

Canadian Centre for Swine Improvement

Annual Report 2005/2006



Annual Meeting
June 14, 2006

Charlottetown, Prince Edward Island



The Canadian Centre for Swine Improvement Inc. is a national organization managed by a Board of Directors with representatives from the following member organizations:

CANADIAN PORK COUNCIL

CANADIAN MEAT COUNCIL

CANADIAN SWINE BREEDERS ASSOCIATION

ATLANTIC SWINE CENTRE

QUEBEC CENTRE FOR SWINE IMPROVEMENT INC.

ONTARIO SWINE IMPROVEMENT INC.

WESTERN SWINE TESTING ASSOCIATION

CCSI's mission is to enhance the ability of the Canadian swine industry to compete domestically and abroad, by providing leadership, coordination and services for swine genetic improvement.

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Canadian Centre for Swine Improvement Inc.

Annual Report 2005/2006

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1. Message from the Chairman

The past year has been a year of ups and downs for hog producers. The hog prices started out good but the end of 2005 and the first quarter of 2006 has been poor. If it was not for the low feed costs, the losses would have been even greater. We also battled some swine disease this past year. A flu virus put sows off feed and some even died. Then the PMWS did its round in Quebec and Ontario and also in the West with losses in the weaner and grower stages with up to 30% of the pigs affected. And then there was the continuing battle with PRRS. Now the question is: How can we manage to raise hogs with these viruses within our barns. And what are the differences genetically between the pigs that get affected and the ones that do not seem to have a problem. How could we find out and record these differences?

Another item to consider for the hog industry is the 2007 American Farm Bill. The 2002 Farm Bill generated some \$80 billion in new federal spending and it benefited much of the large scale producers and corporations putting real pressure on the smaller family farms. One of the issues in the bill that may be addressed, which has put considerable strain on the hog producers is the fast consolidation in the meat industry. Activists want to push for new rules, such as the Captive Supply Reform Act and the Packer Ban that prevent them from using anti competitive tactics to drive down the market price. Activists are again going to push for COOL in 2007. How will labeling affect public image. Some analysts in the meat industry have acknowledged that the US consumer might avoid buying meat from other countries fearing that it would be less safe. Homeland security will play a major role in the new Farm Bill with self-sufficiency in fuel supply as a major component.

CCSI itself has had a good year. We came close to a balanced fiscal statement. And we hope that the next fiscal statement can bring a small surplus. CCSI will have new challenges in the next year. Some questions to consider are: what type of pigs can use Paylean? What do we do with breeders that want to use Paylean? What effect does weaning age have on the overall health and performance of the pigs? What is the optimum litter size and age of weaning?

Again I would like to thank all the Board members for their time and effort. Thank you to Brian for managing CCSI and staff for all your work and service to CCSI. I would like to wish everyone a good year in the hog industry.

Chairman

John Vande Glind

2. Proposed Agenda for June 14, 2006

1. Message from Chair
2. Approval of agenda
3. Approval of minutes from last Annual Meeting - June 15, 2005
4. Activity reports
 - 4.1 General Manager's report
 - 4.2 Chief Geneticist's report
 - 4.3 Computer Services Manager's report
5. Presentation and approval of financial report
 - 5.1 Financial report for year completed March 31, 2006
 - 5.2 Selection of Auditor
6. CCSI awards
7. Names of Directors appointed to CCSI's 2006/07 Board
8. Other business
9. Adjournment

3. Minutes from Last Annual Meeting

**ANNUAL MEETING OF THE CORPORATION
Chateau Laurier Hotel, Quebec City
June 15, 2005**

Board of Directors 2004/05

André Auger	Canadian Swine Breeders Association
Stanley Boudreau	Canadian Pork Council
Larry Campbell	Canadian Meat Council
Bernard Dion	Centre de Développement du Porc du Québec
Pierre Falardeau	Centre de Développement du Porc du Québec
John Gough	Ontario Swine Improvement
Donald MacDonald	Atlantic Swine Improvement Centre
Phil Smith	Ontario Swine Improvement
John Vande Glind	Western Swine Testing Association
Alfred Wahl	Western Swine Testing Association

Board of Directors 2005/06

Madeleine Hayeur	Canadian Swine Breeders Association
Stephen Moffett	Canadian Pork Council
John Webb	Canadian Meat Council
Bernard Dion	Centre de Développement du Porc du Québec
Pierre Falardeau	Centre de Développement du Porc du Québec
John Gough	Ontario Swine Improvement
Donald MacDonald	Atlantic Swine Improvement Centre
Phil Smith	Ontario Swine Improvement
John Vande Glind	Western Swine Testing Association
Alfred Wahl	Western Swine Testing Association

Directors present at the meeting were Bernard Dion, Pierre Falardeau, John Gough, Madeleine Hayeur, Donald MacDonald, Phil Smith, John Vande Glind and Alfred Wahl.

1. Message from Chair

John Vande Glind opened the meeting at 10:15 am. The Chair's message is shown on page 4 of the 2004/05 Annual Report.

2. Approval of Agenda

Moved by Alfred Wahl. Seconded by Madeleine Hayeur. Carried.
That the agenda be approved as circulated.

3. Approval of minutes from the last Annual Meeting

Moved by Bernard Dion. Seconded by Alfred Wahl. Carried.
That the minutes be approved as circulated.

4. Activity Reports**4.1 General Manager's Report**

The General Manager's report was presented by Brian Sullivan and is shown on pages 8 and 9 of the 2004/05 Annual Report.

4.2 Chief Geneticist's Report

The report of the Chief Geneticist was presented by Pramod Mathur and is shown on pages 10 to 13 of the Annual Report.

4.3 Computer Services Manager's Report

The report of the Computer Services Manager was presented by Jim Groves and is shown on page 14 to 16 of the Annual Report.

5. Presentation and Approval of CCSI's Financial Statements**5.1 Financial statements for year completed March 31, 2005**

Moved by Alfred Wahl. Seconded by Phil Smith. Carried.
That CCSI's financial statements for 2004/05 be approved as circulated.

5.2 Selection of an Auditor

Moved by Alfred Wahl. Seconded by Bernard Dion. Carried.
That Bath Haché LLP be selected as the firm to conduct the next financial audit for CCSI.

6. CCSI Awards

Austin Murray was the winner of the Brian Kennedy Memorial Award for 2004/05. Alfred Wahl presented the award. Jack Nethercott was the winner of the CCSI Swine Breeders' Merit Award. Brian Sullivan read the nomination that was submitted, and the award will be presented to Jack later.

7. Names of Directors appointed to CCSI's 2005/06 Board

Members of the Board of Directors for 2005/06 are listed in Appendix 1 of the Annual Report.

Moved by Phil Smith. Seconded by Madeleine Hayeur. Carried.
To express gratitude to Larry Campbell for his 10 years of service as a CCSI director for the Canadian Meat Council, and to wish him well in his retirement.

8. Other business

There was no other business.

9. Adjournment

Moved by Madeleine Hayeur that the meeting be adjourned.

The meeting was adjourned at 11:35 am.

4. Activity Reports

4.1 General Manager's Report

It is once again a pleasure to report on another successful year at the Canadian Centre for Swine Improvement. What has been particularly gratifying is to see how the entire pork producing industry has been working together to address ongoing and emerging challenges, and even more so, working together to seize on unique opportunities that present themselves for Canadian pork.

At CCSI, we have been more than happy to participate in these national activities. Genetics is well recognized to be the foundation on which sound management and production practices lead to efficient production of the highest quality pork. Past efforts of genetic suppliers have given Canada an international advantage, and even more effort is required going forward for this advantage to be maintained.

It is essential that the genetics sector continue to work closely with all the other partners in the pork production chain. This will ensure that the proper signals are recognized in order to focus genetic changes today that will affect the industry for many years into the future. In fact, we can predict quite accurately today where genetics is going to place the commercial herd in the next few years to come. That's because it takes several years for new genetics to move from nucleus herds of genetic suppliers through multiplication and into the commercial herds. Commercial herds can expect larger litters, faster growth, better feed efficiency, leaner carcasses, etc. We can even estimate how much each trait will change based on what has already changed in nucleus herds in recent years.

We know that genetics affects many important traits, and we need to plan ahead to have genetics that match the future needs. Efficiency of production is absolutely necessary for our industry, and clearly efforts to improve genetics for such things as growth rate, feed efficiency and sow productivity will need to continue. However, we have to be more than efficient to prosper in the global markets. Canada needs to maintain and enhance our reputation for a unique quality of pork that is recognized and demanded in our key international markets. This includes not only meat quality attributes, but also food safety and other considerations such as animal welfare and the environment.

This is a common national vision that is shared by industry partners across Canada. Clearly it involves much more than genetics, but genetics has a key role in many aspects. This includes the traditional role of genetics, and also emerging developments such as genetic resistance to diseases, major genes affecting pork quality, survival and physical soundness, animal behaviour, and even the use of DNA in traceability. Canada is well positioned to take advantage of new developments from around the globe, and also to be a leader in new discoveries of much more in the years to come.

At CCSI, we look forward to continuing to work with our other industry partners, guided by this common vision. Thanks are due to the individuals in government and the many industry organizations who are so dedicated to moving this forward. The level of cooperation and coordination of so many independent organizations makes the Canadian pork industry quite unique, and positions us well for continued and growing success.

As you can see from the other sections and appendices of this annual report, there has been a lot of activity at CCSI in the past year. Genetic improvement trends continue to accelerate, we've seen a 20% increase in testing numbers, genetic evaluations for many new important traits are now available, web-based services are catching on like wildfire, and ways of delivering the services are evolving with the times. There is a long list of new opportunities, so there will be no rest for the weary.

I would like to thank CCSI's Board of Directors and the management of CCSI's member organizations for the support and confidence you have given to us at CCSI. I would also like to thank Agriculture and Agri-Food Canada for the support of important research projects, which are key elements in CCSI's ability to contribute to the common national vision. Last but not least, thanks once again to CCSI's staff and the staff at CCSI's member organizations. It is your dedication and effort that transforms the vision into reality. Keep up the great work! I look forward to another great year.

Brian Sullivan
General Manager

4.2 Chief Geneticist's Report

It is a pleasure and privilege to report on another successful year of genetic improvements in the national program. These improvements are possible through the participation of the breeders on the program, and a close working relationship with the member organisations and other industry partners. There has been a wider collaboration with the industry, research institutions at the universities and the federal government. This has helped CCSI to provide a wide range of services to the Canadian swine industry during the last year and we hope to continue the co-operation in the future. Given below is a summary of some of the main activities.

1. Genetic evaluations

Genetic evaluations for backfat, age, carcass traits, feed efficiency and litter size are now updated biweekly. The evaluations for connectedness are run biannually. Evaluations for conformation, meat quality and sow productivity traits are provided routinely as more data are recorded.

The total number of purebred pigs tested on the national program has increased to over 95,000 in 2005-06. This is a 20% increase from 2004-05 and the highest level of testing since 1999. A summary of the pigs tested in different regions and for different breeds is given in Appendix 4. There has been a significant increase in the sow productivity records and increase in the overall performance of Yorkshire and Landrace breeds with respect to the total pigs born, pigs born alive and pigs weaned. Their average performances in different parities, during the year 2005, are given in Appendix 5.

2. Genetic improvements

There have been significant genetic improvements for traits evaluated in the Canadian Swine Improvement Program in 2005, following the trend in previous years. The genetic changes in Yorkshire, Landrace and Duroc breeds and expected genetic improvements in market hogs are given in Appendix 6. The improvements in Duroc as a sire line and F1 crosses between Yorkshire and Landrace maternal lines are expected to contribute significantly to the economics of the commercial herds.



The improvements for the last year compared to the average of the previous five years are given in the following table. This marks the third consecutive year where the improvement has been greater than the five year average. Market hogs in commercial herds are therefore expected to have even faster growth, larger loin area and higher lean yield.

Table 1: Genetic improvements expected in the market hogs as result of selection over the past years

Trait	Measurement unit	Value (\$/unit)	Avg. last 5 years 1999-2004	Last year 2005
Age	days	-0.27	-1.3	-1.5
Lean Yield	%	1.17	+0.11	+ 0.19
Loin Eye Area	sq cm	0.08	+0.21	+0.47
Feed Conversion	kg/kg	-18.75	-0.019	-0.024
Backfat	mm	-1.83	-0.26	-0.29
Lean Depth	mm	-	+0.14	+0.35
Number Born	piglet	24.74	+0.24	+0.29

The genetic improvements in lean depth have taken a faster pace while those in litter size have continued. Commercial herds will benefit greatly from these improvements in genetics by replacing older sows with new Yorkshire – Landrace crosses.

The trends of improvements in different traits have continued as shown in Appendix 7. There has been steady increase in the litter size of Yorkshire and Landrace maternal lines while there is very little change in Durocs. This suggests the effectiveness of selection for litter size in the dam lines. At the same time it reflects the fact that if there is no genetic selection for litter size as in case of Duroc sireline, very little change can be expected in the trends. As the litter size is increasing in the dam lines and F1 sows, there is also a need to improve the disease resistance and survival of pigs to ensure higher economic returns to producers. There has been lower emphasis for reduction of backfat in the dam lines (Yorkshire and Landrace) over the past years to avoid any negative effects on body condition and sow productivity, while the trends have continued in Durocs leading to significant improvements in lean yield. There was a slight reduction in the lean depth and loin eye area in the Yorkshires during the years 2002 and 2003 mainly due to excessive use of certain boars but the trends of improvement have now continued in Yorkshires and other breeds. The lean yield and feed conversion efficiency have been increasing in Durocs over the past years and there is a significant increase in the sire line index. Similar trends are also evident for dam line index.

3. New services

A new server has been installed to provide CCSI's genetic evaluation and database services since the beginning of July 2005. This has resulted in a significant increase in performance for almost every computer application. Most of the Ontario breeders are sending probe and litter records from their pigs through the Herdsman program and receive their on-farm EBV's through CCSI. The direct data transfer also allows correcting any data problems immediately. The On-Experimental Farm software continues to be developed and used. The use of this web-based software varies from simply editing information on a pig to managing a full inventory of animals. New reports and tools have been developed to analyze carcass grading data and commercial sow productivity records. These allow for breeders and producers to see their historical data and to evaluate the effect of potential changes, such as increasing slaughter weight or using a

different payment grid. A number of new and updated reports are now available in the member services area of CCSI's website. This includes a new report on genetic variability within individual herds that includes rates of inbreeding as well as effective number of founders and founder ancestors. Examples of new customised indices for different payment grids are also available in the Computer dating application. This allows the breeders to rank the AI boars and pigs within their herds according to the market needs.

4. Services to CSBA

CCSI continues to work closely with Canadian Swine Breeders Association (CSBA). This offers opportunities for representation of the genetic sector in national meetings and committees. The services through this collaboration include electronic registration and other services through the new CSBA website hosted by CCSI. There have been substantial improvements in the CSBA website. The latest CSBA news letters are available on-line for up to date information. The CSBA annual meeting was held on March 23 in Ottawa and included a session on creation of a DNA bank for swine.

5. Testing for IGF2 gene

CCSI is offering a new service in the molecular genetics area. Canadian breeders and producers can now test their pigs for Insulin Like Growth Factor 2 (IGF2) gene known to have favourable effects on leanness and uniformity. The DNA test was originally developed by Gentec N.V. of Belgium. In Canada, the testing services are provided by CCSI through Lab Services Division of the University of Guelph. Samples from 274 AI boars, 257 pigs from western Canada and a large number of samples from several breeders and breeding companies have been tested. The gene has so far shown similar large effects on backfat and lean yield as observed in Sweden, Belgium and US. More information about the IGF2 gene tests is available at CCSI's webpage www.ccsi.ca/IGF2.

6. New evaluations

Genetic evaluations for meat quality traits are now run routinely as new data are available. These evaluations also included data from several farms participating in the WSTA meat quality project supported by Alberta Livestock and Industry Development Fund (ALIDF). The evaluations include not only the pigs that are slaughtered but their littermates, parents and other pigs probed at the same time. The EBVs are calculated for meat colour, marbling, pH and drip loss. Evaluations for six different feet and leg traits, four traits for toes as well as for number of teats are also run routinely as new data are available. New evaluations are also available for perinatal piglet survival. Currently data from 12 herds are used in the evaluation programs. Breeders recording these new traits can now take advantage of the new evaluations. Evaluations for age at first farrowing, farrowing interval and weaning weight are also being added to the national evaluation system.

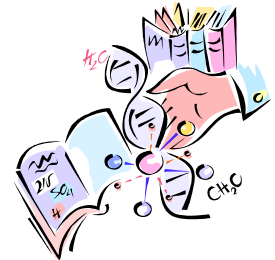
7. New research projects

New research projects at CCSI supported by ACAA program of Agriculture and Agri-Food Canada are well underway. Two batches of purebred pigs from across Canada have gone through the Deschambault test station to evaluate the effect of heavier

carcass weights on various traits. A number of measurements have been taken on live animals that include bodyweights, individual feed intake, ultrasound measurements, etc. The initial results suggest that as the live weight increases from 107 to 125 kg there is an increase in backfat, lean depth, marbling and feed intake. The feed efficiency is lower during the period of growth from 107 to 125 kg. More detailed analysis of changes in muscle fiber types and other traits is underway.

New methods have been developed to include the information on molecular markers in genetic evaluations. A large number of pigs have been tested for IGF2 gene and the effect of this gene on various traits has been evaluated. The results suggest a significant difference between backfat of the IGF2 (+/+) and IGF2(-/-) genotypes. Some of the results were presented at the annual meeting of Canadian Meat Council (CMC) and Canadian Meat Science Association (CMSA) in February.

The study on the relationship between the Swine Diseases Resistance (SDR) test developed by PharmaGap and various parameters commonly used to evaluate health status has been completed in collaboration with CDPQ. Another study to evaluate the mode of inheritance of the test in PEI has been completed. The results so far have suggested the effectiveness of the test in evaluating the immune response of pigs through a sample of blood. There were also significant differences between sires. As health issues become increasingly important, these tests are more useful for the breeding sector.



New conversion factors are also being developed for comparing the EPDs from US to Canadian EBVs in collaboration with National Swine Registry in the US. A project on estimation of economic values for traits used in the genetic evaluation is underway in co-operation with CDPQ. A study on sow longevity traits was completed at the beginning of the fiscal year. New proposals for evaluation of hypo prolific boars and to evaluate the effects of increase in backfat through IGF2 gene on sow productivity traits are in pipeline.

8. National committees

CCSI, together with CSBA continues to participate in national committees for the Canadian swine industry. The National Hog Identification and Traceability Committee has developed a set of recommendations for developing a traceability system for Canada that will allow to reinforce the trust of foreign buyers of Canadian pork and to trace to the farm of origin in case of a disease outbreak. The National Pork Value Chain Round Table is developing a strategy for the Canadian swine industry to address important issues related to health, traceability, food safety, meat quality and consumer and citizen expectations. A Canadian pork story is being developed to promote Canadian pork in export markets. These committees provide opportunities to share the views of the swine genetics sector with other segments of the pork value chain and work constructively in developing a common vision for the entire Canadian swine industry. CCSI has also continued to participate on the Canadian Farm Animal Genetic Resource Foundation (CFAGRF). The foundation's activities are regularly published in the "Gene Scene" newsletter.

9. International activities

CCSI's geneticists have given seminars in China and Vietnam about the Canadian swine improvement program. In addition, they have participated in international meetings that include Symposium on Genetics and Health and the European Association of Animal Production (EAAP) annual meeting. There was a special invitation for a seminar to the Large White Association in China on Canadian Swine Improvement Program as well on importance of connectedness among swine herds. CCSI was also represented at the JRP meeting (Swine Research Days) in France. This 3-day meeting gathers swine researchers and industry people from all areas of pig production and all parts of France and Europe. The JRP meeting, in February 2006, had a special session dedicated to swine research in Canada including presentations from CDPQ and federal research centres. Ties with ITP, CCSI's counterparts in France have been strengthened further through visits to France and visits by representatives from France to CCSI in September 2005. There was an international workshop on selection in small populations in Germany during March, 2006. A presentation was made on use of small number of sires in swine populations. There were similar presentations from other species such as dairy cattle.

10. Collaboration with organisations in the US

CCSI hosted a swine genetics symposium with the National Swine Improvement Federation (NSIF) of the US in December, 2005. The symposium was attended by breeders, producers and researchers from US and Canada. The presentations included swine genetic improvement programs in Asia, Eastern Europe, Western Europe and Scandinavia, meat quality, traceability, sow productivity and conservation of genetic resources. There were good presentations and good discussions. The meeting provided an opportunity for the participants from both side of the border to discuss common issues.

11. Standards sessions

The standards for recording the traits for national genetic evaluations and the accreditation process are being reviewed to incorporate the latest technical developments. More traits such as those for recording conformation traits are being added to the accreditation process. Several regional ultrasonic standards sessions were held in 2005: in March at Guelph University with technicians from Ontario, in November at Deschambault station with Québec technicians, and in December in Manitoba with Genesis technicians. In addition, a national session was held in September 2005 in PEI and another one in Lacombe, Alberta in January 2006, involving senior technicians from across Canada.

12. Genetic evaluations for sheep, goats and rabbits

CCSI has completed a review of the genetic evaluation procedure currently used by Centre for Genetic Improvement of Livestock (CGIL) in Guelph for sheep. This audit has been carried out in close collaboration with CEPOQ (Centre d'Expertise en Production Ovine du Québec), the regional center for sheep in Québec and Centre for Genetic Evaluation of Livestock and Ontario Ministry of Agriculture. A new research project is planned for genetic evaluation of rabbits.

New perspectives: genetic factors affecting diseases like PMWS

Recently, a relatively new disease, Porcine multi-systematic wasting syndrome (PMWS) has been found in Canadian pigs. The disease is associated with a virus called Porcine Circovirus Type 2 or PCV2. This virus is found in a majority of pigs but there is a higher disease incidence when there is higher stress or lower immune capacity. There are some reports about certain breeds like Pietrain being more resistant than Durocs and other breeds. However, the evidence is not conclusive. Since the immune capacity is heritable, it is normal to expect that certain sires within a breed have a higher immune capacity. These types of sires should be available within Duroc, Landrace, Yorkshire, Pietrain and several other breeds. The challenge is to identify them and use them to reduce the risk of diseases. However, if the producers make uninformed decisions and change the terminal sire lines, they can have negative consequences on the efficiency of production and especially pork quality. These concerns have been expressed by packers as well. The genetics sector needs to take active steps in providing the correct information and contribute to reduction in the risk to diseases like PMWS by research on identification and breeding of more disease resistant pigs. CCSI is willing to make the contribution on its part.

I would like to end by acknowledging contributions from the member organisations, dedicated technicians across Canada, staff of the regional centres and genetics committee members. Thanks to Brian, Yuefu, Laurence, Jim, David, Li, Tracy-Lynn and Francine for their contributions.

A list of the reports on some of the activities during 2005 and 2006 are given in Appendix 8. These reports are available on CCSI's website at: www.ccsi.ca/reports

Dr. Pramod Mathur
Chief Geneticist

4.3 Computer Services Manager's Report

1. Infrastructure

Several new servers have been put into production in the last several months, including an email server, web server, and an application server. All servers have hardware redundancy built into them with mirrored hard drives, and multiple power supplies.

Three uninterruptible power supplies (UPS) have also been implemented, allowing for continued operation in the event of a power disruption.

The routine evaluations have been running on the new Linux server for over ten months, and work has continued on other evaluations and reports such as connectedness, and herd activity monitor (HAM) reports. In addition to the porting of applications to Linux, work is also underway to produce the reports more often.

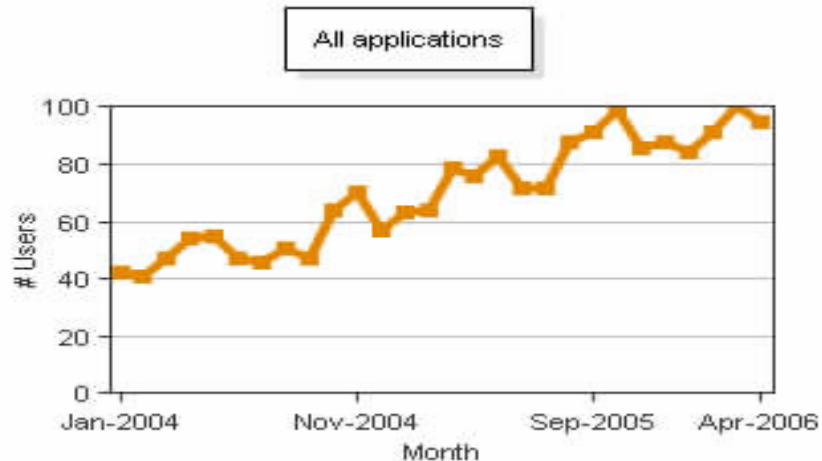
It should be pointed out that as the number of evaluations increase, as well as their frequency, the resource needs are being increased substantially. This includes not only computer resources, but also people.

Li Li and Laurence Maignel handle the day to day operations of the evaluations and are constantly looking at the evaluation process and how it can be improved. With the evaluations starting for many new traits, a renewed emphasis on automating tasks is being pursued.

With respect to computers, there are currently no issues regarding the operation of the servers, however prudent planning will be required in the future to handle the ever growing amount of data. To put some perspective to it, there are now over one billion individual EBV results stored in the database!

2. Website Stats and Facts

As always, the main face to the CCSI computer operations is the website and the Member Services. As the graph below shows, usage continues to climb at a steady pace. We had 100 individual users in March, and expect that number to continue to climb steadily!



Some of the recent updates to the website include:

- ✦ SigaPig has now joined Herdsman in sending data to CCSI directly through their software. There was extensive effort involved in both working with Siga to get the software operational as well as validation of the actual results. Several other on-farm software companies have also indicated that they will support this data transfer in the near future.
- ✦ Work has continued on the web services themselves, including extensive updating of documentation for developers, and fine tuning based on feedback.
- ✦ The CLRC registration pages continue to be improved based on both user feedback and CLRC themselves. The deadline to have older animals registered made for a very busy time for registrations in the last several months, as breeders got their herds up to date.
- ✦ New and improved reports, including a report on genetic variability within a herd, probe and litter reports, an evaluation status page, and many others.
- ✦ Improvements to the CLRC data transfer programs and process.
- ✦ The goat website and related services continue to be expanded as more breeders join the program.
- ✦ Extensive work continues to be done to the eFarm software, based on user feedback and ongoing maintenance. There are close to twenty regular users of the eFarm software, with many using it to manage their entire operation. Included is the ability to enter all information required for genetic evaluations, close integration with mating plans, as well as management reports such as sow cards.
- ✦ Slaughter data from over 30 producers is now being analyzed by CCSI with applications and reports using data from Alberta, Ontario, and Quebec. One of the reports includes PigGrid, a tool to analyze slaughter data against different payment grids, as well as perform what-if scenarios such as shipping at a lower or higher weight.
- ✦ The CSBA website has been updated to include listing members by breed, the ability to see registered animals, and an archives section. The archive currently has an electronic copy of a September, 1940 issue!

3. Website Hosting

CCSI continues to host and update the CSBA, WSTA, CSEA, Bodmin Swine Genetics, and Polar Genetics websites. In addition, CCSI looks forward to hosting the websites for Novastar genetics, PEAK Swine genetics and other breeders in the coming year.

Jim Groves, Computer Services Manager, CCSI

5. Appendices

Appendix 1. Members of the Board of Directors

Appendix 2. People at CCSI

Appendix 3. Genetics Committee Members & Participants

Appendix 4. Home Test Summary for Backfat and Age at 100 Kg

Appendix 5. Sow Productivity Summary (2005)

Appendix 6. Genetic change in purebreds and market hogs

Appendix 7. Genetic Improvement trends

Appendix 8. Reports on Activities

Appendix 9. Breeders Participating In The National Program

Appendix 10. Participating A.I. Centres

Appendix 1. Members of the Board of Directors, 2005-2006

Bernard Dion, Quebec Centre for Swine Improvement Inc.

Pierre Falardeau, Quebec Centre for Swine Improvement Inc.

John Gough, Ontario Swine Improvement Inc.

Madeleine Hayeur, Canadian Swine Breeders Association

Dan Hurnik, Atlantic Swine Centre

Donald MacDonald, Atlantic Swine Centre

Stephen Moffett, Canadian Pork Council

Phil Smith, Ontario Swine Improvement Inc.

John Vande Glind, Western Swine Testing Association

Alfred Wahl, Western Swine Testing Association

John Webb, Canadian Meat Council

Appendix 2. People at CCSI

Brian Sullivan, General Manager

Pramod Mathur, Chief Geneticist

Francine Roy, Secretary and Office Manager

Jim Groves, Computer Services Manager

David Bates, Programmer/Database Administrator

Laurence Maignel, Geneticist

Li Li, Programmer/Analyst

Yuefu Liu, Geneticist

Tracy-Lynn Reside, Researcher, Dairy Goat Genetics



Appendix 3. Genetics Committee Members

Name	Organization
Andy Robinson, Chair	University of Guelph
André Fortin	Agriculture and Agri-Food Canada
Austin Murray	Agriculture and Agri-Food Canada
Bernard Doré	Société des Éleveurs de Porcs du Québec
Bob Kemp	Keystone Pig Advancement Inc.
Brian Sullivan	Canadian Centre for Swine Improvement
Claude Robert	Laval University
Dave Vandebroek	Ontario Swine Improvement
David Trus	Agriculture and Agri-Food Canada
Frédéric Fortin	Centre de développement du porc du Québec inc
Isabelle Faucher	Centre de développement du porc du Québec inc
Jim Groves	Canadian Centre for Swine Improvement
Jon Meadus	Agriculture and Agri-Food Canada
Laurence Maignel	Canadian Centre for Swine Improvement
Madeleine Hayeur	Société des Éleveurs de Porcs du Québec
Margaret Quinton	University of Guelph
Muriel Power	Atlantic Swine Centre
Murray Duggan	Fast Pigs Inc.
Nicole Dion	Sogéporc
Patrick Charagu	Hypor
Pius Mwansa	Keystone Pig Advancement Inc.
Pramod Mathur	Canadian Centre for Swine Improvement
Rob Gribble	Swine Genetics Ontario
Roger Cue	McGill University
Shane Morris	Agriculture and Agri-Food Canada
Shu Chen	Lab Services Division, University of Guelph
Wim Van Berkel	Western Swine Testing Association
Yuefu Liu	Canadian Centre for Swine Improvement

Appendix 4. Home Test Summary For Backfat And Age At 100 Kg

April 1, 2005 to March 31, 2006

		#herds	#pigs tested	male averages			female averages		
				#boars	backfat (mm)	Age (days)	#gilts	backfat (mm)	Age (days)
Atlantic	Yorkshire	3	2257	724	10.3	143	1533	10.9	147
	Landrace	3	952	312	10.2	147	640	10.4	151
	Duroc	3	631	300	10.6	150	331	11.4	154
	All 3 breeds	3	3840	1336	10.3	145	2504	10.8	149
Québec	Yorkshire	37	12328	4185	9.7	149	8131	10.3	156
	Landrace	29	8225	2717	9.4	149	5497	9.9	155
	Duroc	20	5969	2959	9.7	144	3004	10.5	151
	All 3 breeds	40	26522	9861	9.6	147	16632	10.2	155
Ontario	Yorkshire	22	8336	2057	11	149	6272	11.6	157
	Landrace	19	5693	1041	10.8	150	4644	11.7	153
	Duroc	19	3044	1380	11.1	151	1664	11.7	155
	All 3 breeds	24	17073	4478	11	150	12580	11.6	155
West	Yorkshire	21	21873	4505	11.4	151	17344	11.8	155
	Landrace	18	20015	3712	10.9	149	16303	11.5	153
	Duroc	18	7041	3153	10.8	154	3846	11.6	159
	All 3 breeds	25	48929	11370	11.1	151	37493	11.6	154
Canada	Yorkshire	83	44794	11471	10.7	149	33280	11.4	155
	Landrace	69	34885	7782	10.3	149	27084	11.2	153
	Duroc	60	16685	7792	10.4	150	8845	11.2	156
	All 3 breeds	92	96364	27045	10.5	149	69209	11.3	154

Note: 1938 animals from other breeds were also tested on the program over the period

Appendix 5. Sow Productivity Summary (2005)

	Parity	#herds	total pigs born		pigs born alive		pigs weaned	
			N	Average	N	average	N	average
Yorkshire	1	90	8292	11.8	5112	10.5	7791	9.7
	2	89	6433	12.4	3870	11.2	6152	9.9
	3	87	5450	12.8	3221	11.6	5156	10
	4	86	4444	13	2606	11.7	4223	9.9
	5	79	3342	12.7	1951	11.2	3156	9.7
	6	73	2211	12.5	1178	10.8	2073	9.6
	7	71	2855	12	1401	10.4	2646	9.5
	ALL	92	33027	12.4	19339	11.1	31197	9.8
Landrace	1	79	6355	11.3	4614	10.5	5910	9.6
	2	78	4967	11.4	3417	10.7	4751	9.9
	3	79	3854	12.1	2556	11.4	3691	10
	4	75	3342	12.2	2349	11.5	3208	10
	5	66	2487	11.9	1707	11.2	2397	9.9
	6	64	1637	11.8	1016	10.9	1557	9.5
	7	58	1931	10.9	920	9.9	1820	9.4
	ALL	86	24573	11.6	16579	10.9	23334	9.8
Duroc	1	49	1557	9.5	1093	8.4	1357	8.4
	2	51	968	10.1	674	9.2	885	8.6
	3	52	644	10.7	435	9.8	590	8.6
	4	47	316	11.2	201	10	289	8.8
	5	39	146	11.1	88	9.6	137	8.5
	6	26	69	10.6	50	9.4	58	8.5
	7	18	46	10.2	30	9.1	39	8.4
	ALL	59	3746	10.1	2571	9.1	3355	8.5
All 3 breeds	1	100	16204	11.4	10819	10.3	15058	9.5
	2	99	12368	11.8	7961	10.9	11788	9.8
	3	98	9948	12.4	6212	11.4	9437	9.9
	4	96	8102	12.6	5156	11.6	7720	9.9
	5	91	5975	12.3	3746	11.2	5690	9.8
	6	86	3917	12.1	2244	10.8	3688	9.5
	7	81	4832	11.5	2351	10.2	4505	9.4
	ALL	101	61346	11.9	38489	10.9	57886	9.7

Note: 816 litters from other breeds were born over the period

Appendix 6: Genetic change in purebreds and market hogs**Yorkshire**

Trait	1999		2005		Average annual gain	Gain in 2005
	#pigs	EBV average	#pigs	EBV average		
Sire Line Index (points)	44071	54	41936	103	8.3	9
Dam Line Index (points)	44071	46	41935	106	9.8	12
Lean Yield (%)	44071	-0.32	41936	0.02	0.06	0.06
Loin Eye Area (cm ²)	44071	-0.22	41936	0.07	0.05	0.18
Age (days)	44071	7.4	41936	-0.6	-1.3	-1.5
Feed Conversion (kg/kg)	44071	0.098	41936	-0.007	-0.018	-0.019
Backfat (mm)	44071	0.67	41936	-0.02	-0.12	-0.07
Lean Depth (mm)	44071	0.06	41936	0.08	0.003	0.17
Number Born (piglets/lit)	44071	-1.64	41935	0.23	0.31	0.38
Sire Line Index (\$)	44071	-21.1	41936	1.6	3.8	4.2
Dam Line Index (\$)	44071	-31.2	41935	3.2	5.7	6.8

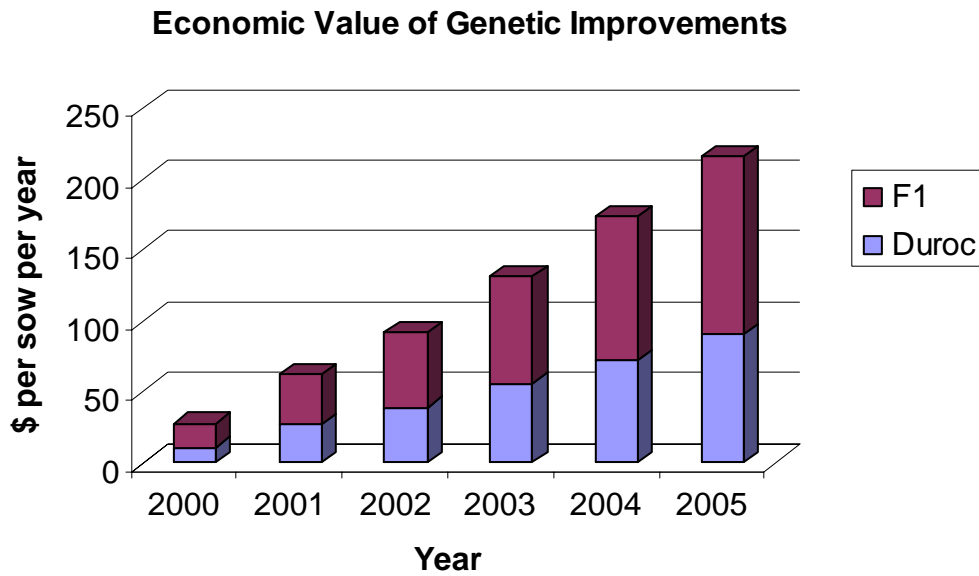
Landrace

Trait	1999		2005		Average annual gain	Gain in 2005
	#pigs	EBV average	#pigs	EBV average		
Sire Line Index (points)	30605	65	32961	104	6.5	10
Dam Line Index (points)	30605	52	32961	104	8.7	9
Lean Yield (%)	30605	-0.42	32961	0.06	0.08	0.17
Loin Eye Area (cm ²)	30605	-0.89	32961	0.11	0.17	0.30
Age (days)	30605	5.4	32961	-0.5	-1	-1.4
Feed Conversion (kg/kg)	30605	0.077	32961	-0.008	-0.014	-0.021
Backfat (mm)	30605	0.83	32961	-0.11	-0.15	-0.27
Lean Depth (mm)	30605	-0.65	32961	0.08	0.12	0.19
Number Born (piglets/lit)	30605	-1.02	32961	0.05	0.18	0.14
Sire Line Index (\$)	30605	-17.3	32961	1.9	3.2	4.9
Dam Line Index (\$)	30605	-21.1	32961	1.7	3.8	4.2

Duroc

Trait	1999		2005		Average annual gain	Gain in 2005
	#pigs	EBV average	#pigs	EBV average		
Sire Line Index (points)	17108	40	16163	105	10.8	13
Dam Line Index (points)	17108	53	16163	105	8.5	11
Lean Yield (%)	17108	-0.96	16163	0.1	0.18	0.25
Loin Eye Area (cm ²)	17108	-1.98	16163	0.28	0.38	0.69
Age (days)	17108	8.4	16163	-0.6	-1.5	-1.5
Feed Conversion (kg/kg)	17108	0.127	16163	-0.01	-0.023	-0.025
Backfat (mm)	17108	2.11	16163	-0.18	-0.38	-0.18
Lean Depth (mm)	17108	-1.43	16163	0.21	0.27	0.54
Number Born (piglets/lit)	17108	0.01	16163	0.03	0.003	0.04
Sire Line Index (\$)	17108	-37.9	16163	3.4	6.9	8.3
Dam Line Index (\$)	17108	-14.9	16163	1.5	2.7	3.5

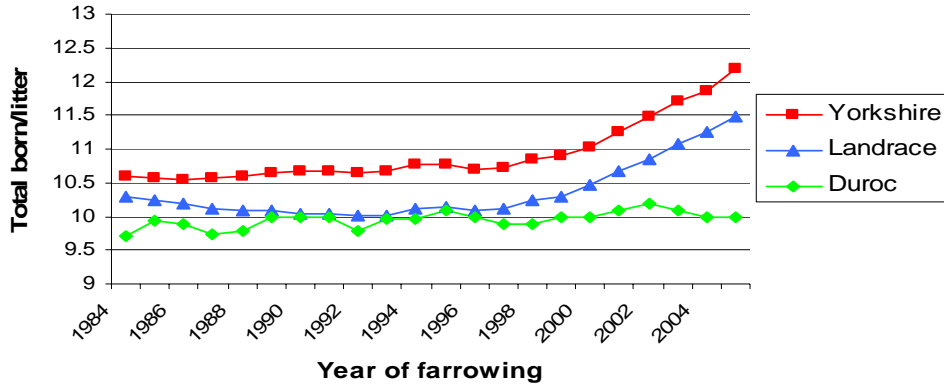
Change in Commercial Sows (F1s) and Hogs due to genetic improvement in Canada from 1999 to 2005					
Trait	Sire Line Duroc	Dam Line			Market Hogs
		Yorkshire	Landrace	F1s	
Sire Line Index (points)	65				
Dam Line Index (points)		59	52	56	
Lean Yield (%)	1.06	0.34	0.48	0.41	0.74 %
Loin Eye Area (cm ²)	2.26	0.28	1	0.64	1.45 sq cm
Age (days)	-9	-8	-6	-7	-8 days
Feed Conversion	-0.138	-0.105	-0.085	-0.095	-0.116 kg/kg
Backfat (mm)	-2.29	-0.69	-0.93	-0.81	-1.55 mm
Lean Depth (mm)	1.64	0.02	0.72	0.37	1.01 mm
Number Born (piglets/lit)		1.86	1.07	1.47 pigs	
Sire Line Index (\$)	\$ 41				
Dam Line Index (\$)		\$ 34	\$ 23	\$ 57	



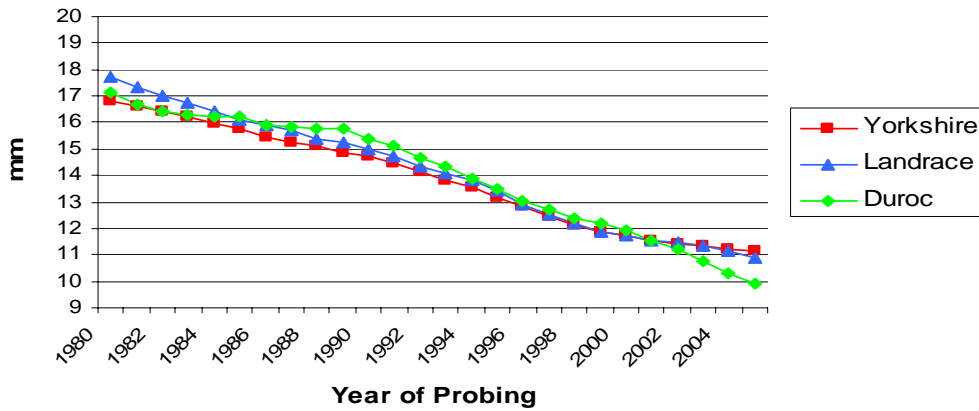
Sows are about \$216 per year more productive today than 6 years ago due to genetic improvements in growth, feed efficiency, lean yield and litter size.

Appendix 7: Genetic Improvement Trends

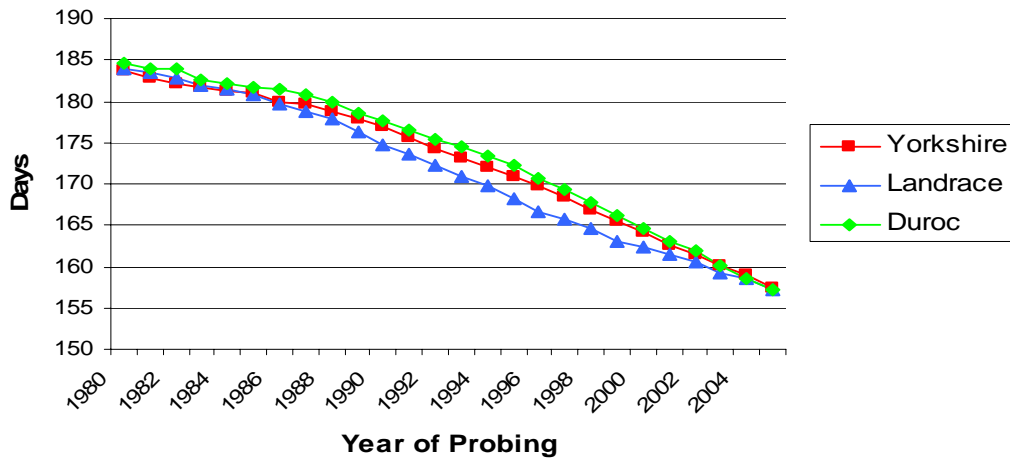
Genetic Trends for Litter Size



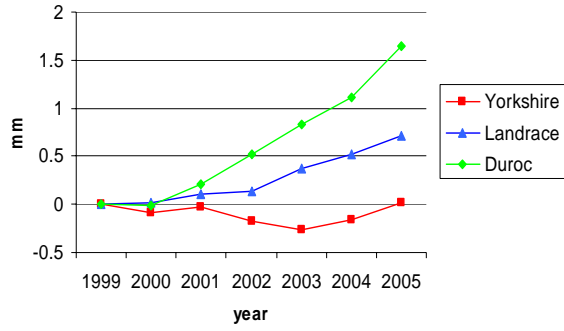
Genetic Trends for Backfat at 100kg



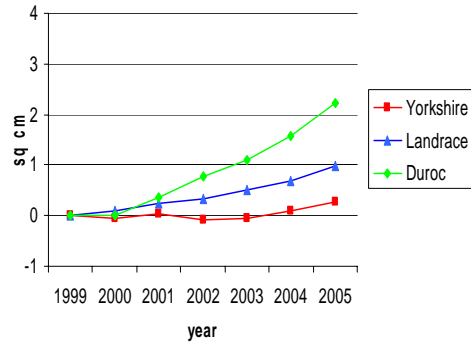
Genetic Trends for Age at 100kg



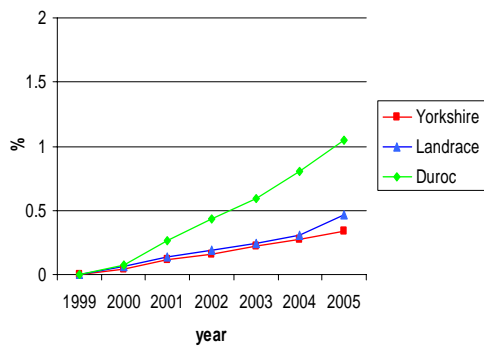
Lean Depth at 100kg



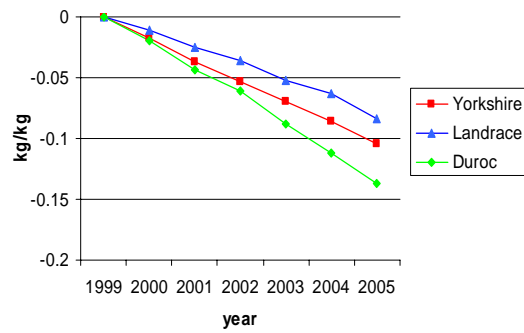
Loin eye area



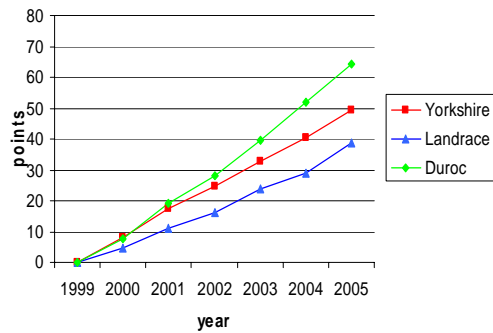
Lean Yield



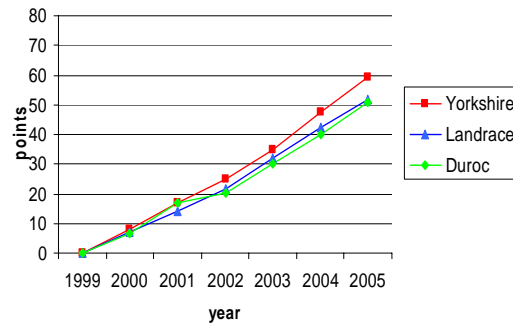
Feed Conversion Ratio



Sire Line Index



Dam Line Index



Appendix 8. Reports on Activities

1. Review on Paylean
2. The importance of connectedness
3. The Canadian Swine Improvement Program (in French) published in Techni-Porc
4. Genetic Evaluation using markers completely linked to QTL (EAAP paper)
5. Genetic trends in Canadian swine herds
6. Report on JRP conference in France (Swine Research Days)
7. Report on CLRC workshop
8. Abstract on disease resistance
9. Simplifications of marker-assisted genetic evaluation and accounting for non-additive interaction effects
10. Contribution of Genetics to Improved Breeding Herd Performance
11. Molecular Genetics : What does it mean for swine breeders?
12. Influence on French genetics from the commercial producer's perspective
13. Canadian Swine Improvement Program - Presentations in Vietnam and China
14. Use of small number of sires in swine populations
15. Use of IGF2 gene for carcass yield and pork quality in Canadian pigs
16. Meat Quality in Western Canadian Purebred Pig
17. Use of Random Regression Models for Repeated Measurements
18. 56th Annual Meeting of the European Association for Animal Production
19. Regional and Grid specific Indices available to CCSI members
20. IGF2 gene tests in purebred pigs tested at the Deschambault test station
21. Swine Genome Mapping Consortium Workshop
22. International Workshop on Selection in Small Animal Populations
23. Effect of using heavier carcass weight in Canadian purebred pigs
24. Sampling for Canadian Swine DNA Banking
25. National DNA Bank for Swine
26. CCSI Annual report 2004-05

These reports are available on CCSI's website at: www.ccsi.ca/reports

Appendix 9. Breeders Participating In The National Program

Atlantic Swine Centre	
International Genetics PEI Ltd. Box 43 Mount Stewart, PE C0A 1T0	PigCo Genetics Inc. 231 Dingwell Road RR #3, Morell, PE C0A 1S0
Point View Farms RR #3 Bellriver, PE C0A 1B0	Reg & Donald Macdonald Box 43 Mount Stewart, PE C0A 1T0
Sunriver Farms R.R. #4 Cornwall, PE C0A 1H0	Terry Brink R.R. #1 Alberton, PE C0B 1B0
Topline Swine RR #3 Earnscliff, PE C0A 2E0	Willowdale Farms R.R. #1 York, PE C0A 1P0

Centre du développement du porc du Québec	
Beauchemin, Sylvie 380, 1er Rang est Saint-Joachim J0E 2G0	Cie 2427 3963 Québec inc. 2693, boulevard Labelle, C.P. 484 Prévost J0R 1T0
Excel-Gène inc. 462, 2e Rang est Saint-Simon J0H 1Y0	Ferme Agral & fils inc. 160, route 363 Lac-aux-Sables G0X 1M0
Ferme Beau-Porc enr. 1691, 11e Rang Saint-Valérien J0H 2B0	Ferme C.-M. Labrecque enr. 1580, rang Saint-Étienne nord Sainte-Marie-de-Beauce G6E 3A7
Ferme Claude Forget inc. 841, 4e Rang Saint-Ambroise-de-Kildare J0K 1C0	Ferme Clauvie-Porcs (2002) inc. 202, rang 6 est Saint-Donat G0K 1L0
Ferme Cogeporc inc. 404, Saint-François Saint-Narcisse-de-Beaurivage G0S 1W0	Ferme Denis Vadnais inc. 3320, Chemin Tourville St-Nicéphore J2A 3Y8
Ferme du Berceau inc. 94, 1er Rang ouest Saint-Gervais-de-Bellechasse G0R 3C0	Ferme du Laurier 167, rang de la Montagne Saint-Gervais-de-Bellechasse G0R 3C0
Ferme du Murier inc. 137, route Soucy, C.P. 154 Saint-Édouard de Lotbinière G0S 1Y0	Ferme F. Pilote et fils enr. 410, rang Saint-Pierre Saint-Irénée G0T 1V0
Ferme Géni-Porc inc. C.P. 1378 Bedford J0J 1A0	Ferme Grenier Pouliot inc. 2515, chemin Lehoux, R.R. 3 Coaticook J1A 2S2
Ferme J.-M. Nadeau et fils inc. 496, route Sainte-Thérèse ouest Sainte-Hénédiène-de-Dochester G0S 2R0	Ferme J.P. Dion et fils inc. 154, rang Charlotte Saint-Liboire J0H 1R0
Ferme J.R. Raby senc 4222, rang de la Colline Adstock G0N 1S0	Ferme Jacques Ouellet 223, 6e Rang est Saint-Joseph-de-Kamouraska G0L 3P0

Centre du développement du porc du Québec	
Ferme Liloporc inc. 414, rang Saint-Pierre Saint-Irénée G0T 1V0	Ferme Lorix-Québec enr. 841, chemin Tomifobia Stanstead J0B 3E0
Ferme Luc & Estelle Forget inc. 2553, rang Saint-Jacques Saint-Jacques J0K 2R0	Ferme Maguy enr. 810, St-Pierre Laurierville G0S 1P0
Ferme Nico enr. 473, rang Saint-Nicolas Saint-Irénée G0T 1V0	Ferme Perfo-Porcs inc. 1735, rang 10 Notre-Dame-du-Bon-Conseil J0C 1A0
Ferme Pleinchamps inc. 460, rang Saint-Pierre Saint-Anselme-de-Dorchester G0R 2N0	Ferme Porasseny inc. 16, des Prairies Saint-François G0R 3A0
Ferme porcine DAJO senc 135, rue Principale Saint-Simon J0H 1Y0	Ferme Porcine de Beauce inc. 1640, rang Saint-Gabriel sud, R.R. 2 Sainte-Marie-de-Beauce G6E 3A8
Ferme porcine Jagari inc. 6330, route 112 Garthby G0Y 1B0	Ferme Raymond Coutu et fils senc 1861, route 158 Saint-Thomas J0K 3L0
Ferme Rechamakayajo enr. 507, rue Desjardins Mandeville J0K 1L0	Ferme René Gauthier inc. 404, rang Saint-Pierre Saint-Irénée G0T 1V0
Ferme Rouslay s.e.n.c. 954, rang La Ferme Sainte-Perpétue J0C 1R0	Ferme Saniporc enr. 167, chemin de la Montagne Saint-Gervais-de-Bellechasse G0R 3C0
Ferme Ste-Catherine enr. 404, rue Saint-François Saint-Narcisse-de-Beaurivage G0S 1W0	Ferme Triporc inc. 3251, Haut-de-la-Rivière Sainte-Elizabeth J0K 2J0
Ferme Victorien Fortin inc. 1346, rang Sainte-Anne Métabetchouan-Lac-à-la-Croix G8G 1A3	Groupe Dynaco Coopérative agroalimentaire 41, route 287 sud Saint-Philippe-de-Neri G0L 4A0
Hybrilia SEC 156, rue Grenier Laurierville G0S 1P0	J. & R. Perreault inc. 184, Saint-Jacques Saint-Patrice-de-Lotbinière G0S 1B0
Lemieux, Jean-Marc 76, rang 2 est Saint-Gervais-de-Bellechasse G0R 3C0	Élevage Auger (9150-0561 Québec inc.) 850, chemin des Acadiens Yamachiche G0X 3L0
Les élevages Technos Itée 2080, rang 8 sud Adstock G0N 1S0	Les Porgreg inc. 8795, Chemin du Rapide-Plat Sud Saint-Hyacinthe J2R 2A6
S.C.A. Disraëli 815, avenue Champlain Disraëli G0N 1E0	Ferme Almilard inc. 188, route 204, C.P. 39 Sainte-Justine G0R 1Y0
Sogéporc inc. - Filière des Érables 1025, rang Saint-Pierre Notre-Dame-de-Lourdes G0S 1T	Sogéporc inc. - Filière des Marées 60, chemin du Cenellier La Trinité-des-Monts G0K 1B0

Ontario Swine Improvement	
BMR Genetics Rod deWolde 12 Huston Street Millbrook, ON LOA 1G0	Bodmin Swine Genetics George Procter R.R. #5 Brussels, ON N0G 1H0
Carlisle Farm Robin Carlisle R.R. #4 Stirling, ON K0K 3E0	Clarion Swine Genetics Clare and Kent Martin R.R. #2 Drayton, ON N0G 1P0
Dietrich Farms Inc. Don and Paul Dietrich R.R. #1 Shakespeare, ON N0B 2P0	Dora Lee Genetics Ross and Betty Small R.R. #3 Harriston, ON N0G 1Z0
Haren Yorkshires Steve Zehr R.R. #1 Shakespeare, ON N0B 2P0	Ja-Viv Yorkshires Jack and Doug Nethercott R.R. #1 Arkona, ON N0M 1B0
Laurel Lee Acres Ltd Henry Groenestage R.R. #7 Orangeville, ON L9W 2Z3	Lone Willow Farm Bill and Sheila Collins R.R. #5 Kincardine, ON N2Z 2X6
Martinsheim Farm Richard Stroebel R.R. #2 Granton, ON N0M 1V0	Marwill Acres Reink Wiegersma R.R. #1 Bluevale, ON N0G 1G0
Monoway Farms Wayne and Paul Fear R.R. #4 Brussels, ON N0G 1H0	Novastar Genetics John & Enid Gough R.R.#3, 7959 Falconbridge MT. Brydges, ON N0L 1W0
PSP Farm Genetics George Socket R.R. #3 Wingham, ON N0G 2W0	Ribanwood Yorkshires Bancroft, Peter R.R. #1 Newton, ON N0K 1R0
SGO Inc. Embro Division R.M. Matheson R.R. #3 Embro, ON N0J 1J0	SGO Inc. Goderich Division R.R. #6 Goderich, ON N7A 3Y3
SGO Inc. Monkton Division Joe Kolkman R.R. #2, 6439 line 49 Logan Monkton, ON N0K 1P0	Stardobie Farm Doug and Rob McLeod R.R. #5 Embro, ON N0J 1J0
University of Guelph – Arkell Swine Research Tom Parker R.R. #2 Guelph, ON N1H 6H8	UPB Canada C. & J. Monden R.R. #5 Mitchell, ON N0K1N0
Vista Villa Farms Ltd. Bob and Scott Robinson R.R. #4 Walton, ON N0K 1Z0	West Lane Acres Wayne Brubacher R.R. #1 Wallenstein, ON N0B 2S0

Western Swine Testing Association	
CAN-AM Genetics Inc. Box 278 Ookville, Manitoba R0H 0Y0	Lorne Penner PO Box 29C Ste. Anne, Manitoba R0A 1R0
Evergreen Colony Box 247 Oakville, Manitoba R0H 0Y0	Pembina Hog Farm General Delivery Darlingford, Manitoba R0G 0L0
Norquay Hog Farm Box 247 Oakville, Manitoba R0H 0Y0	Fast Pigs Inc. Box 903 Spiritwood, SK S0J 2M0
Acadia Breeders Ltd. R.R. #3 Lacombe, AB T0C 1S0	Bloomsbury Farms Ltd. General Delivery Bloomsbury, AB T0G 0G0
F&S Farms Box 1795 Camrose, Alberta T4V 1X7	Five Lakes Farms Ltd. Box 537 Mayerthorpe, AB T0E 1N0
Gwynne Vista Farms R.R. 2 Gwynne, AB T0C 1L0	Huvenaars Farms Ltd. Box 142 Hays, Alberta T0K 1B0
Jakubec Farms Box 557 Viking Alberta T0B 4N0	Matejka Purebred Swine Box 779, R.R. #1 Sylvan Lake, AB T0M 1Z0
Morinville Colony R.R. #2 Morinville, AB T8R 1P5	Neufeld Farms Ltd. Box 105 Acme, AB T0M 0A0
Outlook Pork Box 186 Nobleford, AB T0L 1S0	PEAK Swine Genetics #217 - 5904B - 50 ST. Leduc, AB T9E 6J4
Jurgen Preugschas Box 537 Mayerthorpe, AB T0E 1N0	Rosebriar Farm Box 73 Alcomdale, AB T0G 0A0
Herman Simons R.R. #1 Tees, AB T0C 2N0	

Appendix 10. Participating A.I. Centres

<p>Alberta Swine Genetics Co. c/o Gregory Lebowa, Manager Box 3310 Leduc, AB T9E 6M1 Tel: (780) 986-1250 Fax: (780) 986-6523 Email: asgc@oanet.com</p>	<p>OSI Swine A.I. Centre P.O. Box 400 Innerkip, ON N0J 1M0 Tel: (519) 469-3010 Fax: (519) 469-8692 Email: mgingerich@osi.org www.osi-inc.on.ca</p>
<p>CIPQ inc. (St-Lambert) a/s Ronald Drapeau 1486, rang St-Aimé Saint-Lambert, PQ G0S 2W0 Tél: (418) 889-9748 Fax: (418) 889-8210 Email: cipq@cipq.com</p>	<p>CIPQ inc. (Roxton) a/s Ronald Drapeau 2100, Rang 6 Roxton Falls, PQ J0H 1E0 Tél: (514) 375-9977 Fax: (514) 375-2077 Email: cipq@cipq.com</p>
<p>Cobiporc Québec (St-Patrice) a/s Sébastien Leclerc 2537, rang St-Jacques, C.P. 2030 St-Jacques-de-Montcalm (Québec) J0K 2R0 Tél: (450) 839-7844 Fax: (450) 839-2992 Email: info@cobiporcquebec.com</p>	<p>Magnum Swine Genetics Box 1514 Fort Macleod, AB T0L 0Z0 Tel: (403) 553-4844 1-888-553-4844 Fax: (403) 553-4845 Email: sales@magnumswine.com www.magnumswine.com</p>
<p>National Swine Genetics 8817 Glengyle Drive Strathroy, ON N7G 3H3 Tel: (519) 245-6868 Fax: (519) 245-4884 Email: jmosborne@sgo.on.ca www.sgo.on.ca</p>	<p>International Genetics PEI Ltd. Box 43 Mount Stewart, PE C0A 1T0 www.peipork.pe.ca/quality/aiunit</p>
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