SALMONELLA DUBLIN IN SASKATCHEWAN

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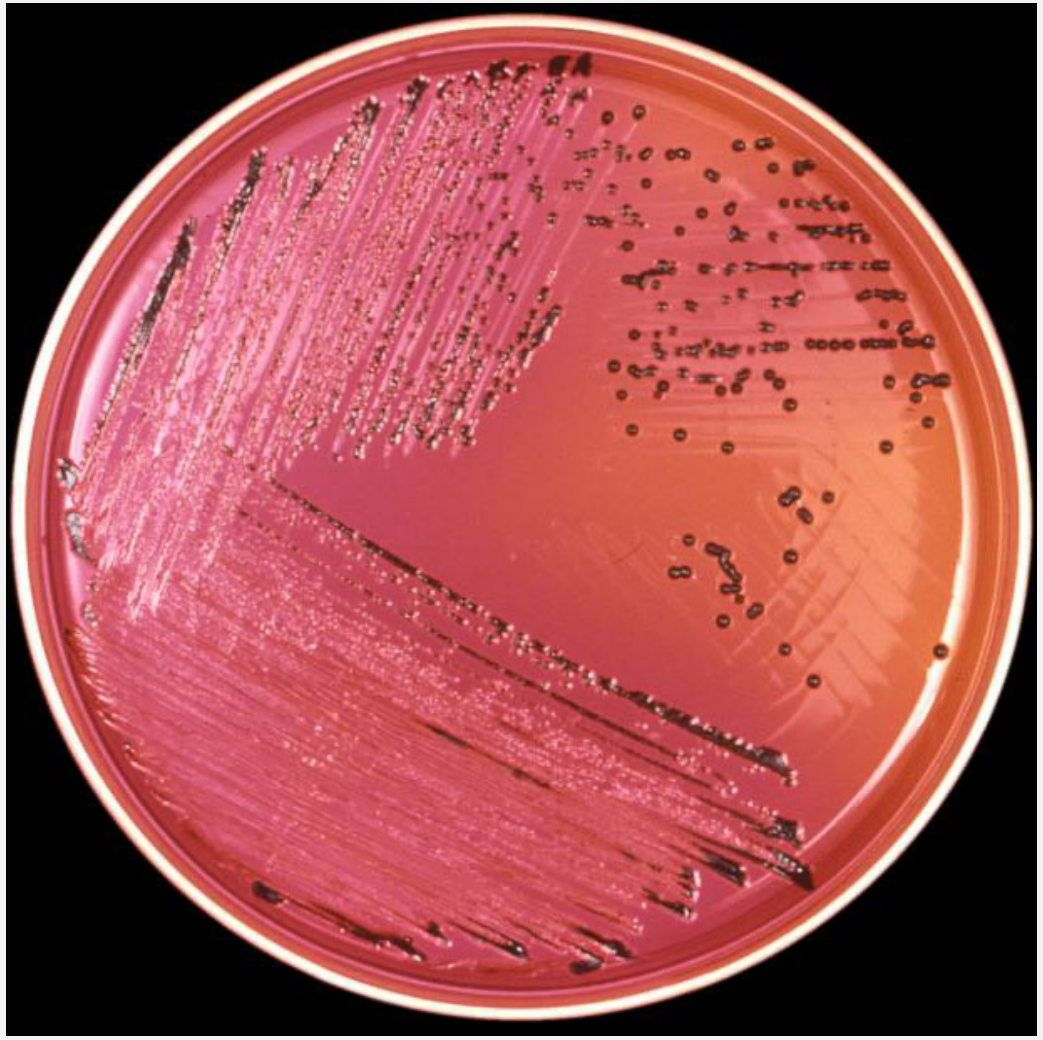
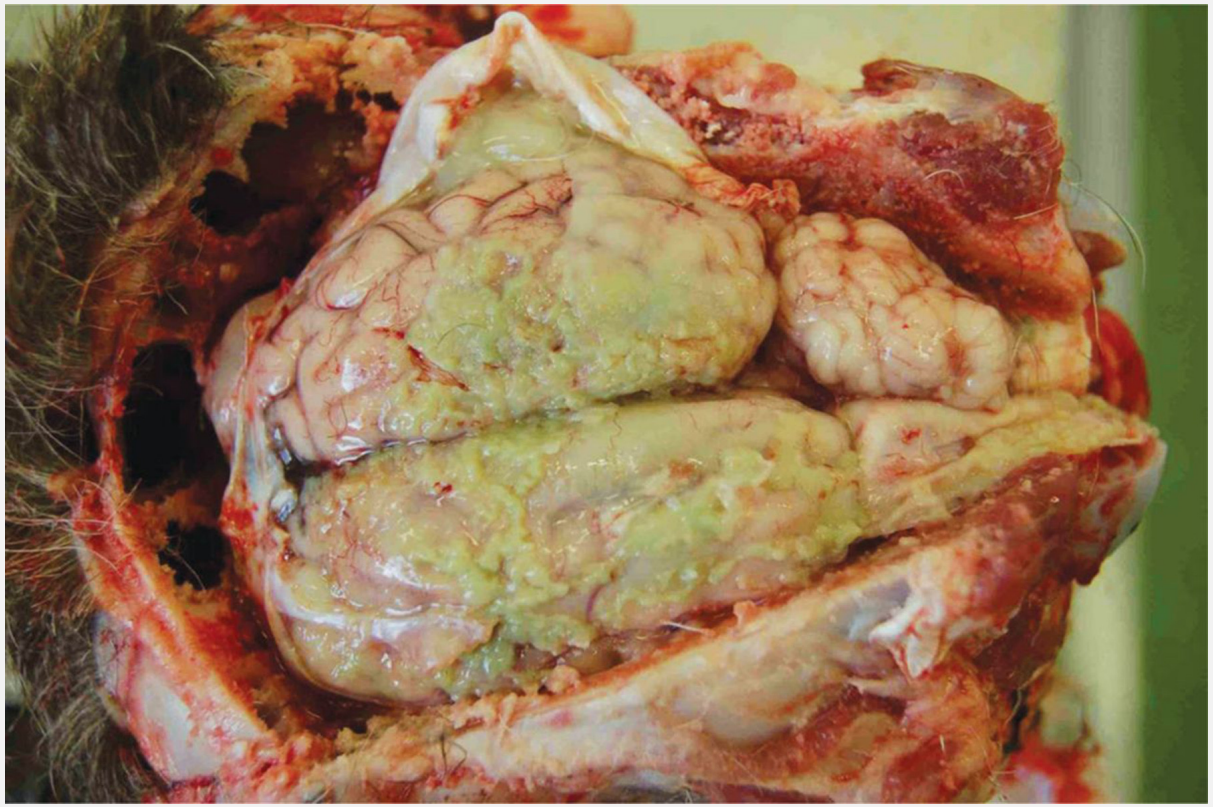
OVERVIEW

- Review of S. dublin
- Results of S. dublin testing in Saskatchewan
- Implications for the province
- Future research



WHY DO WE STILL CARE ABOUT S. DUBLIN?

- Disease in calves:
  - Pneumonia
  - Scours
  - Sepsis
- Disease in humans:
  - More severe than other Salmonella
- Frequently resistant to multiple antibiotics
- Transmission significantly reduced by pasteurization



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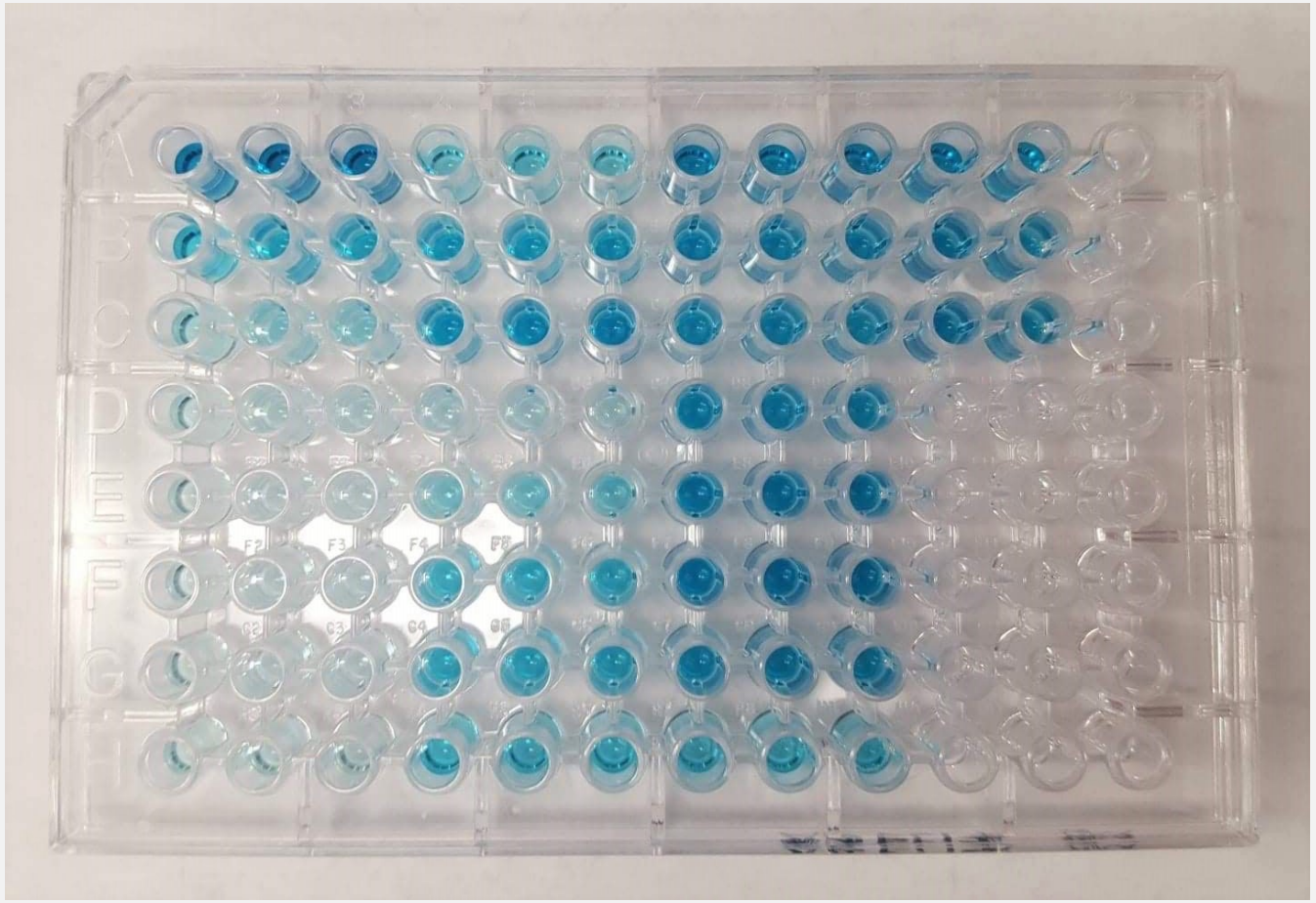
IDENTIFYING POSITIVE HERDS/ANIMALS

- S. dublin is spread by adult animals
  - These are rarely sick
- Difficult to grow S. dublin in manure
  - Easy on necropsy
- Blood test imperfect
- Positive on blood test (individual animal) = 35% positive
- What is positive for bulk milk?
- What proportion of SK herds are positive?

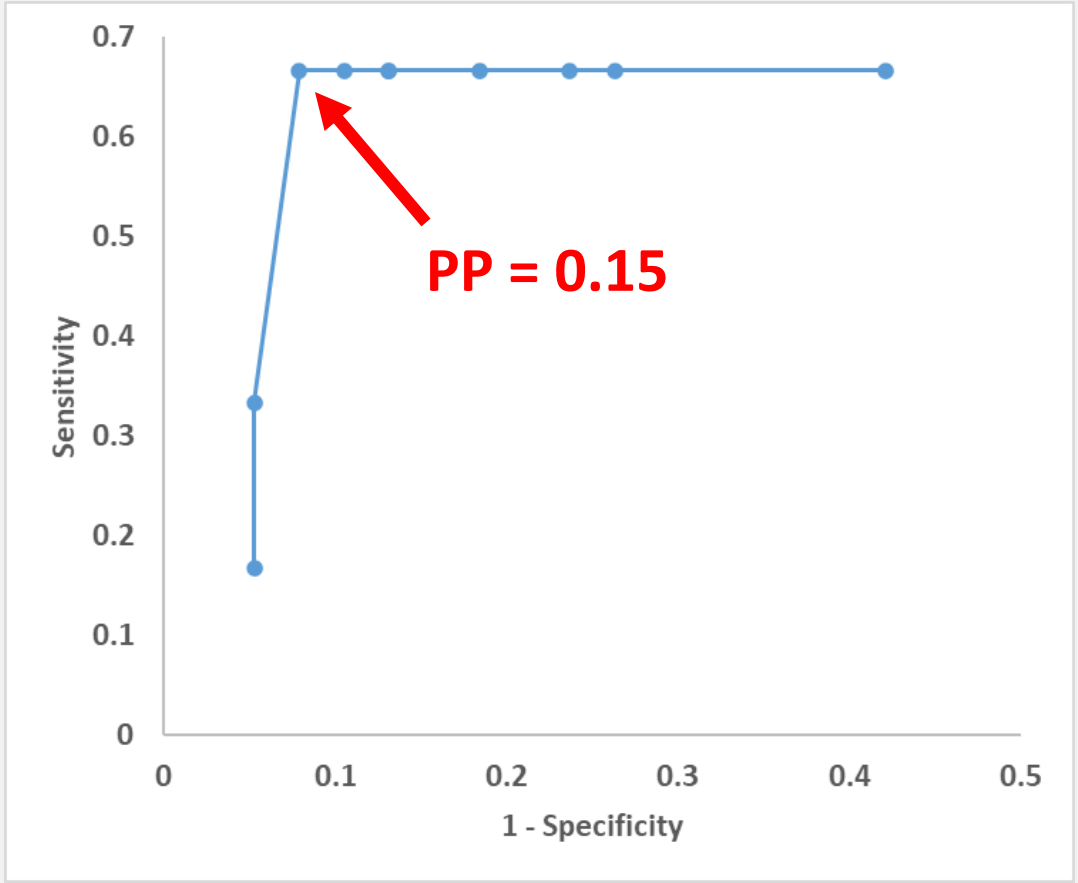


SAMPLING

- All data anonymized:
  - Each herd assigned a random number
- Bulk milk from every SK herd
  - May 2019
  - October 2019
  - February 2020
  - March 2021
- Voluntary heifer blood samples
  - 10/herd
  - 3-8 months of age

RESULTS

- Complete bulk milk data from 143 herds
- 74 herds enrolled in heifer study
- Tested different cutpoints for bulk milk
  - Which best predicts if at least one heifer positive?
- PP of 15% best predicts herd status
- Consistent with previous work from QC

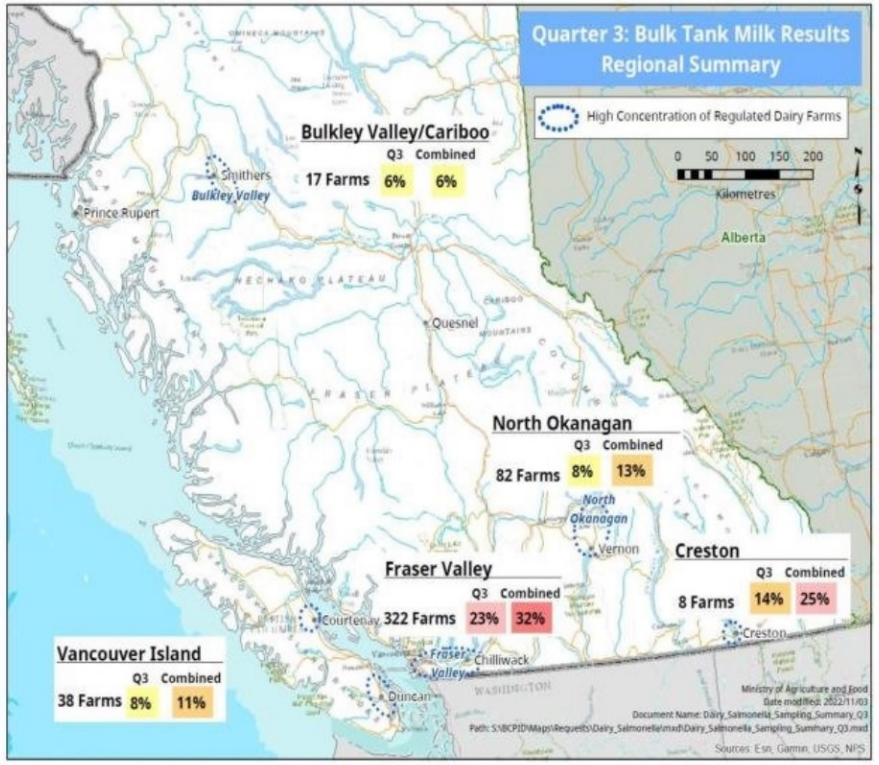


IMPLICATIONS

- **Bulk milk positives (/143):**
  - **May 2019: 34 (24%)**
  - **October 2019: 11 (8%)**
  - **February 2020: 18 (13%)**
  - **March 2021: 27 (19%)**

- **BUT test underreports positives**
  - **Low end estimates**
  - **1/3 SK dairies positive?**
  - **Similar situation in BC**

In the third sampling quarter (June 2022– October 2022) **439 farms were sampled** and tested for S. Dublin **antibodies** in Bulk Tank Milk (BTM). Of the 439 farms tested **80 were positive (18%).** These results combined with the Q1 and Q2 Results show that **25%** of all farms in BC are likely **positive.** The presence of antibodies in BTM suggests cows on the farm could be **chronic, subclinical carriers or are having a current outbreak.** Presence of antibodies **does not** mean there is bacteria in the milk itself.



https://www.sdublinbc.ca/reports

FUTURE DIRECTIONS

- Infection transmitted by positive animals
- These are hard to identify
- PCR:
  - More sensitive and specific
- PCRs are available
  - Not always specific for S. dublin
- Sabbatical work 2021-2022:
  - Compared entire genome of 3,500 S. Dublin with other Salmonella
  - Identified and tested PCR targets
  - Currently adding known amount of S. Dublin to manure to determine sensitivity of test

QUESTIONS/COMMENTS?