Somatic Cell Count Regulation and Antibiotic Testing of Sheep Milk

Regulatory Issues Surrounding Grade “A” Sheep Milk

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National Conference on Interstate Milk Shipments
NCIMS

• Cooperative Program
• Grade “A” Pasteurized Milk Ordinance (PMO)
• Meets every two years
• Meets next in 2009
• Parliamentary rules are strictly followed at all sessions (professional parliamentarian oversees the procedures and will interrupt if anything is done out of order)
How Changes Are Made to the PMO

- Anyone can send in a proposal
  - Must be in a very specific format (see NCIMS.org for details) with a detailed solution (change to the PMO)
- Proposals are assigned to technical committee(s) as appropriate
- Technical committees make recommendations while working with FDA
- Proposals then go to one of three councils
Council Action

• Councils are made up of one-half regulatory representatives and one-half industry representatives as well as a non-voting advisor from FDA

• Testimony can be given but only if requested by a council member.

• Councils make recommendations to the voting delegates by recommending that a proposal pass; pass with amendments; or that “no action” be taken
Proposals then are acted on by the voting delegates

- One vote from each state regulatory department to accept, reject, or accept with amendments.
- “No Action” proposals are brought up first and delegates can ask for some to be held over but most are voted down as a group.
- The rest of the proposals are voted on one at a time, often after a lively debate.
- Testimony can be given but only if requested by a voting delegate.
SCC Issues
Background from Goats

- Goat herds have had major issues and have successfully kept their SCC limit at 1,000,000 SCC/ml.
- Only able to do this because of extensive research.
- Goats during rut often exceed 1,000,000 SCC/ml without an infection.
- UCONN was able to show that a different cytokine caused the influx of leukocytes during rut versus during an infection.
- UVM Study showed end of lactation SCC average of over 1,000,000 SCC/ml in uninfected goats in study.
- Numerous studies show that Pyronin Y Methyl Green is the appropriate stain.
- Still have problems with labs properly reading the slides.
SCC Issues
Sheep

• Apocrine mammary the same as goats.
• Cytoplasmic particles are present in the milk just like goats.
• Historically no problems meeting the 750,000 SCC standard for cows so no one requested an exception for sheep.
• Now with more sheep milking some are finding high counts an issue.
SCC Issues
Sheep

• Two Major Issues
  – Best method(s) for testing
  – Proper use of tests
SCC Issues
Sheep

• RI Study
  Split samples to determine appropriate methods
  Standard cow stain
  Electronic counter (FOSS)
  Pyronin Y Methyl Green
SCC Issues
Sheep

• RI Study
  Data compilation still underway but initial results are:
  – Electronic counter and Pyronin Y Methyl Green appear most appropriate
  – Both are DNA based and less prone to over estimating the actual count
• Word of caution Electronic Counting over-counts SCC in goats and may do the same in some sheep
• More study is needed utilizing ewes that are bred while they are still milking.
Proper Reading of DMSCC

• The high number of cell fragments from the apocrine mammary system makes counting difficult.
• More training was needed or an additional certification for reading slides from apocrine mammals would need to be required.
• Dairy Practices Council (DPC) facilitated a guideline to train technicians on proper cell counting.
• Available at www.dairypc.org
Direct Microscopic Examination of Milk From Small Ruminants

Prepared by
Small Ruminants Task Force
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THE DAIRY PRACTICES COUNCIL®
Jeffrey M. Bloom, President
Don Breiner, Vice President
Terry B. Musson, Executive Vice President
Different Types of Secretory Systems

**Merocrine**
Cattle, Water Buffalo

Note the absence of crescent and non-nucleated cells.

**Apocrine**
Goats, Sheep

Note the non-nucleated and crescent cells. Circled cells are not counted for SCC.
Sheep Milk

Objects inside of the circles are not counted. Note the non-nucleated cells on PY are much fainter than on MB.
What Types of Cells are Counted?

Eosinophil
Lymphocytes
Polymorphonuclear (PMN)

Fragments are counted only if more than 50% of the nuclear material is visible. See FDA DMSCC 2400 form for guidance.

What Types of Cells are NOT Counted?

Cytoplasmic particles, very small cells (bacteria), non-nucleated fragments or debris

November 1, 2008 Vermont Agency of Agriculture, Food and Markets
Answer Slide  Sheep  A

0 countable cells

Do not count the circled objects.
Drug Testing Issues

- No rapid drug test kits are approved for use in sheep
- FDA gave temporary approval to use
  - Charm bsda
  - Delvo P

- Time has run out and now an approved test must be tested using an FDA approved protocol
- Protocol utilizes both “spiked” samples and natural exposure (treated animals)
Drug Testing Issues

- NY Department of Agriculture and Markets has taken on the responsibility and has a study underway
- Spiked sample results have been submitted to FDA to get approval to move to stage two of the study
- Stage 2 should happen this winter
NCIMS Next Steps

• Proposal is anticipated to adopt changes to the approved SCC Method for sheep
• It is hoped that FDA will continue the temporary drug testing approval pending validation of the study results
• More data is needed before raising the SCC limit to be the same as Goats
Grade A
ITEM 13r. MILKING - FLANKS, UDDERS AND TEATS

Regulation
Milking shall be done in the milking barn, stable or parlor. The flanks, udders, bellies and tails of all milking lactating animals shall be free from visible dirt. All brushing shall be completed prior to milking. The udders and teats of all milking lactating animals shall be clean and dry before milking. Teats shall be treated with a sanitizing solution just prior to the time of milking and shall be dry before milking. Wet hand milking is prohibited.

Administrative Procedures
4. Udders and teats of all milking animals are clean and dry before milking. Teats shall be cleaned, treated with a sanitizing solution and dry just prior to milking. Provided that the sanitizing of teats shall not be required if the udder is dry and the teats have been thoroughly cleaned (not dry wiped) and dried (manually wiped dry) prior to milking. The determination of what constitutes a dry udder and cleaned and dried teats shall be made by the Regulatory Agency.

2005 edition

November 1, 2008
Vermont Agency of Agriculture, Food and Markets
Grade B

The udders and flanks of all lactating animals shall be kept clean. The udders and teats shall be washed or wiped immediately before milking with a clean, damp cloth or paper towel moistened with a sanitizing solution and wiped dry, or by any other sanitary method.

2005 Edition
Questions

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