



NUTRITION NOTES

Innovation + Research from Kent Nutrition Group

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DAIRY CATTLE LAMENESS

Lameness is one of the most important health problems on today's dairy farm. It results in lost milk, loss of body condition, depressed fertility, premature culling, and significant treatment costs. It is a difficult problem to manage and represents a serious economic threat. As we look for solutions, it is important to look at all potential causes and not just concentrate on ration adjustments. Due to the increase in free-stall housing, hoof hygiene has become a major issue. Cows constantly standing in wet or moist conditions experience loss of skin integrity causing the development of infectious hoof lesions. Cow comfort is also often a problem. Cows that don't have comfortable stalls will spend more time standing, putting additional stress on their feet and legs.

Nearly all lameness in dairy cattle involves the foot. The rear foot is the problem 90% of the time and most frequently it is the outside claw that is affected. Confinement on hard surfaces aggravates the physical effects of load bearing on the foot. As the cow walks and steps down on the rear foot, weight shifts from the inside claw to the outside claw. This results in more weight being carried by the outer claw, which leads to accelerated growth of the hoof horn. Excessive growth leads to overloading and may cause disease of the outer claw. When the outer claw is affected, the cow may stand knocked kneed to take weight off of the outer claw. Often she will stand and walk with an arched back and the stride of one or more legs will be short.

On those rare occasions when a front foot is affected, it is most often the inside claw. If the inside claw of the front foot is involved, cows may stand with front legs crossed to take weight off of the claw. It is believed that the front feet are less of a problem because the tendons and ligaments that connect the front legs to the torso cushion the effects of confinement on hard surfaces. The attachment of the rear legs on the other hand is more rigid.

An environmental factor that is often overlooked is heat stress. Since hot weather decreases dry matter intake, nutrient intake is often maintained by reducing forage and increasing grain. During hot weather, when forages and grains are fed separately, cows often select concentrates over forages. They also tend to eat more during the cooler times of day and slug feed. Increased grain intake, feed sorting, and slug feeding reduces cud chewing and saliva production, which may result in rumen acidosis. During periods of acidosis, inflammatory compounds may be absorbed into the blood stream that can cause a disturbance in the circulation in the small blood vessels of the foot. This results in a cascading series of events that can cause inflammation, hemorrhage, and death of foot tissue. These effects may not be obvious for weeks after the onset of depressed rumen pH.

Lameness is a complex disease requiring preventative measures to keep it from becoming a serious economic drain. Adding effective fiber and buffers to maintain rumen pH may help. It may also be beneficial to add organic trace minerals such as; Zinpro®, 4 Plex®, or Avail Plus® to improve the cow's ability to fight infection. Adding 20 mg/day of biotin also has helped improve hoof health. Regular hoof-trimming and use of a properly designed and maintained foot bath will also help. Nutrition and feeding are important, but the environment also matters. Uncomfortable cows in a dirty environment will have problems despite good nutrition. To avoid significant losses, corrective measures should be taken at the first signs of dairy cattle lameness.

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