Development & Assessment of Quality Milk Courses for Ontario Dairy Sheep & Dairy Goat Producers

P. Menzies¹, J Jansen², P Wilman³, M Foran³

¹ Dept Population Medicine, OVC, U of Guelph
² Veterinary Science and Policy, Animal Health and Welfare, OMAFRA
³ Raw Milk Dairy Specialists, Dairy Food Safety Program, OMAFRA
### Background

Ontario is home to three dairy industries

<table>
<thead>
<tr>
<th>Component</th>
<th>Dairy Cow</th>
<th>Dairy Goat</th>
<th>Dairy Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat (%)</td>
<td>3.67</td>
<td>3.80</td>
<td>7.62</td>
</tr>
<tr>
<td>Protein (%)</td>
<td>3.23</td>
<td>2.90</td>
<td>6.21</td>
</tr>
<tr>
<td>Lactose (%)</td>
<td>4.78</td>
<td>4.08</td>
<td>3.70</td>
</tr>
</tbody>
</table>
Background

- Dairy Goat Industry
  - Approximately 300 milk shippers in Ontario
  - No quota system, contract with processors
  - Milk quality governed by Milk Act & processors
  - Issues with elevated standard plate counts
    - High proportion > 50,000 cfu/mL milk
Background: Dairy Goat Industry

- Paid for fat and protein
  - 3.5% fat & 3% protein = $0.72/litre
  - 4.2% fat & 3.5% protein = $0.84/litre
  - Winter premium
- Average production
  - 2 to 3 litres per day
Background: Dairy Goat Management

- Usually kids are removed at birth
  - Reared artificially
- Does are milk 2X day
- Lactation length varies
  - Typical 305
  - Extended lactations
Fall Kidding Herd (out of season)

- Breed over 3 months
- Kid over 3 months
- Lactate ~ 10 months
- Dry ~ 2 months

Winter - Spring Kidding Herd

Herd #1
- Breeding
- Dry
- Kidding

Herd #2
- Kidding
- Breeding
- Dry
- Kidding

Juillet de la production par troupeau
Goat milk products

- Most of goat’s milk is processed into cheese
  - Feta
  - Romanello
  - Crotonese
  - Ricotta
  - Romano
  - Chevrai (soft cheese)
- Yogurt, fluid milk, ice cream, butter & powdered milk
- Goat’s milk soap
Background: Dairy Sheep Industry

- Very new industry to NA
  - Dairy sheep first imported in mid-1990’s
- Approximately 50 shippers in Ontario
- No provincial legislation governing milk quality
  - Done at processor level
Background: Dairy Sheep Products

- Cheese
  - Feta
  - Roquefort
  - Camembert, romano, brie, ricotta
- Yogurt
- Buttermilk
Milk production is low
- E.g. 100 to 200 l/day production on many farms

Transport to processor may be far

Freezing doesn’t harm quality for cheese production

Many producers freeze milk until they “have a load”
Background: Marketing Sheep Milk

- No marketing board
  - Coops
  - Local plants that may specialize
- Fluid milk delivered fresh
- Frozen milk delivered in bulk
- Payment varies with demand & supply
  - E.g. $1.75 litre Cdn
  - E.g. $55.50 cwt Wisconsin
Background: Dairy Sheep Management

- **Ewes lamb once/yr**
  - Mostly spring, some year round
- **Lambs reared in different ways**
  1. On dam for 30 days – weaned and ewes milked 2X/day at weaning
  2. Removed at birth – reared artificially until 28 days of age and ewes milked
  3. On dam for 30 days – ewes milked once/day while nursing lambs
Who milks sheep and goats?

- Tremendous variety of backgrounds
  - Ex cow dairy guys
  - Immigrants from Europe
    - That milked SR’s before
    - That used to milk cows but can’t afford cow quota
  - Mennonites & Amish – hand milking
  - Ex swine producers

- Huge variability in knowledge and skills
Where do Ontario producers learn how to properly milk small ruminants?

- **Sheep**
  - Spooner Research Centre in Wisconsin
  - Great Lakes Dairy Sheep symposium
- **Goats**
  - OMAFRA – raw milk specialists
  - International Goat Symposium?
- There are courses for making cheese but none for making the milk!
Course to help SR producers make quality milk

- Milk with low somatic cells, low bacterial counts, and low-risk for inhibitors
- Based on National Mastitis Council “10 point program”
- One “course” each for dairy sheep and dairy goat
- Designed to inform and assess knowledge
How is material presented?

- As a workbook
  - For producers without access to computers
- As a DVD
  - Instead of web-based
  - Powerpoint + Adobe Presenter
- Organized by section
  - Basic material
  - More in-depth information
  - References and additional reading
  - Self-assessment quizzes
- Photos and diagrams
- Video clips
Previous project asked how sheep and goat producers prefer information

- Both dairy sheep and dairy goat prefer handbooks and written materials to other forms
- We have produced a handbook in the past
  - Quite popular
  - Not a course
E.g. Teach producer to take an aseptic milk samples
Video clips (DVD only)

e.g. Teach the producer to perform and interpret a California Mastitis Test
Sections

1. Mastitis: What causes it and how is it detected
2. Dairy sheep / goat health management
3. Milking technique
4. Proper maintenance and use of milking equipment
5. Milk quality
6. Treatment, prevention and control of mastitis
7. Monitoring udder health and goal setting
How do we know the course is effective?

- **Step one**
  - Review of available literature (scientific and extension)
  - Write the content and develop self-assessment quizzes

- **Step two**
  - Make sure have adequate pictorial support (photos and video)

- **Step three**
  - Beta test the courses with
    - Industry leading producers
    - Veterinarians that work in the SR dairy industries
    - Extension and support people that work with SR dairy industries
  - Address the necessary changes
How do we know the course is effective?

Step 4

- Randomly divide the dairy sheep and dairy goat industries in two. Those that are willing to participate:
  - One half is invited to take the course – treatment group
  - One half is the control group
- Both groups are assessed with respect to
  - Knowledge (short quiz)
  - Basic milking related practices
  - Milk quality parameters
- One group is provided with the course
  - DVD or workbook – their preference
How do we know the course is effective?

- **Step 4 continued**
  - Once the treatment group has finished the course
    - Retested with respect to knowledge
    - Resurveyed with respect to practices
  - In 12 months from receiving the course
    - Milk quality parameters will be compared to 12 months previously
  - Compared to themselves and control group

- **Step 5**
  - Control group will receive the course
Questions?