ACCREDITATION PROCESS FOR SWINE TECHNICIANS

REVISED - October 1, 2011

The accreditation process administered by the Canadian Center for Swine Improvement (CCSI) is open to any potential technician recommended by CCSI's regional member organizations. Upon successful completion of the requirements as set out below a technician will be issued a level 1 or level 2 certificate by CCSI.

Technicians will be evaluated at ultrasonic standards testing sessions organized by a regional member organization. Standards sessions may be either regional or national. Level 2 certificates may only be issued upon completion of a national standards session by a technician having first achieved level 1 certification.

National Ultrasonic Standards

National ultrasonic standards are set by CCSI based on the advice of an ultrasonic working group, and on review by CCSI's Genetics Committee. The working group also advises CCSI on the content of a technician's manual, which contains practical information on ultrasonic probing and the genetic improvement program in general. Recommendations regarding the accreditation process and the technician's manual should be made to the senior regional specialists to be passed on to members of the working group for review. Review of the accreditation process and the manual will take place as needed. Current members of the working group are:

Raymond Deshaies	National Ultrasonic Standards Officer
Jean-Paul Daigle	Centre de Développement du Porc du Québec
Wim Van Berkel	Western Swine Testing Association
Murray Duggan	Fast Genetics
Darcy Patoine	Fast Genetics
Rebecca Millar	Fast Genetics
Chris Crump	Ontario Swine Improvement
Philippe McSween	Centre de Développement du Porc du Québec
Heather Ayles	Atlantic Swine Centre
Brian Sullivan	Canadian Centre for Swine Improvement
Laurence Maignel	Canadian Centre for Swine Improvement

National Standards Officer

CCSI designates one national **ultrasonic standards officer**, who is responsible for supervising standards sessions and accrediting technicians on behalf of CCSI.

He also has responsibility for supervising the training of technicians according to the national standards, and for assisting CCSI in the setting of standards. The ultrasonic standards officer will carry out evaluations of available types of ultrasonic equipment at the standards sessions as well as collect data for live to carcass comparisons.

Senior Regional Ultrasonic Specialists

Each regional organization is responsible for assigning one person as the region's senior specialist. The senior specialists will be the main contact for the national standards officer and will be responsible for coordinating regional and national ultrasonic standards sessions. They may train technicians and supervise them in conducting the written tests. Senior regional specialists are responsible for recommending technicians for testing and for advising the national standards officer on any problems regarding technician performance. They are also expected to ensure that any private equipment used in the herds is functioning to a satisfactory level. Senior regional ultrasonic specialists should maintain level 2 accreditation.

Reference Technicians

A reference technician may be a regional ultrasonic standards specialist, an accredited level 2 technician or a designated level 1 technician agreed to by CCSI and the national standards officer. A least two reference technicians are responsible for determining the standard probe references at a national or regional ultrasonic standards session.

Standards Sessions

Ultrasonic standards testing sessions are supervised by the national ultrasonic standards officer or a regional standards specialist. The designated reference technicians will independently scan all pigs available to set the **standard reference**. The standard reference on each pig will be set by taking the average measures of at least 2 reference technicians for backfat and lean depth.

Prior to a standards session, the national ultrasonic standards officer or regional standards specialist will be responsible for checking equipment used by each technician. Machine calibration will be verified and transducer efficiency checked. If a transducer is judged unacceptable, another transducer may be made available to the technician for that session.

Practical test results must be based on 25 pigs probed twice and every attempt should be made to have available for a standards session a representative sample of pigs near 100 kg live weight. In on-farm monitoring sessions, when it is not possible to scan 25 pigs twice, it is acceptable to scan 25 to 50 pigs once. It is recommended that 25 pigs be made available for an ultrasonic standards

session. However, if for any reason a technician is not able to probe the minimum 25 pigs then analysis for accreditation can be split across more than one session. Two criteria will be used to determine the practical test results:

a) The average difference between technician measurements and the standard reference will be calculated to yield a measure of bias. The bias must be no more than .75 millimeter on backfat and 1.50 millimeter on lean depth.

b) The correlation between technician measurements and the standard reference should be at least 0.90 on backfat and 0.75 on lean depth.

The measures of bias from and correlation with the standard together provide the necessary information by which to judge the practical competence of a technician. Probing the pigs twice also provides an estimation of the repeatability for each technician, which might be provided as information. Results of the practical test are reviewed by the national ultrasonic standards officer and CCSI and returned to the technician.

Ultrasonic Standards Lecture

The Ultrasonic Standards Lecture is set by the national standards officer in collaboration with CCSI, and should be attended by any new technician, and any accredited technician willing to attend in order to refresh or update his knowledge. It is followed by a written exam that has to be successfully completed once by any technician to be accredited on the program. The lecture and written test should include the following basic categories:

a) probe sites and basic anatomy,

b) ultrasound machine adjustment and calibration,

c) basic theory of ultrasound,

d) awareness of problems that cause errors in measurement,

e) use of data in the national improvement program, and

f) basic technology awareness.

National Standards Session

National standards sessions will be conducted once per year. The national standards sessions will have 4 main purposes:

1. To certify technicians to a level 2 standard,
2. Mandatory for level 2 technicians to be references till December 31st of the following year
3. To keep all reference technicians updated regarding new equipment,

technology, the swine improvement program and standards; and to provide an opportunity for live to carcass comparisons.

4 To have training on new traits if there is a common interest

Reference technicians wishing to be evaluated at the session must probe all pigs in the main probing session. Level 2 certificates will be issued only after successful completion of a practical test at least once a year, and attendance of the Ultrasonic standards lecture and completion of a written exam.

The national standards sessions are also intended to provide an opportunity to make live to carcass comparisons. Carcass measures will only be used as a means to monitor results and provide additional information to technicians, not to set test standards. Every opportunity should also be taken to use real-time ultrasound imaging to enhance the understanding of technicians. Technicians attending a national standards session for level 1 accreditation need not participate beyond what is needed to complete the practical test.

The national standards sessions also may be used to assess new machine models (on a request basis). A recommended method of assessing machines is to use a factorial design statistical model with technicians and machines as main factors and an interaction effect, and a minimum of 25 measures per cell. However, actual machine certification is not required since technicians may use the machine of their choice and will receive accreditation **for use of that machine** to measure backfat and muscle depth. Certain equipment using similar technology might be grouped (e.g. Ultrascan 50 and Vetko+) so that a technician accredited on one machine would be accredited for the group of machines. A list of machines is managed in this regard and updated as needed.

Regional Standards Sessions

Regional standards sessions are conducted under the supervision of each regional ultrasonic standards specialist. At least one regional ultrasonic standards specialist must be present as well as one other reference technician.

A technician is required to attend the Ultrasonic standards lecture and complete a written test once before achieving level 1 status, but must successfully complete a practical test every year. Regional standards sessions need not provide for carcass evaluation of probed animals but the decision remains with the senior regional specialist.

On-farm monitoring sessions

In specific cases where biosecurity and competition issues make it difficult to have people and/or equipment moving to other barns for regional or national sessions, on-farm checks will be conducted, in agreement with CCSI and the national standards officer. At least one level 2 technician must be present and

will set the reference. The technician must already be a level 1 technician or at least have attended the Ultrasonic standards lecture and completed the written exam of the CCSI accreditation program.

All data collected during regional sessions and on-farm monitoring sessions must be submitted to CCSI for analysis and at the discretion of CCSI and/or the regional centre, a follow-up monitoring session may be required to address any concern.

Certificates of Competence

The certificates of competence issued by CCSI signify that the accredited technician has successfully completed the requirements set out according to national standards. The following information should appear on a certificate:

Name of technician
Machine on which technician accredited
Description of the scan
Expiry date of certificate
Signature of the national standards officer

Certificates of competence are valid until the end of the year following the standards session and may only be issued by CCSI. It is the responsibility of the regional organization to ensure that all its technicians have a valid certificate of competence.

The national ultrasonic standards officer reserves the right to extend accredited status to level 1 technicians for no more than 2 three-month periods. Extended accredited status may also be assigned to level 2 technicians for no more than 2 six-month periods, upon agreement from the national ultrasonic standards officer and approval from CCSI.

Monitoring and Decertification

Certificates issued by CCSI are valid for at least one year. Technicians are required to attend another standards session before the expiry date in order to maintain their status as an accredited technician. The national ultrasonic standards officer will be responsible for setting national standards lectures and written tests, and must be present at each standards session held for the purpose of accrediting technicians to a national standard. Failure to pass a practical test in the case of level 1 technicians or a written and a practical test in the case of level 2 technicians will result in decertification unless a decision is made to extend accredited status.

A technician must test at least 150 pigs per calendar quarter to remain accredited. At least 100 must come from litters where both parents have national EBVs. These 100 could include F1 animals.

The regional organizations are responsible for ensuring that their technicians are properly trained and accredited. Probe data submitted to CCSI should be from accredited technicians (or on extended status) only. Technician Monitoring Reports should be made available on a quarterly basis to the senior regional specialist, the national ultrasonic standards officer and CCSI.