the adoption of new technologies. Lead-user farms have been identified in Ontario, Quebec, Manitoba, Saskatchewan, and Alberta, and in some cases have been approached regarding their potential involvement in the project. In selecting Lead-User farms they have agreed to financial commitment, an open door for industry demonstrations, and a spokesperson for the technology. Technology transfer activities were specific for each separate project. Other technology activities ranged from workshops, publications and on-farm demonstrations to communicate the results of the project.

1.2. Objectives

The objectives of the lead-user program were to build upon an existing research program, through speeding the rate of adoption of new technologies. This provided immediate feedback to researchers, engaging researchers in achieving successful early adoption by lead users. Adoption of new technologies was designed to enhance the competitiveness and differentiation of the pork industry throughout Canada.

2. Results

The Canadian swine research lead user project included the 5 sub-projects:

- Development of novel feeding strategies
- Assessing sow lameness, longevity and temperament

- Water sprinkling during transport
- Non penetrating captive bolt for euthanasia
- Development of an innovative air filtration system

A summary of the activities and outcomes carried out in each sub-project are presented below.

2.1. Development of novel feeding strategies

Results show potential savings of up to \$2/hog by incorporating alternative ingredients and \$2/hog by developing a less complex nursery diet program. Preliminary results on precision feeding show a reduction in feeding costs of \$8/hog by feeding pigs for individual requirements. In line with these themes, a workshop on nutrition was held in Ontario to bring together nutritionists and producers to gain further information from the researchers who conducted research on these topics. A simultaneous webcast was available across Canada.

Presentations and video recordings of the workshop along with e-newsletters, in French and in English, and other communication material can be seen at <http://www.prairieswine.com/feed-efficiency-webinars/>

The workshop attracted 20 attending participants and 100 registered for the webcast. 90% of the attendees would recommend this session to other swine professionals.

2.2. Assessing sow lameness, longevity and temperament

A series of four workshops dedicated to sow lameness were put on across the country: Manitoba, Ontario, Quebec and New Brunswick. These workshops brought together funders and stakeholder in the area of sow lameness, specifically targeted at genetic companies producing a fit for purpose sow for the future as the sow housing requirements change over the next decade. The workshop compared traditional subjective means of lameness scoring with new objective methods of lameness scoring that were researched in the CSRDC program. In addition lameness occurrence in different housing types and factors producers must consider before changing housing systems in the area of lameness was presented.

Presentations and videos of the speakers along with the take home message pack, in French and in English, and other communication material can be seen at: <http://www.prairieswine.com/feed-efficiency-webinars/>

A total of 114 participants attended the four workshops. 100% of attendees would recommend this workshop to a colleague or customer.

In addition to the workshops farm visits were also achieved so the researchers could carry out some of the assessment techniques on farm.

A total of six farms were visited, covering 5 provinces, Saskatchewan, Ontario, Québec, Alberta and Prince Edward Island. Herd sizes ranged from small (60 sows) to large (1,600 sows). Five farms were nucleus herds; one was a multiplier herd receiving stock from one of the nucleus herds. Preliminary data shows, that of the sows surveyed per farm, the percentage of lame sows varied greatly, the lowest being observed in 7% of sows, the highest being observed in 54% of sows. Looking at the population of sows scored for lameness across all farms, it suggests a 20% prevalence of lameness in the surveyed genetic stock of Canada.

2.3. Water sprinkling during transport

Sprinkling systems are recommended over the summer months to limit animal losses during transportation and improving pig comfort and pork quality. A document to allow transport companies and farmer owned hauliers to fit the required sprinkling system to their own trucks was produced. The schematics are easy to follow and use equipment that are easy available across Canada.

The schematics are available in French and English along with e-newsletters at <http://www.prairieswine.com/feed-efficiency-webinars/>

2.4. Non penetrating captive bolt for euthanasia

A non-penetrating captive bolt, the Zephyr gun, has been developed at the University of Guelph for use in neonate, suckling and weaned piglets. Five Zephyr guns were sent out to farms across Canada (2 in Alberta, 1 in Saskatchewan, 1 in Manitoba and 1 in Québec). A trial was put in place to replace their usual method of euthanasia with the Zephyr Gun. After the allotted time period each Lead User farm carried out a simple questionnaire to gather their thoughts on how the new system compared to their original form of euthanasia.

All farms used and filled in the surveys with varying results. The producers who had previously used CO₂ as a method of euthanasia found moving to a more physical based system such as the Zephyr gun more difficult, and when surveyed said they would not change over. Those producers who had previously used blunt trauma as the chosen method of Euthanasia were much more accepting of Zephyr as a good alternative. These producers were chosen as advocates of the Zephyr gun and two video testimonials were created.

The two video testimonials (English and French) are available at <http://www.prairieswine.com/feed-efficiency-webinars/> alongside literature on the non-penetrative captive bolt.

2.5. Development of an innovative air filtration system

As part of a research project funded by CSRDC, a biofilter was installed at Prairie Swine Centre. A video is in preparation demonstrating the effectiveness of reducing odour and emissions from pork facilities with the use of a biofilter. The video will soon be available.

E-newsletters in English and French and other articles on the air filtration system are available at <http://www.prairieswine.com/feed-efficiency-webinars/>.

3. Conclusion

The lead user project aimed to take research outcomes of the CSRDC and encouraged uptake of them on pig units across Canada. During the project over 215 separate individuals from the Canadian pig industry engaged in this project across seven provinces.

The project increased the speed at which technology is incorporated into the commercial swine industry by using, among others; lead users, direct contacts between researchers and users as well as tools for users. It successfully identified lead users and brought technologies such as the Zephyr non-penetrative captive bolt and lameness assessment into barns across Canada. Workshops (direct contacts between researchers and user) were used to transfer knowledge on novel feeding strategies and on sow lameness. Finally, a tool was developed to enable transportation companies and producers to install a sprinkling system on their vehicles.



Swine Innovation Porc

Business office: Place de la Cité, Tour Belle Cour
2590, boul. Laurier, suite 450
Québec, QC G1V 4M6
Phone : 418-650-4300
www.swineinnovationporc.ca
info@swineinnovationporc.ca