



## New Tools for Improving Biosecurity

We all know biosecurity pays big returns. There are many practices we can think of such as placing large distances between barns, to daily occurrences that involve entrance showering, downtime, and cleaning anything brought into the farm, that fall within a biosecurity plan. It's also one of those things that can be taken for granted when problems don't arise. When an outbreak occurs, contamination could occur from any number of sources, for example by feed, air, personnel, pigs, or transportation.

What if we could better understand the dissemination of potential contamination and the relationships between stakeholders (producers, packing plants, feed companies, veterinarians)? We would then be able to identify potential vectors, and quantify the relative risk associated with movements of animals, personnel or feed and develop efficient bio-security measure to reduce the possibility of potential contamination.

Work conducted by Ann Letellier, University of Montreal, and funded through Swine Innovation Porc documented the main movements and traffic between farms and slaughterhouses within a specific area. Using microbial indicators, geospatial data (GPS), analysis and characterization of interactions between stakeholders, it also identified potential main sources of contamination and the stages or practices and attitudes related to an increased risk of contamination.

### Project Results

#### Microbial Indicators

- E. coli and Salmonella are good microbial contamination indicators to follow fecal contamination through a producer network (production facility-transportation-slaughterhouse)
- Farms and packing plant loading dock were the most contaminated environments
- Contamination was important on trucks (mudflaps, inside carpet) before and after washing and disinfection and on tire tracks in the packing plant yard, increasing the risk of microbial transfer throughout the system

#### Geomatics

- Transportation is the main source of contamination throughout the system. More than 50% of contamination identified came from the packing plant yard, tire tracks or trucks.
- Better understanding the main routes and movements by all stakeholders within the system indicates the location of the organization (producer, packer, veterinarian) directly influences the frequency of contact within the network.

#### Systemic point of View (Stakeholder Interviews)

- The swine industry requires partnership, transparency, ongoing trust, dialogue and a common approach among the stakeholders involved within the system

Risk factors associated with herd contamination, disease propagation and slaughterhouse contamination are not well understood in Canada and more information is needed by the industry to understand how this contamination is associated with people/vector movements. Results from this project will help the Canadian pig industry to be more organized, proactive in the management of contamination events and sanitary crisis. Improving biosecurity is a guaranteed means of increasing long-term industry profitability and sustainability.

#### BioSecurity and You

<http://www.prairieswine.com/biosecurity-you/>

#### Biosecurity Pays Big Returns

<http://www.prairieswine.com/biosecurity-pays-big-returns/>

#### Biosecurity in Swine Production: Widespread concerns?

<http://www.prairieswine.com/biosecurity-in-swine-production-widespread-concerns/>

