National Swine Identification and Traceability Pilot Study

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1. Context

In July 2002 the Canadian Pork Council decided to coordinate the development of a national traceability system from birth to slaughter.
The goals of this identification and traceability system were to minimize the impact of a foreign animal disease (FAD) outbreak or a food safety crisis, to reinforce the domestic and export market access, and to improve the competitiveness of the industry.
It was clear that the different options for a national system needed to be evaluated and it was decided to test for the costs, effectiveness and adaptability of such a system before its implementation.

2. Development of a traceability program

The development of this traceability system has five progressive steps:

- The identification of requirements and expectations from governments, value-chain and consumers
- The identification of premises
- The identification of animals and animal products
- The tracking of animals
- and finally communications and consultations with stakeholders

The project is lead by the Canadian Pork Council (Eric Aubin) and funded by the Ministry of Agriculture.
Two consultants are in charge of the pilot study on identification and traceability: Epidémio-Qualité Inc. for the individual identification of animals and AVC Inc./Clarkston Canada for the group lot identification.
The pilot study is run in 3 provinces and the field work and coordination is realized by the Centre de développement du porc du Québec (CDPQ) in Québec, the Manitoba Pork Council in Manitoba and the Atlantic Swine Research Partnership in PEI.

3. Objectives of the pilot study

The objectives of the pilot study are to ascertain and test the most effective and most efficient traceability system in order to meet the traceability conditions required for health zoning and for addressing a food safety crisis in real Canadian hog production conditions.
A traceability system is composed of 3 components: the identification, the identifier and the traceability.

3.1. Identification and identifier

The pilot study is meant to quantify, characterize and compare the technical performances of the different identifiers tested. Their performances are evaluated during the life of the animal and at the abattoir for such items like identifier losses or inability to read them.
The problems or constraints related to the use of each identification means will be compiled and compared.
The impact identification has on human resources will also be ascertain and the cost of the equipments will be determined.

3.2. Traceability

The study will evaluate the traceability performances of the different identification systems like data capture, data transfer and integration and tracing for zoning (efficacy, precision, and timeliness). For that purpose an outbreak of FAD (foot-and-mouth disease for example) will be simulated in collaboration with the CFIA.
A comparative economic analysis of the costs to run the traceability system according to the different identification means will be done.

4. The different traceability systems tested

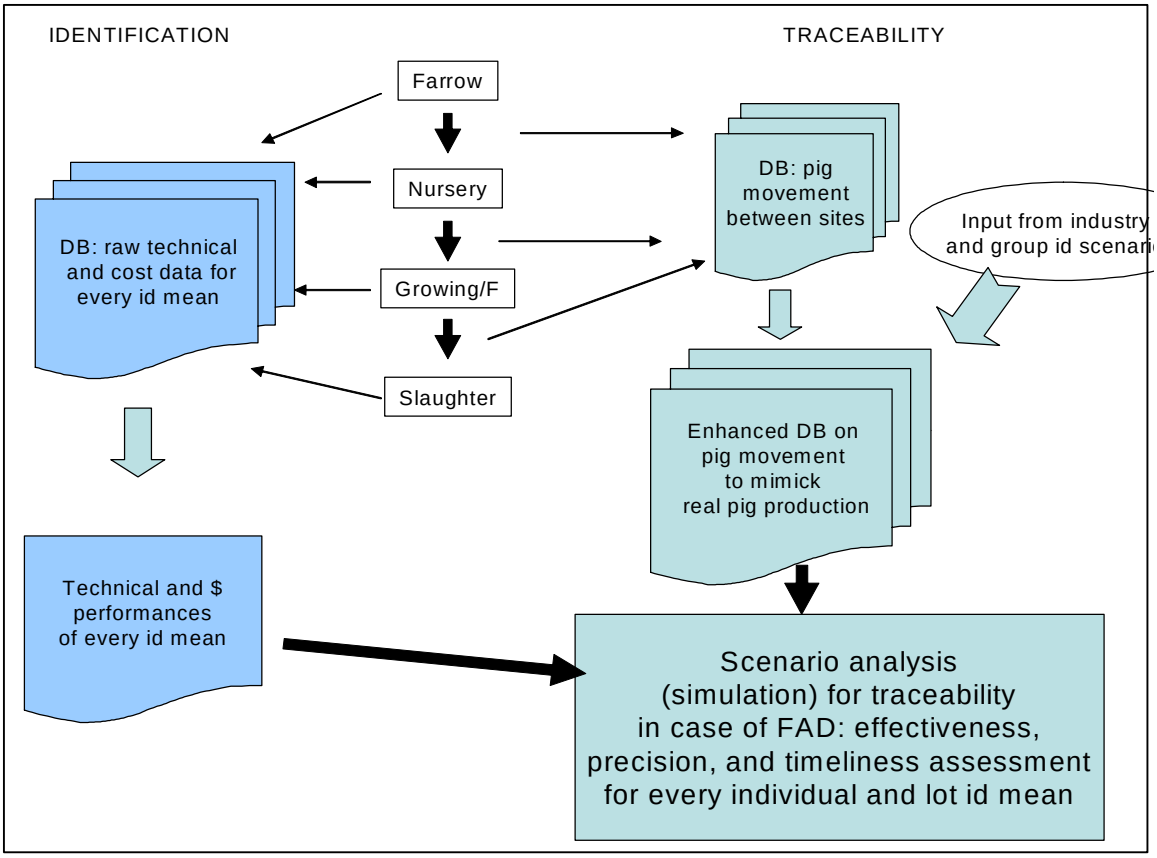
The different traceability systems were grouped in 8 different scenarios. Seven scenarios are interested in the identification of a single individual animal, with 3 of them being electronic devices while one looks at the identification of a group animal taken as an integrated lot.

Identification	Identifier			
	Scenario #	Farrowing site	Nursery	Finishing site
Single individual	1	Electronic ear tag – HDX technology	N/A	N/A
	2	Electronic ear tag – anti-collision technology (13.56MHz)	N/A	N/A
	3	Electronic ear tag – FDX technology	N/A	N/A
	4	Ordinary tag	Ordinary tag	Shoulder slap
	5	Ordinary tag	Pneumatic shoulder tattoo	Shoulder slap
	6	Ear tattoo	Ordinary tag	Shoulder slap
	7	Ear tattoo	Shoulder slap	Shoulder slap
Lot identification	8			

The equipments from nine companies are participating to the study, covering all the available suppliers in North America.

5. Economic and epidemiological analysis

The study can be divided into 2 parts: the identification and the traceability.
A database was set up to collect the data on technical performances and cost for every identifier tested, while another database records the movement of pigs between sites. This database will be enhanced with input from the industry and group id scenario to be closer as possible to the real pig movements encountered in Canada.
These 2 databases will be used to analyze the comportment of the different identification scenarios for traceability in case of a FAD outbreak. This simulation will look at the effectiveness, precision and timeliness assessment for every individual and lot identifications.



6. Farms and abattoirs participating to the study

Forty-one farms are participating to the study across the 3 provinces: 18 in Québec, 10 in Manitoba and 13 in PEI.
These farms were selected according to their size (small <125 sows, medium and large >600 sows) and type (farrow to finish FNF, 2 sites FN+F or 3 sites F+N+F).

	Small	Medium	Large	
FNF	3	8	5	16
FN+F	1	4	6	11
F+N+F		3	11	14
	4	15	22	41

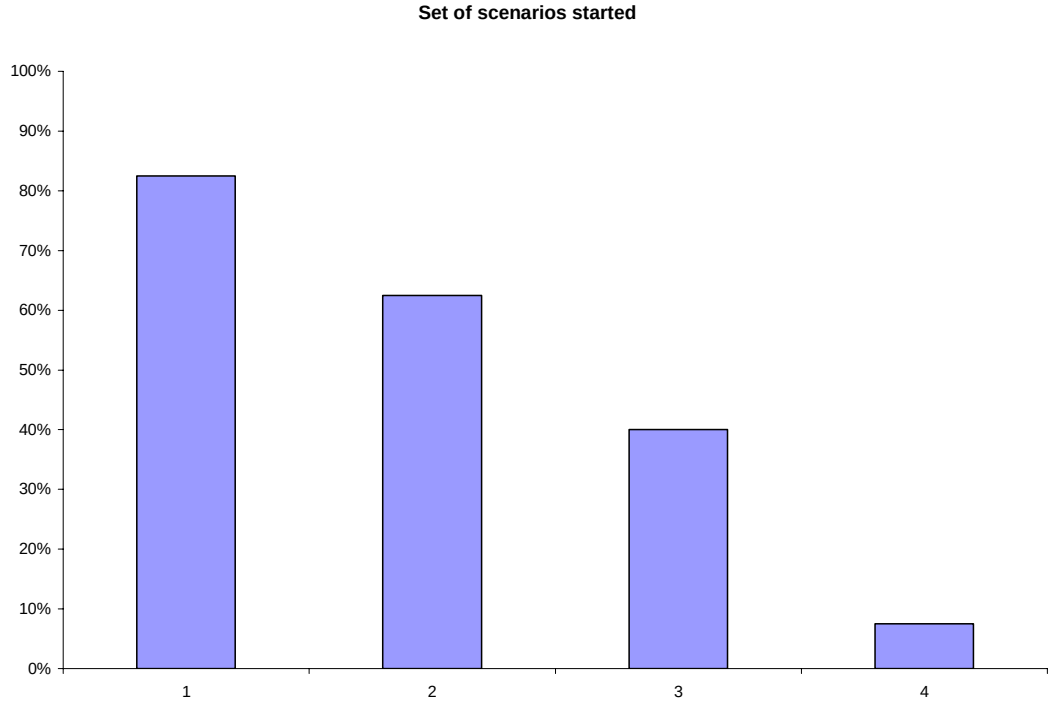
From 41 producers we ended with more than 100 different sites:

	Number of farms	Number of farrowing barns	Number of nurseries	Number of finishing barns
Québec	18	19	23	45
Manitoba	9	9	10	11
PEI	13	13	13	13

The pigs will be sent to 3 abattoirs: Vallée Jonction, Olymel for Québec, Brandon, Maple Leaf for Manitoba and Garden Province Meats in Charlottetown.

7. Progress in the pilot study

The farms have to test 3 different scenarios. The pilot study is progressing very well with most of the farms having started at least one scenario and for already a lot of them testing their second or third one. This figure shows the set of scenarios tested in the 3 provinces as of April 15th.



8. Activities remaining

Some piglets remain to be identified but some are already at the finishing stage and the first pig to go to slaughter are meant by the end of May. We expect to have pigs from the study going to slaughter up to November 2004.

The data analysis and simulation will be realized from September to December 2004 with the final report due to January 2005.

The report and conclusions will be reviewed by the CPC, provincial associations and stakeholders before the final decision to be taken by the CPC by April-May 2005.

9. Epidémio-Qualité Inc.

Epidémio-Qualité, the only private Canadian company involved in applied veterinary epidemiology and located in Saint-Hyacinthe, Qc, is in charge for the design of the study, the coordination with the different suppliers, the field coordination of the pilot study, the data analysis and traceability simulation and the reports for the CPC.