

Pasture and Animal Health

Linda L. Tikofsky, DVM
Senior Extension Veterinarian
Quality Milk Production Services
Cornell University
lg40@cornell.edu



Pasture access and its relationship to.....

- Lameness
- Mastitis and Milk Quality
- Reproduction
- Youngstock health
- Behavior



Lameness

Lameness affects dairy cattle by decreasing efficiency, decreasing milk production, decreased reproductive performance, increased treatments and increased culling.



Lameness

Regula et al. 2004. *Prev Vet Med*: 134 Swiss herds with varying amounts of confinement and outdoor exercise

Risk of lameness increased as outdoor exercise decreased

Rodriguez-Lainz et al. 1999. *Prev Vet Med*: 3,265 cattle from 22 Chilean dairy farms were examined for papillomatous digital dermatitis (PPD).

Cows in loose housing were ~7 times more likely and cows in freestalls were about ~3 times more likely to have PPD than cows at pasture.



Lameness

- Somers et al. 2005. *Prev Vet Med* : Compared 2134 pastured cows and 2892 confined cows for risk of having digital dermatitis (DD).

Cows that only had restricted access to pasture were 1.7 times more likely to have DD than pastured cows and were also more likely to have DD during the housing season

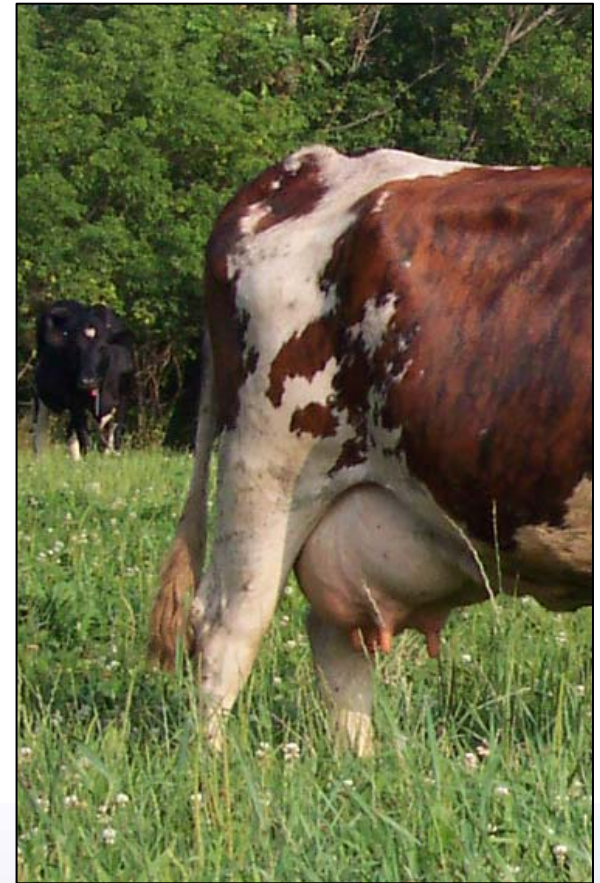
- Keil et al. (in press) *Prev Vet Med*: Compared hock lesions on 66 Swiss dairy farms with exercise frequency and duration.

Cows that had extended exercise periods (at least 50h/mo) had fewer hock lesions



Mastitis and Milk Quality

Udder health and milk quality on farms can be measured in terms of Somatic Cell Count (SCC), bulk milk bacterial count and clinical mastitis.



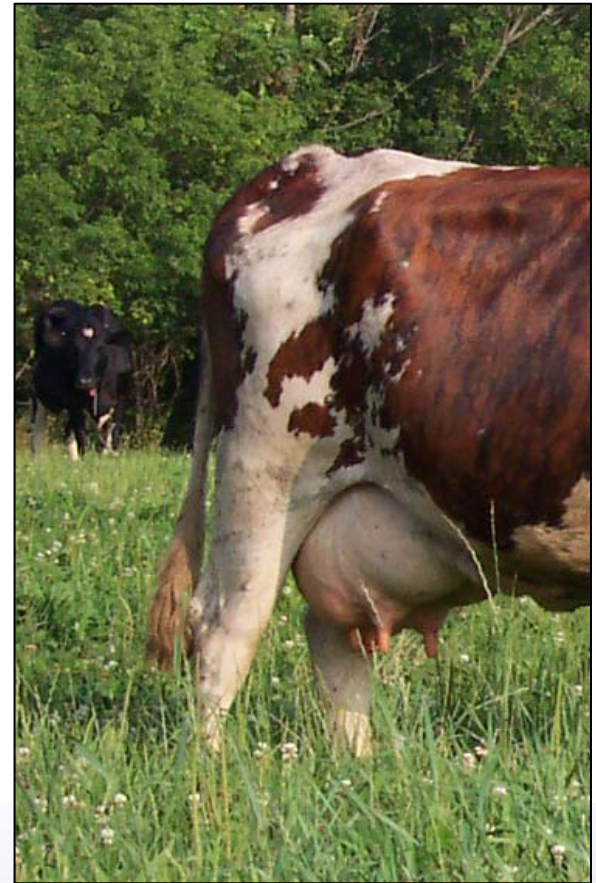
Mastitis and Milk Quality

- Washburn et al. 2002. *J Dairy Sci*: 4 yr study of pasture and confinement systems.

Confined cows had more clinical mastitis than pastured herds.

- Waage et al. 1998. *J Dairy Sci* : Compared 4256 1st lactation heifers with mastitis with 67,072 without mastitis in Norway.

Heifers on pasture were at lower risk for clinical mastitis than confined heifers



Mastitis and Milk Quality

- Goldberg et al. 1992. *J Dairy Sci*: Monitored records and monthly bulk milk cultures from 15 Vermont dairies over a year.

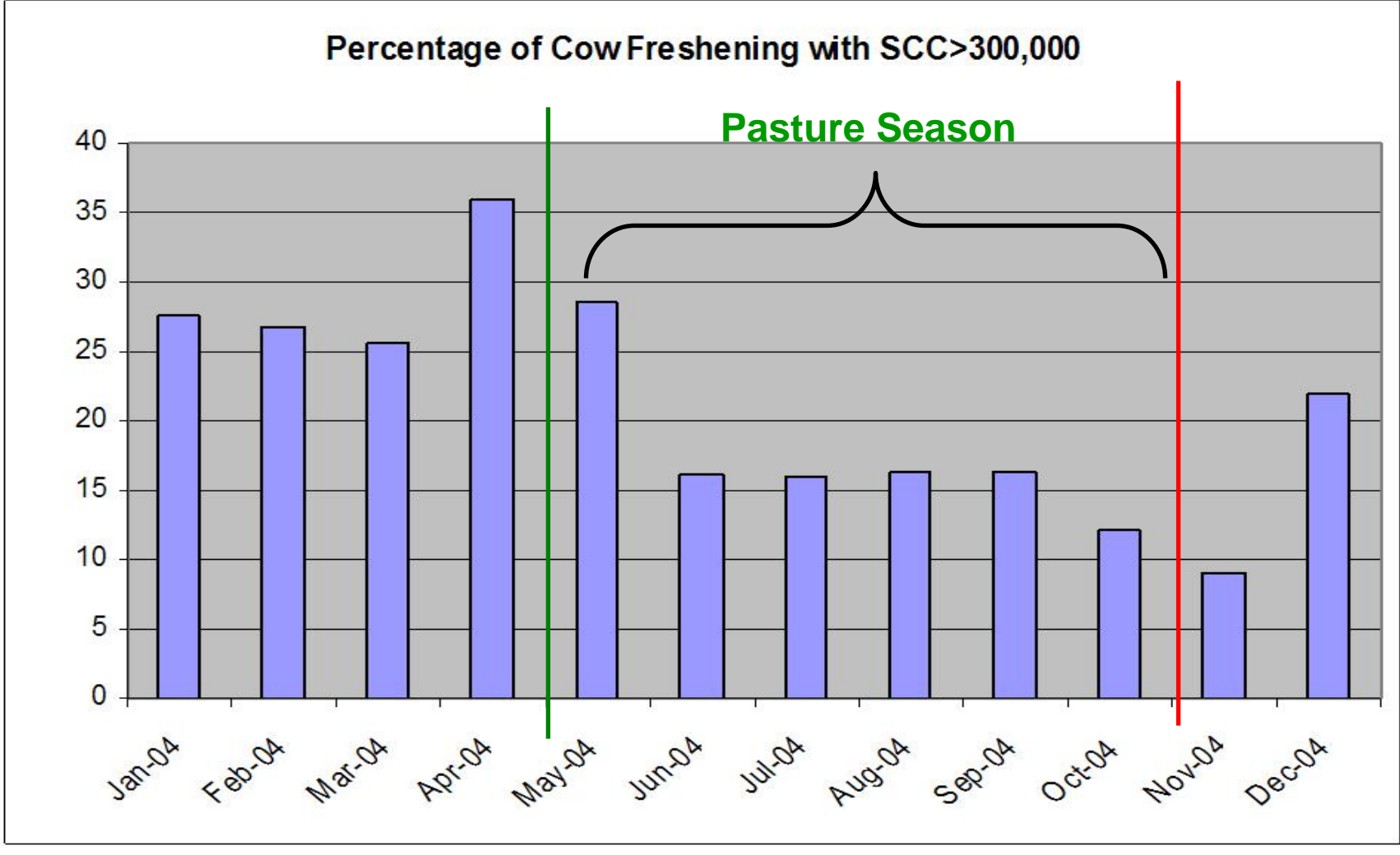
Grazed herds had lower total bacteria counts than confined herds during grazing season. Trend toward improved udder health on pastured herds.

- Eberhart et al. 1987. *Proc NMC 26th mtg.* Compared bulk milk bacteria and SCC counts among intensive grazing, traditional grazing and zero grazing herds.

Lower standard plate counts in grazing herds. Trend toward improved udder health and fewer teat injuries in grazing.



Mastitis and Milk Quality



Reproduction

- Washburn et al. 2002 *J Dairy Sci*: 4 yr study of pasture and confinement systems.

No difference in reproductive performance in pasture herd despite lower body condition scores (BCS)

- Béri et al. 1995. *Poster presentation, 46th annual meeting of the European Association for Animal Production*. 3+ yearlong studies of two farms with pasture and confined groups.

Fertility of pasture group was increased 10% and calving interval was reduced by 15 days.

- Bruun et al. 2002. *Prev Vet Med*: Retrospective study of metritis in 2144 Danish dairy herds.

Herds with greatest risk of metritis were large dairy breed herds calving in November –April and were zero-grazing.



Longevity and Culling

Average lactations on conventional confinement dairy: 2.8

- White et al. 2002 *J Dairy Sci*: 4 year study of cows (Holstein and Jersey) in confinement or on pasture.

**Culling and death losses were higher in confined herds than pastured.
Longevity of pastured Holsteins was greater than confined Holsteins.**

- Cornell Dairy Farm Business Summary. 2004

Cull rate (grazing)=22%

Cull rate (non-grazing, comparable size)=29%

- Cornell Dairy Farm Business Summary. (1996-2003)

Veterinary and medical expense/cow (grazing): \$61/year

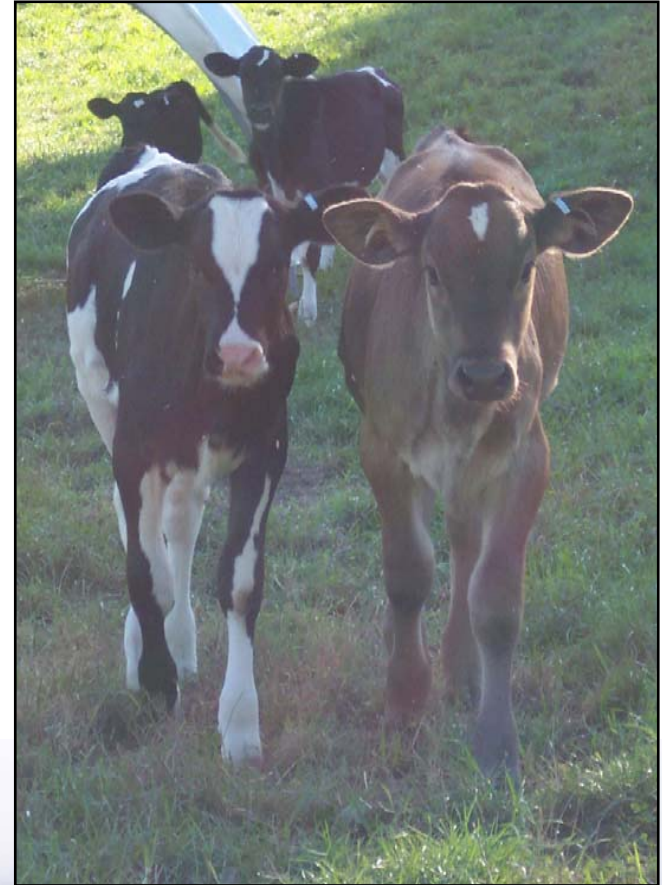
Veterinary and medical expense/cow (non-grazing): \$77/year



Youngstock

Reed et al. 1998 *Proc. 1998 ADSA Annual Mtg.* Used 38 colostrum deprived pre-weaned calves (20 indoors in individual pens; 18 grouped on pasture).

Pasture group had 40% lower mortality. Weight gain 0-28 days similar for both groups; weight gain >28d greater for pasture calves



Behavior

Singh et al. 1993. *Vet Rec*: Observed 1st lactation heifers and adult cows in confinement or at pasture relative to lying behavior.

Cows on pasture laid for longer periods of time and exhibited less restlessness



Other considerations

- Berghaus et al. 2005 *JAVMA*: Investigated incidence of Hemorrhagic Bowel Syndrome on a random sample of >1000 dairy herds in US.

Odds of observing HBS in a pasture herd were one hundredth of those that did not use pasture

- Josson et al. 2001 *Int J Food Microbiol*: Compared fecal samples from calves on pasture (6) versus those from calves housed indoors (6) for *e. coli* O157:H7.

Pasture calves were negative on all five monthly samplings; indoor calves had between one and six positive calves at each sampling



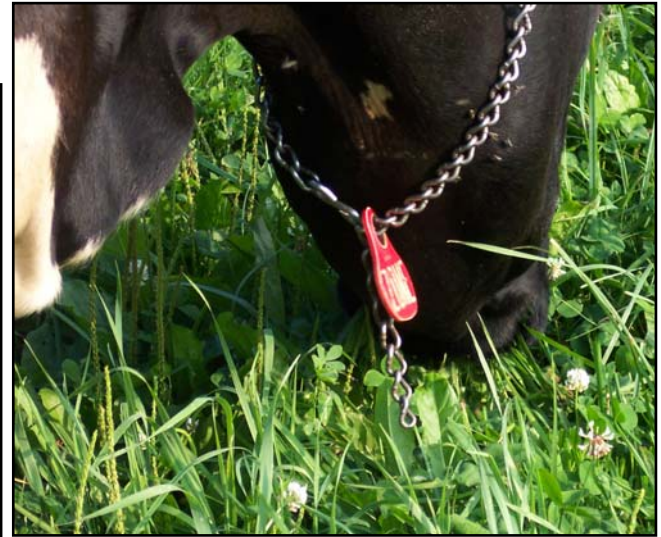
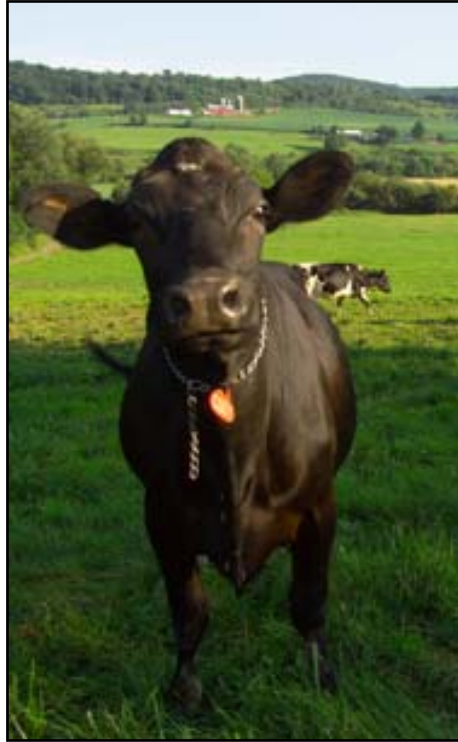
Can pasture be detrimental?

No studies directly address the hazards of pasture.....

- **Fly control**
- **Internal parasites in youngstock**
- **Inclement weather**
- **Inadequate nutrition**
- **?**

However, these issues can be addressed in the farm plan and should not preclude the animal's opportunity to enjoy improved health provided by sunlight, exercise, fresh air and natural behaviors.





Thank you!

