Ontario Johne’s Program Report – 2010-2013
November, 2013

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The Ontario Johne’s program commenced Jan 1, 2010 and concluded October 31st 2013.

Program Objectives:

1. Advance the reputation of Ontario’s dairy industry as proactive in matters relating to animal health and product quality and safety.
2. Enhance producer-veterinary partnerships to improve on-farm disease prevention, specifically for Johne’s, but also for other fecal-orally transmitted calf diseases (such as bacterial and viral calf diarrhea).
3. Encourage implementation of farm-specific changes for Johne’s prevention and control
4. Demonstrate the use of a whole herd approach to testing and disease prevention.

Program activities:

About 52% (2153) of all Ontario herds fully completed the program with 247 participating and trained veterinary practitioners. Program components these herds achieved were one (or two) full herd Johne’s ELISA tests, completion of the Johne’s Risk Assessment and Management Plan (RAMP) with their vet and removal of High Titre (HT) cows identified on testing, within 90 days of testing.

Program Results:

Number of herds found with at least one test positive cow on the herd test = 563 (26%)
Number of tested herds with at least one High test-positive test (result of 1.0 or higher) = 112 (5%)

Johne’s prevalence: The proportion of positive herds identified on the program is similar to what was expected from previous surveys. However with only approximately half of provincial herds voluntarily participating, there remains some uncertainty whether this is the “true” provincial picture. Research using bulk tank (BT) testing is underway to compare the prevalence of Johne’s strongly positive bulk tanks among herds participating in the program to those not participating. While BT tests remain too insensitive for useful herd management information, the test will be useful to compare the rate of highly positive herds enrolled in the program to the rate of highly positives among those not in the program. We hope this will give us insight regarding the Johne’s prevalence among non-participating herds and better understanding of the overall provincial Johne’s picture. BT testing and results are solely for interpretation of the programs overall results.

High test-positive cows: High test-positive (HT) cows are those with milk or blood ELISA test results of 1.0 or higher. Extrapolation from a previous small survey suggested over 1000 might be found if 100% of herds participated, thus the finding of 147 HT cows was lower than expected. The lower rate
of HT’s may be because some were removed prior to participation in this program or because the true rate of HTs was lower than predicted. Possibly the higher HT rate in the earlier surveys was because of increased participation by herd owners where Johne’s problems had already been diagnosed. The lower rate of HT’s is good news; however their movement among the Ontario herd population and to slaughter remains a concern producers should be aware of.

Not all HT cows were successfully removed for program reimbursement. A survey of producers with HT results revealed that some HT cows were kept for production or genetic reasons or because the owners doubted their risk or the test results. Producers whose herds had HTs identified and who did not remove cows to deadstock or burial, but retained them or shipped them for beef or dairy sales, were not reimbursed in any way by the program. This approach was strongly endorsed by producer participants in the program design team.

**Johne’s risks identified by Risk Assessment and Management Plan (RAMP) summary:**

To date, early summaries have identified the following management practices as being associated with being a Johne’s test positive herd for Ontario herd owners:

**For Johne’s introduction to the herd:**
- Purchase of mature cattle

**For spread of Johne’s within the herd:**
- Pooling of colostrum
- Group calving pens

Further analysis of RAMP data is underway and will be available in the winter of 2014. This information will be of importance in formulation of future extension materials and on-farm biosecurity programs.

**Research generated in association with the Ontario Johne’s program:**

A major goal of the program was to stimulate research into Johne’s itself and disease transmission more generally, that would be applicable to Ontario herd management systems. Research resulted from the Ontario Johne’s program because important issues and questions arose as the program progressed. The generation of a large aggregate database of tested cows and herds through the program, combined with RAMP assessments, has allowed progression of organism, farm or provincial level projects. In addition, the provision of industry funds facilitated a great deal of successful matching with other research programs. Research projects are listed in Appendix 1.

**Program Education/Extension and Technology Transfer:**

An important component of the program was to provide relevant information to Ontario’s dairy producers and veterinary practitioners. This was done via participation in numerous meetings and trade shows, as well as by publications in both lay and scientific sources. A list of educational
initiatives appears as Appendix 2 at the end of this report. See Appendix 4 for a poster containing Highlights from the program.

Conclusions to date:

The program achieved 52% enrolment of producers – less than the 75% optimistically budgetted for – however a remarkable achievement for the first attempt at a program like this in Ontario, and fully via voluntary participation by both producers and veterinarians. The Ontario program has been commended internationally.

Producer and veterinary partnerships have been strengthened and on-farm biosecurity (disease prevention) for calves and cows improved. New extension and teaching initiatives for enhancing the program’s recommendations were successfully piloted in the Johne’s Focus Farm project.

Ontario’s dairy producers and their industry have successfully demonstrated their interest in better disease prevention and cattle health improvement with their funding, RAMP participation and test results. While MAP remains on the horizon as a risk to human health and a threat to the image of cows and dairy products, producers and vets have shown their willingness to take proactive preventive steps to mitigate this risk using the best available herd management information and technology.

Upcoming from the program:

Extension materials from the program will include “Testing Recommendations” and “Recommended Guidelines for Johne’s Prevention” to be derived from program materials and delivered to all Ontario producers in December 2013.

Final program information will be shared in the December Milk Producer magazine where the program will be the featured “cover story”.

In addition to OABP, A “Johne’s wrap-up” session will be featured at the January 2014 Annual General Meeting meeting of the Dairy Farmers of Ontario. For producers, Dr. Mike Collins will again present at the DFO/DHI Joint Technical session of the January 2014 DFO AGM. Dr. Collins was well received in January 2010, and has been asked to provide his view on “Where next with Johne’s?”.
Appendix 1:
Research projects completed or currently underway include:

1. Risk assessment based calf management program for the control of Johnes disease.
   Principle Investigator: David Kelton (University of Guelph)

2. Applying recombinant technologies to define the secretome of MAP for the discovery of potential immunogens and diagnostic reagents.
   Principle Investigator: Lucy Mutharia (University of Guelph)

3. Integrating milk based cow and bulk tank test data, dairy cattle inventory data and GIS location data into the AHL surveillance capacity.
   Principle Investigator: David Kelton (University of Guelph)

4. Measuring the impact of a participatory approach to accelerating the adoption of practices and procedures to control Johne’s Disease on Ontario dairy farms.
   Principle Investigators: Steven Roche, PhD candidate and David Kelton (supervisor) University of Guelph)

5. Transmission pattern profiling of MAP between and within Canadian dairy herds by fast and discriminating strain typing.
   Principle Investigator: Herman Barkema (University of Calgary)

6. Focus Farms for Johne’s: Using a participatory approach to accelerate the adoption of practices and procedures to control Johne’s Disease (JD) on Ontario dairy farms.
   Principle Applicant: George MacNaughton (Dairy Farmers of Ontario)

7. Equivalency for Strong Positive Serum ELISA Johne’s Disease Test Results AND Interpretation of Repeated Testing for Johne’s Disease in Ontario Dairy Herds.
   Principle Investigator: David Kelton (University of Guelph)

8. Johne’s ELISA prevalence and assessment of disease transmission risk on organic dairy farms in Ontario
   Principle Investigators: Laura Pieper, PhD candidate and David Kelton (supervisor) University of Guelph

9. Development and applications of an amoeba-based pathogen-capture trap for detection of persisting and emerging microbial pathogens in farm and aquaculture environments.
   Principle Investigator: Lucy Mutharia (University of Guelph)

10. Dairy herd health screening using bulk tank, herd pool, group pool and individual milk samples.
    Principle Investigator: David Kelton

11. Antibody responses and modulation of fecal bacterial shedding during subclinical Johne’s Disease in calves.
    Principle Investigator: Brandon Plattner (University of Guelph)
**Appendix 2**

Presentations or trade show booths:

**2009**
- Canadian Outdoor Farm Show – Woodstock
- DFO Fall Policy Conference
- CanWEST DHI seminars
- Canadian MAP Research Workers Conference
- Veterinary clinic meetings
- Joint Dairy breeds information meeting

**2010**
- DFO/DHI Joint Technical Session in January
- County Milk Committee Meetings
- Canadian MAP Research Workers Conference
- Kemptville/Maxville dairy days
- U of G Dairy Research & Communication Extension Event
- Dairy Health Management Certificate Program
- Southwestern Ontario Dairy Symposium
- Western Canadian Dairy Seminar
- Western Canadian Association of Bovine Practitioners Conference
- Ontario Veterinary clinic client meetings
- Ontario Animal Health Forum
- Ontario Association of Bovine Practitioners

**2011**
- DFO/DHI Joint Technical Session in January
- County Milk Committee Meetings
- Canadian MAP Research Workers Conference
- Kemptville/Maxville dairy days
- U of G Dairy Research & Communication Extension Event
- Southwestern Ontario Dairy Symposium
- Western Canadian Dairy Seminar
- Western Canadian Association of Bovine Practitioners Conference
- Ontario Veterinary clinic client meetings
- Ontario Association of Bovine Practitioners Annual Meeting

**2012**
- International Colloquium on Paratuberculosis, Sydney Australia
- Paratuberculosis Forum, Syndey Australia
- International Dairy Federation Standing Committee on Animal Health and Welfare
- DFO/DHI Joint Technical Session in January
- County Milk Committee Meetings
- Canadian MAP Research Workers Conference
- Kemptville/Maxville dairy days
- U of G Dairy Research & Communication Extension Event
- Southwestern Ontario Dairy Symposium
- Western Canadian Dairy Seminar
- Western Canadian Association of Bovine Practitioners Conference
- Ontario Association of Bovine Practitioners Annual Meeting
- Animal Health Strategic Investment Fund Wrap-up Event
- University of Guelph/OMAFRA Knowledge Translation and Transfer Conference

**2013**
- AABP conference, Sept 2013 presentations:
  - Association between Risk Assessment scores and milking cow Johne’s ELISA results on Ontario dairy farms, Dr. David Kelton
  - Role of the Veterinary Practitioner in Industry-led Dairy Health and Quality Programs in Ontario, Dr. Kelly Barratt
  - Johne’s ELISA prevalence and assessment of disease transmission risk on organic dairy farms in Ontario, Canada, - Dr. Laura Pieper
  - Interpretation of Repeated Testing for Johne’s Disease in Ontario Dairy Herds, Dr. Jim Fairles
  - Atlantic Dairy Research Collaboration Summit, Charlottetown PEI
  - University of Guelph/OMAFRA Knowledge Translation and Transfer Conference
  - U of G Dairy Research & Communication Extension Event
  - Southwestern Ontario Dairy Symposium
  - Ontario Association of Bovine Practitioners Fall Mtg.

**2014**
- Dairy Farmers of Ontario, Annual General Meeting
- Southwestern Ontario Dairy Symposium
Appendix 3 - Publications associated with the Ontario Johne’s program include:

Magazine or Popular Press Articles:

2009
Godkin, A. 2009. Update on Ontario Johne’s Program, Guernsey and Jersey newsletters.

2010
Perkins, N. 2010. Ontario Johne’s Education & Management Assistance Program – Progress Report. DFO Spring Regional Meeting and Ontario Association of Bovine Practitioners Meeting

2011

2012

2013
Perkins, N. and A. Godkin. Ontario Johne’s program ends this October. Milk Producer. May 2013
**Refereed Publications:**

2010


2011


2012


2013 (pending)