

# Does overnight access to pasture reduce lameness in dairy cows?

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## The problem

Cows housed continuously on pasture show improved gait scores over those housed on concrete, but continuous access to pasture can compromise feed intake and milk production in high producing cows.

## The objective

To assess whether keeping lactating cows on pasture overnight improves lameness without jeopardizing feed intake and milk production.

## Conclusion

Parturition and parity are critical risk factors for lameness. Housing on pasture overnight is a practical way of increasing access to pasture without reducing feed intake or milk production but this does not appear to provide obvious beneficial effects on lameness.

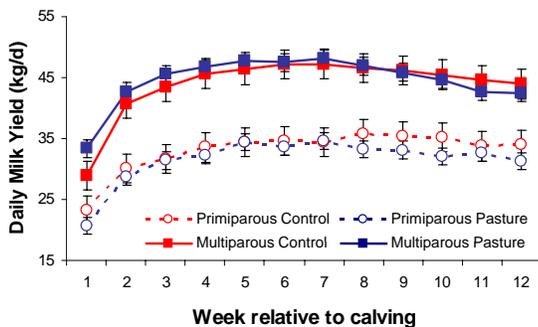
## Methodology

- 25 cows and 12 heifers were kept from d -28 to d +56 relative to calving in either of these treatments:
  - a) Control:** A free-stall barn with rubber flooring and one sand bedded stall per cow throughout the day (n=24)
  - b) Pasture:** A free-stall barn with rubber flooring and one sand bedded stall per cow from 700h to 2000h and on pasture overnight (n=23)
- After the treatments, all cows were moved to a free-stall pen with rubber flooring in the feed alley and concrete everywhere else
- Indoor feeding intake, milk production and lying behavior were continuously monitored
- Gait (1=normal, 5=severely lame)<sup>1</sup> and hoof health were assessed every 4 weeks, and cows were followed up until week 24 after calving

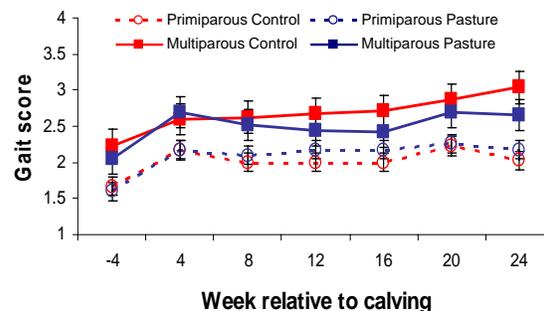


## Results

Overnight access to pasture did not affect mean ( $\pm$ SE) daily milk production (P = 0.97)



Mean ( $\pm$ SE) gait score increased after calving in all the cases (P < 0.001), although no differences were found between treatments at any time (P = 0.37). Overall, primiparous cows had a better gait than multiparous cows (P < 0.001).



Control and pasture cows were at the same risk of getting a hoof lesion (P > 0.05). Overall, multiparous cows were at a higher risk of suffering from sole lesion, dermatitis and heel erosion than primiparous cows.

|              | Hazard Ratio <sup>2</sup> |                           |
|--------------|---------------------------|---------------------------|
|              | Pasture : Control         | Primiparous : Multiparous |
| Sole Lesion  | 0.80                      | 4.51*                     |
| WL Lesion    | 0.85                      | 0.49                      |
| Dermatitis   | 1.19                      | 6.56*                     |
| Heel Erosion | 0.74                      | 2.45†                     |
| Corn         | 0.72                      | 0.74                      |

<sup>2</sup> Hazard Ratio or instantaneous relative risk of suffering from a sole lesion (severe haemorrhage or ulcer), white line (WL) haemorrhage, dermatitis, heel erosion or corn for pasture cows relative to control cows, and for multiparous cows relative to primiparous cows. For example, being a multiparous cow increased the hazard of sole ulcers 4.51 times.

\* P < 0.05, † P < 0.10

Both control and pasture cows had the same dry matter intake in the barn both before (12.30 vs. 11.01 kg/d, SE = 0.86, P = 0.47) and after calving (15.51 vs. 15.52 kg/d, SE = 1.04, P = 0.94), although the feeding rate was slightly higher for pasture cows (9 vs. 10 g/min, SE = 0.04, P < 0.05).

Control and pasture cows lay down for the same amount of time both before (717.27 vs. 670.51 min/d, SE = 32.6, P = 0.25) and after calving (598.5 vs. 564.6 min/d, SE = 21.2, P = 0.15).

## Discussion

Previous studies reported cows housed continuously on pasture show a lower incidence of lameness than those housed on concrete. The fact that cows in the pasture treatment in our study were on pasture only overnight, and that the flooring provided for control and pasture cows during the day was rubber, may have not resulted in differences between treatments that were large enough to produce any effect on lameness in the short term.

Keeping high-producing cows outside overnight is a feasible option to provide cows with some access to pasture and may have other benefits for their welfare.