



❖ Annual General Meeting March 23, 2006

This year's CSBA AGM is being held in our nation's capital region on Thursday March 23, 2006. The event will be held at the Four Points Sheraton, Gatineau - close to many national historic sites (such as the Parliament buildings and the Museum of Civilization), the popular Casino Lac Leamy - and overlooking the Ottawa River.

Canadian Swine Breeders Association Annual General Meeting

Date: March 23, 2006, 1:00 pm to 6:00 pm

Location: Four Points Sheraton
Renaissance A
35, rue Laurier
Gatineau, Quebec J8X 4E9
Tel: (819) 778-6111
Fax: (819) 778-8548
www.fourpoints.com/gatineau

Standard Room Rate: \$109 / night plus tax
subject to availability

This year's meeting will include a session on DNA banks, with presentations from:

- ✓ Dr. Pramod Mathur, CCSI – potential benefits of a National DNA bank for Canada
- ✓ Dr. Shane Morris, Agriculture and Agri-Food Canada – examples of what other associations are doing
- ✓ Dr. Shu Chen, Lab Services Division, University of Guelph – practical issues with DNA sample submissions
- ✓ Rick Pfortmiller, National Swine Registry – what are they doing in the USA

❖ IGF2 gene has favourable effects on carcass quality

The effects of IGF2 gene were studied by the Canadian Centre for Swine Improvement (CCSI) to develop a strategy and guidelines for using the gene in the Canadian swine industry. DNA samples from 255 purebred barrows and gilts from breeders from the Western Swine Testing Association (WSTA) have been tested. More samples from breeders across Canada are currently being processed.

The results obtained so far suggest that the IGF2 gene had large favourable effects on carcass traits. Pigs carrying two copies of the lean gene (IGF2+/+) had about 3 to 7 mm lower backfat thickness, higher lean depth, and larger loin eye area compared to those with the fat genes (IGF2-/-). There was no significant effect on marbling and drip loss while meat colour was slightly lighter. These results are consistent with similar studies in Europe and the USA.

Boars tested for IGF2 gene can be used to either increase or decrease backfat and lean yield in market hogs. The gene tests will help producers to market hogs with desired level of leanness according to the needs of the packing plants. As a special case, IGF2 gene can also be used to produce leaner pigs from fatter dams if desired, because the IGF2 gene from the dam has no effect in progeny. Therefore, sows can be fatter (IGF2-/-), have better body condition, fertility and produce more as well as leaner hogs.

The testing services for the IGF2 gene within Canada are provided by CCSI. Blood, tissue or semen samples from pigs can be submitted to Lab Services Division at University of Guelph and IGF2 test results can be obtained. More information on the IGF2 gene effects, sample submission, use of the tests etc. is available at: www.ccsi.ca/IGF2.

❖ Genetics of resistance against diseases like PMWS

Like any other performance trait there is a genetic component to resistance against diseases. It is therefore commonly observed that some pigs get more affected than others even within the same herd and given similar exposure to the disease causing agent.

Very often the pedigree of the pigs that do not suffer from the disease can be traced back to common sires or dams. In sheep, the story of a "Golden Ram" resistant to the parasite *Haemonchus contortus* is known to many.

Recently, a relatively new disease, Porcine multi-systemic wasting syndrome (PMWS) has been found in Canadian pigs. The disease mainly occurs in pigs between 6-12 weeks of age. The clinical manifestations include wasting, paleness, difficult or laboured breathing, intermittent diarrhoea, visibly enlarged lymph nodes and mortality. The disease was first described in Canada in 1996 but there were not many cases. Now it is spread over major pig producing countries in the world including those from Europe, North America and Asia. The disease is associated with a virus called Porcine Circovirus Type 2 or PCV2. This virus is found in almost all farms world wide but there is a higher disease incidence when there is a co-infection with other disease factors like PRRS and PPV (Porcine Parvovirus causing infectious infertility). Other risk factors include large weaning pools, high level of piglet cross-fostering, shared under floor slurry pits, location within 5 miles of PMWS affected herd and access to visitors that are not at least 3 days pig-free.

Veterinary health professionals and researchers in Europe and Canada are paying high attention to PMWS. A 20 point program for its control has been suggested that includes mainly bio-security measures. The four golden rules are: limiting pig-pig contact, reduction of physiological stress, good hygiene and good nutrition.

Some reviews and research articles have reported genetic components determining susceptibility or resistance to PMWS. A study in USA reported that Landrace pigs were relatively more susceptible to disease than Duroc or Large White. Another field study in Spain reported Pietrain breed to be more resistant to PMWS. In contrast, a recent study in France observed no significant differences in pigs from Pietrain boars or those from other terminal lines. In fact, it is very difficult to conduct very accurate research trials with a sufficient number of pigs representing each breed. Therefore, in the majority of cases these studies are either based on a small number of specific sires from a breed or on a number of other non-genetic factors that also affect the disease. Sometimes when producers switch from one terminal sire line or breed to the other they see a reduction in the disease incidence. As a common observation, it may be concluded that the disease disappeared due to change in the terminal sire breed but in fact it could have been due to simultaneous improvements in bio-security and other factors that

reduce the disease risk. Effect of Parvovirus transmission from the mother can easily be interpreted as its genetic effect.

It is likely that certain sires within a breed have a higher immune capacity and therefore are more resistant especially to the co-infections that trigger the PMWS symptoms. These types of sires should be available within Duroc, Landrace, Yorkshire, Piétrain and several other breeds. The challenge is to identify them and use them to reduce the risk of these diseases and PMWS. Selection of HIR pigs based on tests developed by University of Guelph and their EBVs at CCSI is a good example. Another simple way is to use a sample of blood to measure the immune capacity through an *in-vitro* assay in the lab. Such tests on pigs from PEI have suggested significant differences between sires within each of the Duroc, Landrace and Yorkshire breeds. Such tests could be developed further and used for selection of more resistant boars and sows within any breed.

Changing a terminal sire breed is an important decision and should not be taken very lightly. The genetic suppliers put in years of selection efforts to make the genetic improvements in the traits of economic benefit to the producers, such as growth, feed efficiency, carcass and meat quality. A change in the breed can result in a change in quality and in cost of production. It is important to be certain that suggested benefits from changing genetics, such as disease resistance, are real and greater than potential losses in other areas. For more information on genetics of disease resistance, feel free to contact Dr. Pramod Mathur at CCSI.

**Pre-Registration for CSBA AGM
Thursday March 23, 2006**

To help us in planning, please contact Francine Roy to pre-register. Tel: (613) 731-5531 Ext. 21, Email: francine@canswine.ca.

Or fax this form to (613) 233-8903

Name: _____

Address: _____

Telephone: _____

Email: _____

If others will accompany you, please specify the total number of people including yourself: _____