



GOAT WELFARE: DISEASES AND MANAGEMENT

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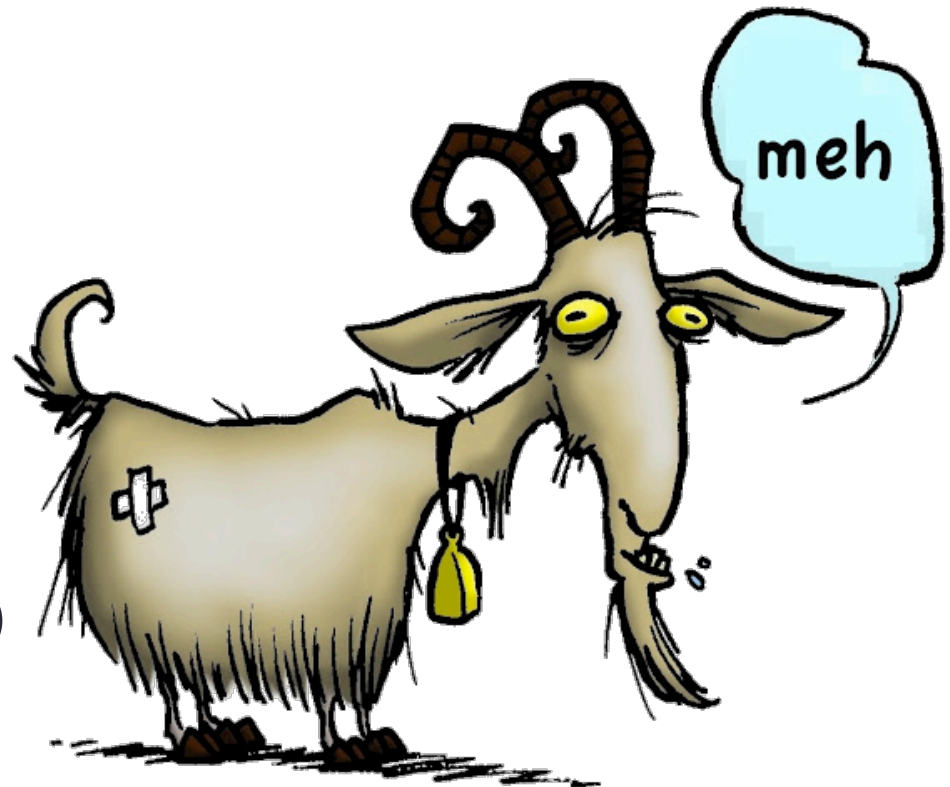
Small Ruminant Health Management, Dept Population Medicine

Animal Welfare in Practice – Sheep Welfare; UPEI

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What diseases are most devastating to goats?

- Kid morbidity and mortality
 - Cryptosporidiosis and other enteric diseases
 - Coccidiosis
 - Pneumonia
- Chronic wasting diseases
 - Caprine arthritis encephalitis
 - Paratuberculosis
 - Caseous lymphadenitis
 - Bad teeth
- Lameness
- Nutritional diseases
 - Sub-acute ruminal acidosis (SARA)
 - Ketosis / pregnancy toxaemia
 - Enterotoxaemia



What other important welfare issues

- Horns and their removal
 - Horns and fighting
 - Disbudding
 - Dehorning
- Social grouping and expression
- Parasites and pasturing
- Environment
 - Protection from inclement conditions
 - Stocking density
 - Good air quality
 - Clean potable water
- Many already covered with sheep

I have picked a few to focus on



Kid management

- Many of our goat dairies “snatch and rear” in order to prevent transmission of caprine arthritis encephalitis virus (CAEV)
- Issues:
- Colostrum management choices & issues
- Heat- treat goat colostrum
- Bovine colostrum
- Colostrum replacement products
- Failure of passive transfer?



Meningitis – FTP issue?



Artificial Rearing

- Requires high quality milk replacer
- Usually not whole milk
- Issues
 - Cleanliness of feeding equipment
 - Proper introduction of feeding
 - Limit feed versus ad lib
 - Abomasal bloat
 - Nutritional diarrhea
 - Tonnes of urine!



Acidified milk feeding?



Pneumonia

- Common issue in our barns
- High stocking densities
- Lots of urine production
- Insufficient ventilation
 - Ammonia
 - Humidity
 - Temperature fluctuations



Pneumonia

- *Mannheimia haemolytica* – severe morbidity
- *Mycoplasma ovipneumonia* – mild morbidity but...



Horn Removal

- Why remove horns of goats?
 - Injury to farm workers
 - Injury to goats
- When should they be removed?
 - As early as possible
- How should they be removed?
 - Local blocks, NSAIDS, tranquilization
- Is this being done?
- Rarely



What happens when goats fight



When they have horns



What is currently practiced



When things go wrong



When not done young enough

- Even if left for a few weeks
- Major surgery
- Scurs



Is it reasonable to expect

- All disbudding be done by veterinarians?
- The law in many European countries – if allowed at all
- All disbuddings to require local blocks, anaesthesia, NSAIDS?

The nerve supply to the horn region in the goat and sheep is from the cornual branches of the lachrymal (zygomaticotemporal) and infratrochlear nerves

http://wildpro.twycrosszoo.org/S/00Man/VeterinaryTechniques/PainRumIndTech/Cornual_Block_Goat.htm

14. ANESTHESIA AND ANALGESIA OF RUMIN



So how do we solve this issue?

- Better to disbud than not disbud
- New research in clove oil injections (New Zealand)
- Injected into bud tissue, little pain response
- If done correctly, tissue necrosis without risk of meningitis
- But we have lots of work to do with the industry to make this happen



Lame goats are more prone to metabolic disease as well as experiencing pain



Much lameness is due to caprine arthritis encephalitis (CAE)

- Presenting complaint and history
 - Goats with enlarged joints and lameness often progressing to recumbency
 - Chronic wasting
- Etiology
 - Caprine arthritis encephalitis virus (CAEV)
 - Small ruminant lentivirus (SRLV) includes maedi visna
 - Several strains but CAEV is predominant in Canadian goats

CAE - Epidemiology

- Widespread
- Very common in dairy and meat
- Transmission from high to lower risk
 - Colostrum & milk of infected does (1 mL)****
 - Aerosol, saliva & genital secretions ****
 - More effective in a confined environment
 - Milking equipment (adults)**
 - In utero transmission (3 to 6%)*
 - Blood contaminated instruments, needles +/-

CAE - Clinical

- Arthritis most often
 - Carpus
 - Stifle
- But other joints & bursitis



L: hip joint; R: occipital bursitis



This looks like poor welfare



CAE – All cases progress

- Arthritis progresses to contracted tendons secondary to recumbency



Courtesy – N East



Courtesy – N East

CAE - Control

- Treatment
 - NSAIDS for lameness
 - Long term – pet goats?
 - Euthanasia
- Control
 - Serological testing and removal
 - Prevention of vertical transmission
 - Snatch at birth and remove
 - Heat-treat colostrum & pasteurize milk
 - Segregation of youngstock from adults

Goats prone to other causes of lameness

- Ulcers
- Foot rot, ulcers
- Interdigital fibroma
- Foot abscesses



Foot Trimming and Lameness

- Foot lameness is a major issue for dairy goats
- Poor foot trimming practices?
- Environment?
- Secondary to SARA?
- Early results of research from Dr. Gosia Zobel on effects of poor foot trimming

Early life management leads to long term impacts



How important is early hoof care??

5 month old kid...

will hooves like this impact the goat long term?





Laura Deeming,
PhD student

Treatment 1 (early):
trimming at 5, 9, 13 and 17
months old

VS.

Treatment 2 (standard):
trimming at 13 and 17
months old

agresearch

Deeming et al., in prep





BEFORE trimming

5 months old



AFTER trimming



BEFORE trimming

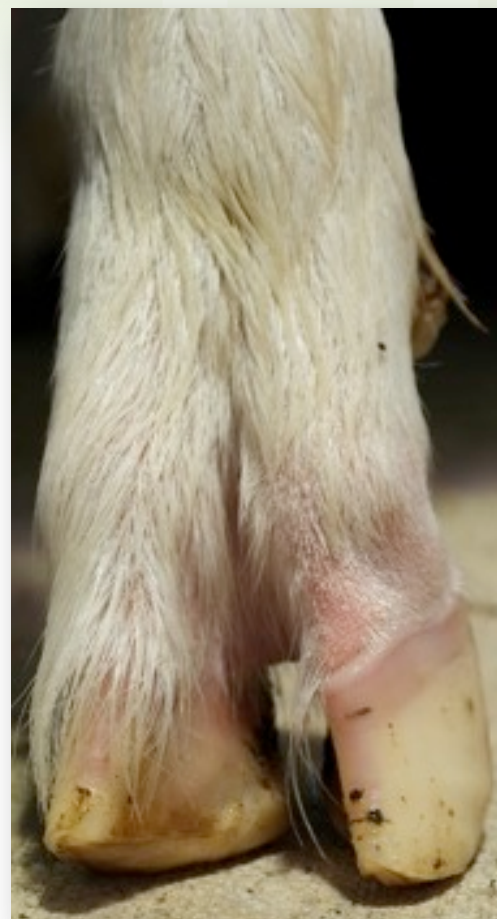
5 months old



AFTER trimming



BEFORE
trimming



AFTER
trimming

5 months old



BEFORE
trimming



AFTER
trimming

5 months old



BEFORE
trimming



AFTER
trimming

5 months old



Hoof trimming as early as 5 months of age may be necessary to prevent changes in the lower leg

BEFORE
trimming

5 months old

AFTER
trimming



Hoof trimming as early as 5 months of age may be necessary to prevent changes in the lower leg – continuing to follow goats to monitor **lameness and longevity in the herd...**

BEFORE
trimming

5 months old

AFTER
trimming

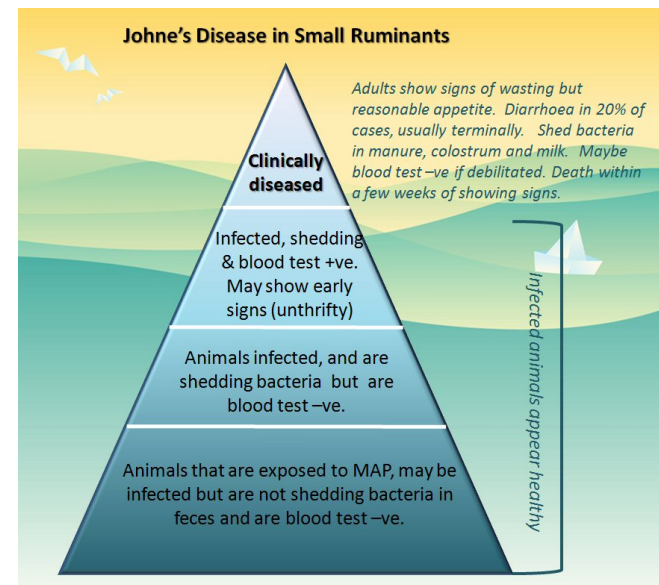
Thin goats

- The industry has major problems with thin goats due to production-limiting diseases
- CAE – already discussed
- Johnes disease
 - Our research in Ontario shows up to 100% of herds tested (only 20 goats per herd) were infected
 - Bauman CA, Jones-Bitton A, Menzies P, Toft N, Jansen J, Kelton D. Prevalence of paratuberculosis in the dairy goat and dairy sheep industries in Ontario, Canada. Can Vet J. 2016 Feb;57(2):169-75.
- Caseous lymphadenitis
 - Usually just ugly but can cause internal abscess
- And dental disease
 - Likely under recognized

Caseous Lymphadenitis



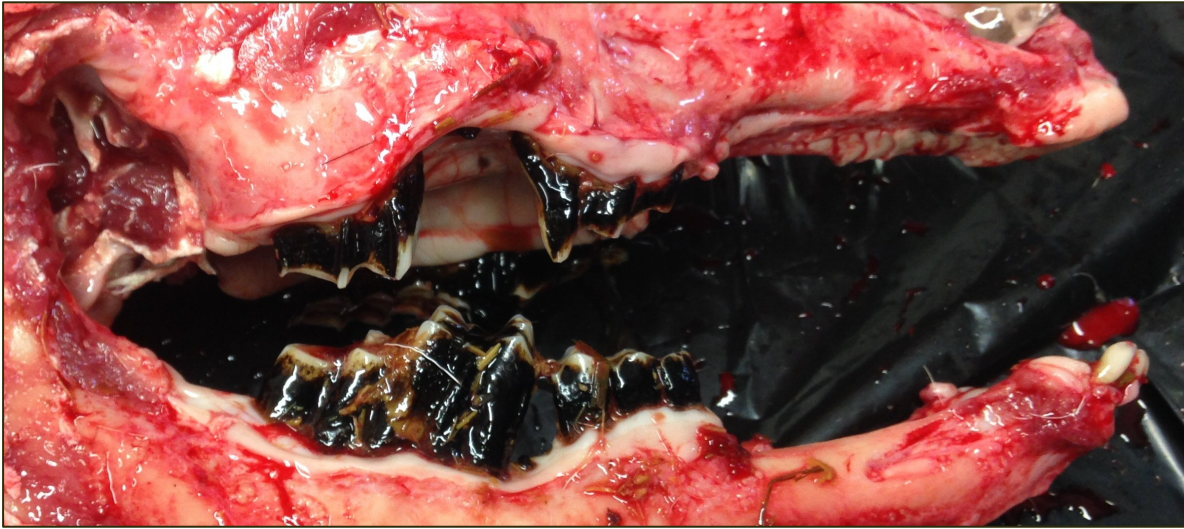
Johne's Disease



Dental Disease



Control or just recognize earlier?



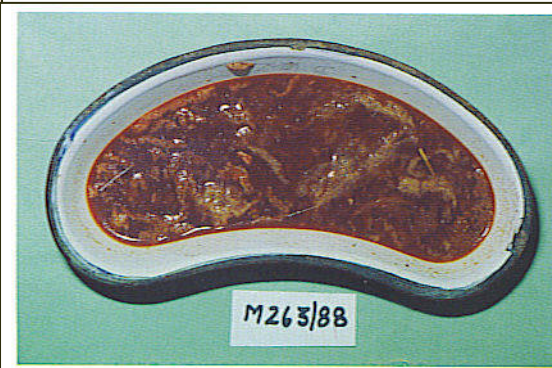
Recognizing ketosis and preventing



Courtesy G Zobel

Preventing Enterotoxaemia

- Combination of infectious disease
 - *Clostridium perfringens* D
- And nutritional disease
- Linked to SARA?



Feeding sodium bicarbonate?

- Doesn't beat alfalfa for buffering capacity



Summary

- Our dairy goat industry is growing rapidly
- New producers without a goat background
- Older producers expanding numbers to thousand or more lactating goats
- We need to catch up and try to help them do things better
- Anybody want a job?



Questions?

