Using the Mastitis Risk Assessment to Identify and Prioritize Herd Specific Mastitis Risks for Ontario's Dairy Producers

Using the Risk Assessment score sheet (RA)

"Practice tips"

The goal of doing a Mastitis Risk Assessment and Management Plan (RAMP) is to define the risks on a particular operation that would allow mastitis bacteria to be introduced to the farm and/or to spread to multiple cows on the farm.

1. **Score what you see** on the day you are there….do not attempt to speculate about what happens at other times (i.e. in summer vs. winter) to estimate those risks.

2. **Low scores indicate low risk** – whether on questions, sections or the overall RA.

3. **You are scoring real and potential risks**. After completing the RA, when you decide what recommendations to write, consider the evidence for mastitis on the farm, other management priorities, and other health problems. Make the recommendations you think are of the highest priority on this farm. These will be the ones most likely to succeed.

4. **The idea is to find out what the producer is really and truly DOING,** not what they KNOW they should be doing! Use the questions in the RA as a guide for your discussions with the producer but don't be limited by these questions….feel free to ask for more detail. Then, find out why the management is different than what you feel is ideal, and what the barriers are to doing things in an improved manner.

5. **Use your judgement as a veterinarian or advisor to score** management practises or risks you identify that are not included in the questions or mentioned in the scoring key. It is probably a good idea to make a note on the second page about what you found. This will allow you to monitor change that occurs from one RA to the next.

6. **In depth evaluation** may be needed when problem areas are identified. Evaluation of the whole herd or representative numbers may be needed if cow hygiene (lactating or dry cows), stall dimensions, teat ends are identified as potential problem areas in this initial risk assessment step. Worksheets and standardized evaluation tools are available. Consult with SCC2012 committee members for further information.

<u>Assumptions:</u>

<u>The RA will be done:</u>

- By a vet, a veterinary technician or other advisor with producer
- At intervals set by advisor and producer, appropriate to the situation.
- Minimally an annual RA is likely warranted.
- Partially or completely depending on situation
  For example calculations and monitoring checks might be completed monthly.
  Hygiene (housing, cows and milking procedures) could be done "seasonally"

Conducting the Mastitis Risk Assessment

Benchmarking performance:

Use SCC information to calculate indices for each of the last six months:

- Indices can be extracted from Dairy Comp 305 (see "Guide") or calculated manually.
- Information can be updated monthly using the RA form, to chart changes over time

Definitions:

New infections:

Number = number of cows with first SCC >200 in the current lactation + number of first lactation cows with first SCC>100 in the current lactation.
Proportion = Number new divided by the total number of cows milking on test date x 100

Chronic infections:

Number = Number of cows >200 + number of first lactation >100 on this and previous test
Proportion = Number chronics divided by total number of cows on the current test date x 100

Fresh cow infections

Number = Number of cows >200 on first test this test date + number of first lactation > 100 on first test on this test date
Proportion = Number fresh infection divided by the total number of cows and first lactation with first test on current test date.

DHI Herd Average SCC – Provided by DHI on the Herd SCC summary report page OR from Dairy Comp as estimate of bulk tank SCC. This value is calculated by DHI using individual cow SCC values and individual cow milk volumes on test date.

Bulk tank SCC value – On the milk statement or via producer login at www.milk.org . Use the monthly value.

1.0 Characterization of mastitis pathogens:

Circle the one that you feel applies most accurately to the herd's current situation based on your opinion from previous visits, cultures or other information. This is optional and for information only. No "risk" points are assigned.

2.0 Monitoring Risks:

Determine what monitoring of mastitis has taken place over the time period you feel can reasonably be assessed.
Enter the number of months you have asked for information on, using a range of 1 to 12 months.
Circle all procedures that have been done by the producer in the time period you are covering.

2.1 How well is the producer monitoring the current mastitis situation? Is he/she doing what has been recommended or you feel is appropriate for the herd situation?

- All requirements for testing have been fulfilled completely, score as **"1".**
- Most are being done; fewer than 25% of cows or recommended tests have been missed. Score as **"4"**.
- Only about 50% of what has been recommended has been done. Score as **"7".**
- Recommendations have not been fulfilled at all, score as **"10".**

3.0 Herd additions and mastitis risk:

3.1 In the last _____ months have you added cows or heifers to the herd?

Insert the interval used…1 month, 6 months etc. The interval selected depends on how reliable you consider the data is that the producer can provide. If data comes from computer records, choose a longer period. If provided from "memory", choose a shorter interval.
Include all cows or heifers added, even if some that have been counted as "added" are no longer present. Added bulls are not considered to present a mastitis risk.

- Nothing female added, score as **"1".**
- Heifers only (prior to calving) added, score as **"4"**.
- One lactating or dry cow added, score as **"7".**
- More than one lactating or dry cow added, score as **"10".**

If lactating or dry mature cows have been added:

3.2 Were they evaluated for mastitis prior to purchase?

Yes. *Pre-purchase evaluations could include tests such as SCC, PCR, CMT or culture. Visual assessment or udder palpation is not a suitable evaluation.*

No*. No tests done for mastitis prior to purchase*

3.3 Were they tested for mastitis within one week of arrival in this current herd?

Yes. *Tests such as SCC, PCR, CMT or culture were done within one week of arrival.*

No. *No tests were done within one week of arrival.*

3.4 Were appropriate actions taken to prevent mastitis spread based on the results of testing of new arrivals/purchases?

Yes. *Appropriate actions include those that restrict the spread of mastitis that newly introduced cows might bring into the herd, such as:*

Milking new cows using their mastitis info to integrate them safely into the existing herd
Milking new cows last
Milking new cows with separate unit or group
Moving test positive or mastitis cows to a mastitis group.

No. *No attempt to restrict possible spread of mastitis from cow additions.*

4.0 Dry cow risks

4.1 Cow hygiene

Visibly assess the hygiene of cows currently in the calving area. If no cows present, then leave this blank or look at close up dry cows. For more detailed evaluation, score whole herd or 20% of cows on a separate score sheet.

- *If the cows have no manure visible on hind legs, teats or udder, score as low risk or* ***"1".***
- *If manure is present on hind legs but not above dewclaws, and not on teats or udder, score as* ***"4".***
- *If manure is present on hind legs up to the hocks* ***OR*** *is present on the surface of the teats and udders score as* ***"7".***
- *If manure is present above the hocks* ***AND*** *is present on the teats or udder, score as* ***"10".***

4.2 Dry Cow Housing/pen hygiene

Visibly score the bedding in the calving area. If there is:

- *No visible manure, new bedding has been added, bedding is dry, score as low risk or **"1".***
- *Visible manure covering 10% of the bedding score **"4".***
- *Visible manure covering 50% of the bedding score **"7".***
- *Visible manure covering 60% (2/3rds) or more, then score **"10".***

4.3 Dry cow treatment

- *All cows treated at the end of lactation. The person doing the treatment always uses good hygiene techniques (teat cleaning, teat disinfection with alcohol prior to treatment), score as **"1".***
- *All treated but teat end hygiene protocol at treatment time is not complete, score as **"4".***
- *Selective dry cow treatment (less than 100% of cows treated at lactation end in the last year), score as **"7".***
- *No cows treated at the end of lactation in the last 12 months, score as **"10".***

5.0 Maternity time risks

5.1 Single or multiple cows in calving area

- *If there is never more than a single cow in the calving pen/area then score this **"1".***
- *If <25% of the time there is more than one cow in the calving pen/area score this **"4".***
- *If <50% of the time, score as **"7".***
- *If 50% or more of the time there is more than one cow in the calving pen/area,, score as **"10".***

5.2 **Maternity pen hygiene**

Visibly score the bedding in the calving area. If there is:

- *No visible manure, new bedding has been added, bedding is dry, score as low risk or **"1".***
- *Visible manure covering 10% of the bedding area score **"4".***
- *Visible manure covering 50% of the bedding area score **"7".***
- *Visible manure covering 60% (2/3rds) or more of the bedding area, then score as **"10".***

5.3 Duration of time in maternity pen, time to first milking:

- *If >90% ("most") of cows are milked out within 6 hours of calving and moved to lactating cow housing by next chore time score as **"1".***
- *If >50% ("about half") of cows are milked out within 6 hours of calving and moved to lactating cow housing by next chore time score as **"4".***
- *If < 50% of cows are milked out within 6 hours of calving and moved to lactating cow housing by next chore time score as **"7".***
- *If cows are routinely kept post-calving 24 hours or longer in the maternity area score as **"10".***

6.0 Lactating cow risks:

6.1 Cow Hygiene:

Visibly assess the hygiene of cows currently in the lactating cow herd.
For more detailed evaluation, score the whole herd or 20% of cows on a separate score sheet.

- *If the cows have no manure visible on hind legs, teats or udder, score as low risk or **"1".***
- *If manure is present on hind legs but not above dewclaws, and not on teats or udder, score as **"4".***
- *If manure is present on hind legs up to the hocks OR is present on the surface of the teats and udders score as **"7".***
- *If manure is present above the hocks AND is present on the teats or udder, score as **"10".***

6.2 Bedding amount in stalls or pens:

- *If 90% or more of stalls have 90% of stall surface completely covered by at least 4 cm of bedding (or if sand bedded, 90% of stalls are level and have no bedding hollows) score as **"1".***
- *If 50 to 90% of stalls have 90% of stall surface completely covered by at least 4 cm of bedding (or if sand bedded, 50% have no hollows) score as **"4".***
- *If less than 50% of stalls have 90% of stall surface completely covered by at least 4 cm of bedding (or if sand bedded, less than 50% of stalls are without hollows) score as **"7".***
- *If there is little or no bedding (i.e. less than 30% of stall surface covered in most stalls) or most sand bedded stalls have hollows score as **"10".***

6.3 Floor/alley hygiene

- *If floors, alleys and crossovers are dry and free of any covering of manure slurry, score as **"1".***
- *If floors are wet and <25% of floor area is covered with manure slurry score as **"4".***
- *If floors have manure slurry covering 25% to 50% of the area, score as **"7".***
- *If floors or alleys are more than 50% covered with manure slurry score as **"10".***

6.4 Stall dimensions. If desired use diagram to record stall dimensions including stall width, length of imprint/bed, neck or tie rail height, chain length, distance between brisket locator and divider bottom rail and position of the cow trainer if present. Refer to OMAFRA Infosheets for Tie-stall and Frees-tall dimensions)

- *If stall dimensions are adequate for 100% of cows in this herd score as **"1".***
- *If stall dimensions are adequate for 75% of cows in this herd score as **"4".***
- *If stall dimensions are adequate for 50 % cows in this herd score as **"7".***
- *If stall dimensions are inadequate for most of the cows in this herd score as **"10".***

7.0 Milking Procedure Risks:

Pre-milking

Circle the milking procedures currently used

7.1 Milking gloves worn and cleaned:

- *All milking personnel wear gloves and clean the gloves frequently between cows, score as **"1".***
- *All milking personnel wear gloves; gloves are clean occasionally during milking, score as **"4".***
- *All milking personnel wear gloves; gloves are never cleaned during milking, score as **"7".***
- *Not all milking personnel wear gloves, score as **"10".***

7.2 Stimulation time - adequate and consistent:

Goals:
Prep–lag time (time from first touch of teat for strip or wipe, to beginning of unit attachment) of between 60 to 90 seconds.
Stimulation time (teat contact with cloth or towel during prep) of 20 to 30 seconds.

- *Consistent and adequate stimulation achieved on 90% of cows milked, score as **"1".***
- *Consistent and adequate stimulation achieved on 75%, score as **"4".***
- *Consistent and adequate stimulation achieved on 50% or less, score as **"7".***
- *Consistent and adequate stimulation rarely achieved, score as **"10".***

7.3 Teat ends clean prior to unit on

- *All teat ends clean and all prep chemicals/dip removed, score as **"1".***
- *All teat ends clean but some of the prep chemicals/dip removed, score as **"4".***
- *Between 1 and 10% of teat ends with manure or dirt remaining, score as **"7".***
- *More than 10% of teat ends with manure or dirt remaining, score as **"10".***

7.4 Mastitis suspect cows identified and milked last or separately

- *All high SCC cows, clinical mastitis cows and CMT positive cows visibly identified as soon as possible and milked last or separately until resolved, score as **"1".***
- *Milking order adjusted only for high SCC cows score as **"4".***
- *Milking order adjusted only for cows with clinical mastitis, score as **"7".***
- *No attempt to adjust the milking order with regards to mastitis, score as **"10".***

7.5 Units aligned and liner slips minimized:

Goal – units aligned to be level in tie-stalls, slight tilt in free stalls. "Squawks" or liner slips minimized.

- *Units aligned on more than 90% of cows immediately after attachment and no squawks heard, score as **"1".***
- *Units aligned on 80% of cows immediately after attachment, and no squawks, score as **"4".***
- *Units aligned about 75% of the time immediately after attachment and 5 or less squawks per 100 cows milking), score as **"7".***
- *Units aligned haphazardly or not at all and/or more than 5 squawks heard per 100 cows milking, score as **"10".***

Post-milking

7.6 Teats and teat end quality:

Action: Visibly assess teat appearance and teat ends after milking unit is removed and before dipping occurs. *For detailed evaluation, score all teats of 80 cows or at least 20% of cows in herds larger than 400 cows (see Reinemann et al. Int. Symposium 2001)**.***

- *All teats normal colour, no swelling or rings, teat ends normal or with "smooth" rings, score as **"1".***
- *All teats normal colour, no swelling or rings, rough teat ends (hyperkeratosis) on 20% or less, score as **"4".***
- *Some teats discoloured or with rings OR rough ends (hyperkeratosis) on more than 20%, some with severe hyperkeratosis but less than 5%, score as **"7".***
- *More than 5% of teat ends with severe hyperkeratosis and/or cracking and or scabs, score as **"10".***

7.7 Teat dip coverage:

Goal: Coverage of the length of every teat that contacted the liner, with a licensed post-dipping product after unit removal.
Action: Assess rear teat coverage with dip on suitable number of cows per herd or per milking group.

- *Over 95% of teats are fully covered with dip after unit removal, score as "1"*
- *About 75% of teats are fully covered with dip after unit removal, score as "4"*
- *About 50% of teats are fully covered with dip after unit removal, score as "7"*
- *Fewer than 50% of teats fully covered with dip after unit removal or a sprayer is used for application, score as "10"*

8.0 Mastitis Therapy Risks

Goal: Less than 1% of cows treated for mastitis
For more in depth evaluation, use producer treatment records to determine number of cows treated per month for the last 6 to 12 months (choose interval suitable for farm size).

8.1 Number of cows treated:

- *1% or less of cows treated for clinical mastitis in the last month, score as **"1".***
- *1 to 2% treated for clinical mastitis in the last month, score as **"4".***
- *3 to 5% treated for clinical mastitis in the last month, score as **"7".***
- *More than 5% of cows treated for clinical mastitis, score as **"10".***

8.2 Suitable written mastitis treatment protocols are present and followed.

- *Written protocols updated and followed all the time, no extra-label use of drugs (ELUD), score as **"1".***
- *Written protocols updated and followed all the time, occasional ELUD (less than 1 in 5 treatments), score as **"4".***
- *Written protocols but not updated, more than 50% of treatments are ELUD, score as **"7".***
- *No written treatment protocols, score as **"10".***

8.3 Mastitis treatments are recorded

- *All mastitis cases and treatments recorded and entered into permanent recording system, score as **"1".***
- *All treatments recorded in on-farm paper record, score as **"4".***
- *Few mastitis treatment records of any kind, score as **"7".***
- *No mastitis treatment records, score as **"10".***

9.0 Milking Equipment

9.1 Visibly functional and clean

- *No visible cracks or breaks in rubber ware (liners, short milk tubes, milk and vacuum hoses), and external surfaces of equipment visibly clean, score as **"1".***
- *Some wear in rubber, no breaks, and external surfaces of equipment visibly clean score as **"4".***
- *Increased wear and external surfaces of equipment with some soiling score as **"7".***
- *Visible breaks in rubber ware and/OR external surfaces equipment heavily soiled score as **"10".***

9.2 Equipment service and maintenance

- *Function and wash analysis within 12 months, liners changed on schedule, score as **"1".***
- *Function and wash analysis more than 12 months, liners changed on schedule, score as **"4".***
- *Function or wash analysis missing, liners uncertain or interval too long, score as **"7".***
- *No scheduled for maintenance, no records for monitoring equipment service, score as **"10".***

Completion:

To complete the mastitis risk assessment process:

- Tally the scores for each section.
- Evaluate the scores to find areas where risks are occurring.
- Develop recommendations for relevant changes, and an implementation plan, through discussion with the producer.