Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

Canadian Food Inspection Agency




Our vision:
To excel as a science-based regulator, trusted and respected by Canadians and the international community.

Our mission:
Dedicated to safeguarding food, animals and plants, which enhances the health and well-being of Canada's people, environment and economy.

2012 Swine Influenza Update

OFFLU SIV Group Technical Meeting, Rome, April 16, 2013

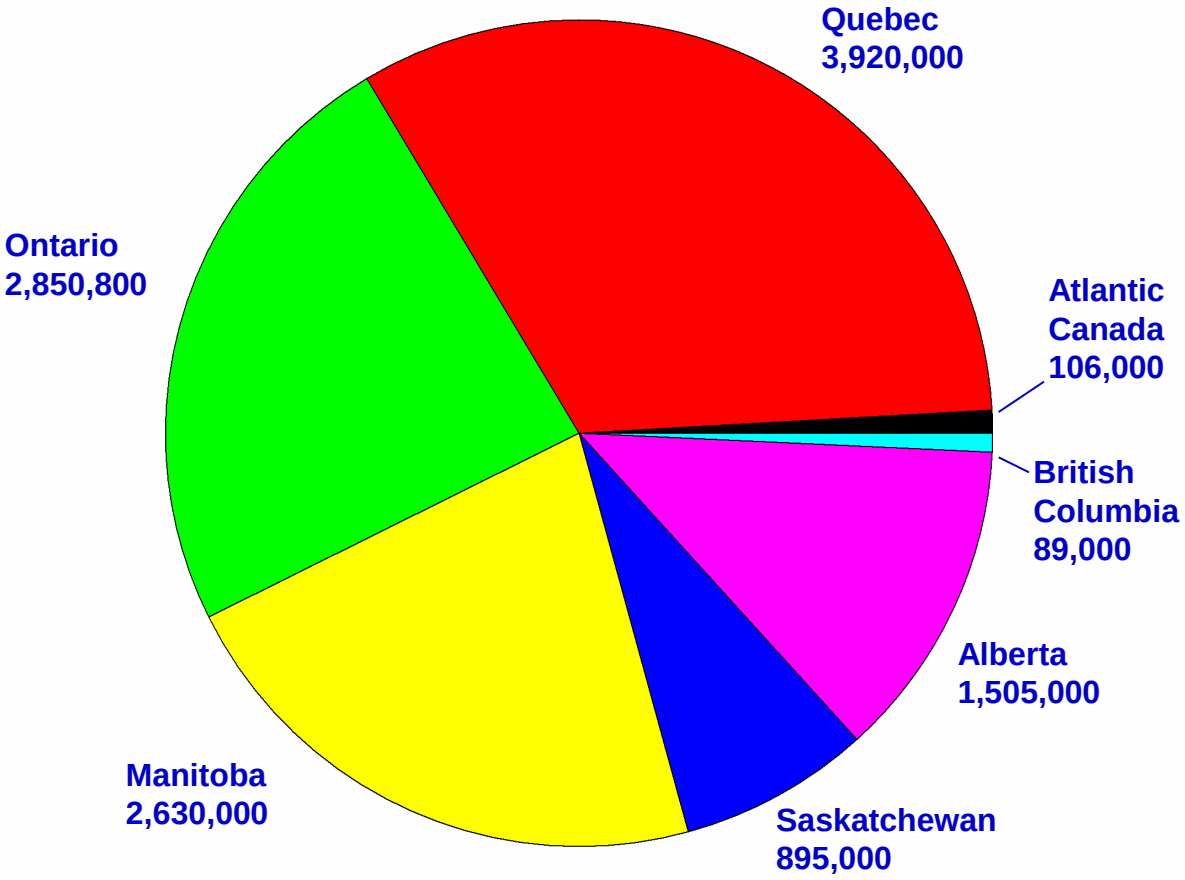
John Pasick, NCFAD, Winnipeg

Canada

Public Health

- No H3N2v cases
- Single case involving an Ontario trucker infected with a γ cluster H1N1 virus in September 2012
- Individual worked with pigs in Canada and USA

Canadian Pig Inventory 2011



12 million pigs

State of Canadian Swine Industry

- Canadian industry directly employs 67,500 people
- Worth $21.3 billion annually to economy
- Since 2008 the industry has experienced losses of ~$2 billion
- By mid-2012 producers were losing ~$30 to $50 per pig
- September 2012:
  - Big Sky Farms, Saskatchewan Canada's 2nd largest pig producer files for bankruptcy - $70 million in debt
  - Puratone Corp., Manitoba's 3rd largest and Canada's 4th largest pig producer files for bankruptcy - $93 million in debt

Animal Welfare

- Industry has received bad press regarding use of gestation stalls
- Pressure for industry to change to other ways of housing gestating sows
- Switch to group penning and open gestation zones will cost $$$$

Sampling for SIV – 2009 to 2010

- 9 laboratories conducted influenza testing on swine-origin samples
- 2993 submissions
- 15,937 samples
- 29,500 tests utilizing 35 unique test metholdologies among the 9 laboratories were performed to detect or differentiate SIVs

Ontario

- 72 viruses isolated from 2010 to 2012
- Obtained 26 isolates with which we're beginning whole genome sequencing and antigenic characterization
- 2010 – H3N2
- 2011 – began identifying pH1N1
- 2011 – first reassortants between H3N2 and pH1N1 identified
- 2011 – swine-to-turkey transmission of one of these reassortants had been identified 2 years earlier (PLoS One 7:e32858)

Manitoba

- Obtained PCR positive material from which we've obtained 20 isolates
- A variety of reassortants have been identified on the small number of isolates that have been characterized to date
- H1N1, H1N2 and H3N2

Antiserum Panel from Amy Vincent

A/SW/IL/00685/2005 δ2 H1N1	δ2 H1N1
A/SW/IL/00685/2005 δ2 H1N1	δ2 H1N1
A/SW/OH/511445/2007 γ H1N1	γ H1N1
A/SW/MN/07002083/2007 δ2 H1N1	δ2 H1N1
A/SW/MN/07002083/2007 δ2 H1N1	δ2 H1N1
A/SW/MN/02053/2008 α H1N1	α H1N1
A/SW/MN/02053/2008 α H1N1	α H1N1
A/SW/MN/02093/2008 α H1N1	α H1N1
A/SW/MN/02093/2008 α H1N1	α H1N1
A/SW/IA/02096/2008 β H1N1	β H1N1
A/SW/IA/02096/2008 β H1N1	β H1N1
A/SW/KY/02086/2008 β H1N1	β H1N1
A/SW/KY/02086/2008 β H1N1	β H1N1
A/SW/NE/02013/2008 β H1N1	β H1N1

Future Research

- **Swine Innovation Porc – Canadian Swine Research & Development Cluster II**
  - Genetic, Antigenic & Pathobiologic Characterization of Swine Influenza Viruses Isolated from Canadian Pigs
  - Multiple objectives which can provide insight into virus evolution as well as facilitate better matching vaccines

- **Canadian Safety & Security Program**
  - Design a prototype National Integrated Surveillance System for Zoonotic Influenza Viruses in Canada
  - Objective to design a system that will provide timely, relevant information as well as to serve as a base-repository for information at the human-animal-environment interface

Future Research

- **Epidemiology**
  - Examine modes of spread between farms
  - Focus will be on a limited number of farms and production types

Thank you for your attention