

## **Do Lameness Problems Start at Weaning Time? Investigating the Impact of Calf Feeding Practices on Rumen and Foot Health**

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Lameness is a problem in the dairy industry that brings significant economic loss and animal welfare concerns. Risk factors for common lameness problems in adult dairy cattle are fairly well established and provide a framework for management intervention to reduce on farm lameness. However, what if the way you are feed your replacement heifers as early as weaning time is setting them up for lameness problems during their first lactation? This was the question raised by CSU dairy extension specialist Bill Wailes that sparked a study getting underway by the Integrated Livestock Management Dairy Team in collaboration with the Department of Animal Science nutritionist Terry Engle.

Subacute ruminal acidosis (SARA) is a common problem associated with the high carbohydrate rations fed to high producing adult dairy cattle. Rumen pH below 5.5 in adult cattle is associated with damage to the rumen wall (rumenitis) allowing bacteria and toxins to enter the bloodstream which can result in liver and lung abscesses, infection of the heart as well as subclinical laminitis. Subclinical laminitis refers to inflammation of the laminae of the claw that is not severe enough to make the animal obviously lame, however, it results in poor sole and hoof wall growth that later results in common lameness problems. These include: sole hemorrhages, sole ulcers, sole abscesses and white line disease. The question is, it if can happen with adults, why not in replacement heifers, especially as we push them for greater, more rapid gains. Around the time of weaning, low fiber, high carbohydrate starter rations are commonly fed that would likely result in low rumen pH in these calves.

To address these questions we have begun a project that will evaluate rumen pH of dairy calves around the time of weaning (when starter consumption is rapidly increasing), the prevalence of sole hemorrhages in the claws (a sign of subclinical laminitis) and the incidence of lameness in animals during their first lactation. These parameters will be evaluated in animals from dairy operations with contrasting replacement feeding programs (eg. Early weaning, low fiber/high carbohydrate ration vs. late weaning, high fiber/ moderate carbohydrate ration).

Last year, Dr. Derek Foster, an intern in Food Animal Medicine and Surgery, collected preliminary data from two farms with contrasting feeding programs. Farm A weaned at 45 days, provided no long stem alfalfa and fed a TMR shortly after weaning. Farm B weaned at 90 days, provided long stem alfalfa beginning at 60 days and continued long stem alfalfa and calf starter feeding through 6 months of age. Rumen pH measured at the time of weaning and approximately one month post weaning was significantly lower (and in the “acidotic” range) in calves from Farm A compared with calves from Farm B. Examination of the claws of calves approximately one month after weaning showed lesions consistent with subclinical laminitis in about 3 times as many calves from Farm A versus Farm B. These preliminary data suggest an association between low rumen pH and claw health may also exist in replacement heifers and has encouraged us to continue with a large scale study.

The push for earlier age at first calving seems to make economic sense as replacements start paying back on your investment sooner, however, what if the rations being fed result in increased lameness problems in the first lactation? Those costs which

include reduced milk production and more importantly decreased longevity in the herd may outweigh the benefit of calving 30 days earlier.

We need your help! We are looking for herds that would be willing to participate in the study. Especially important are excellent records that would allow determination of the incidence of lameness in the milking herd (especially first lactation animals) or willingness to set up such records. Financial help is also needed, with your help perhaps we can gather enough preliminary data to secure USDA funding to help answer these important questions.