2 Precision feeding of individual pigs
- Optimal management of farm resources (F. Dubeau)
A feed formulation method aiming at minimizing feeding cost and excretion of nitrogen and phosphorus is being developed. Several mathematical models for minimum feeding cost have been obtained. Up to now, the most interesting model has been obtained when using two premixes. That mathematical model allows feeding costs to be reduced by 4.1%, phosphorus excretion by 3.3%, and nitrogen excretion by 14.8%. It may be possible to further reduce nutrient excretion, but reductions in feeding cost would be less significant.

3 Validation of feeding strategies
- Model validation and entire males (I. Mandell and J. Squires)
An initial evaluation was carried out on the potential of certain feed additives to control boar taint, therefore improve the quality of meat produced by intact male pigs. In vitro results have shown that diatomaceous earth, bentonite, spent filter aid, and Jumpstart 360 were the most effective in isolating androstenone and skatole, two compounds responsible for boar taint in intact male pigs. Results of a first feeding trial have showed that spent filter aids and Jumpstart 360 were the most effective in reducing androstenone and skatole in the fat and blood of animals, while, at the same time, not affecting their gains and feed conversion.

Swine Cluster 2 | Animal Nutrition
- Nutrition and gut health (R. Friendship)
  Two of the most important pathogens affecting growth performance in the grower-finisher barn are *Brachyspira* and *Salmonella*.
  In order to determine the pattern of spread of swine dysentery caused by *Brachyspira*, treatment records of 19 cohorts from a 1500-head grower-finisher barn have been analyzed. Mathematical models were also created to describe *Brachyspira* infection and swine dysentery clinical disease within a herd. These models include disease treatments and production costs to identify the most cost-effective treatment protocol for this disease.
  A clinical trial was also conducted using pigs naturally infected with *Salmonella*. In the first three weeks of the grower stage, all pigs were shedding *Salmonella* and several pigs continued to shed it in their feces for over eight 8 weeks. Including the antibiotic Flavomycin in the feed (4 ppm) was shown to be ineffective in controlling *Salmonella*.

Implications for the swine industry
Precise information will be provided to the industry about:
- Existing and novel feedstuffs
- Growth models reflecting nutrient utilization in growing pigs
- Decision support systems and precision feeding systems based on changing financial conditions and nutrient requirements
- Validated production strategies

Collaborator
Jean-Pierre Dussault University of Sherbrooke

Feeding organic minerals to gilts and sows: effects on milk quality and litter performance

Chantal Farmer, Sherbrooke Research and Development Centre, AAFC

Overview
Researchers are studying the impact of including 50% of organic minerals in gilt and sow diets on their milk composition and on the growth of their suckling piglets. The premix Availa®Sow, which contains organic trace minerals, is being given to gilts during the growing phase and then over their first and second gestation and lactation periods. Experiments with animals started in 2015-2016.

Implications for the swine industry
Feeding strategies using organic minerals for gilts and sow will be developed and the impact of these strategies on sows and on their offspring will be established.

Collaborators
Mark E. Wilson Zinpro Corporation
Dan Bussières Groupe Cérès
Financial support for this project

This project is part of the Swine Cluster 2 (2013-2018) research program, made possible through financial support from Agriculture and Agri-Food Canada, eight provincial pork producer organizations and over 30 industry partners.

- [Click here to learn more about the financial partners for Swine Cluster 2.](#)
- [Click here to learn more about the Swine Cluster 2 research program.](#)