from the group of preserved composite samples that were analysed on days 1, 3, 4, 7 and 11. No significant difference in was found ($p>0.05$) between any samples stored up to and including 11 days. Similarly an ANOVA was performed on the MUN results from the group of non-preserved composite samples that were analysed on days 1, 3, 4, 7 and 11. Again, there was no significant difference found ($p>0.05$) between samples, although several unpreserved samples were sour by day 11. These preliminary results suggest that both preserved and non-preserved milk samples may be stored up to 11 days with no significant effect on MUN measurements. However, eventual souring of non-preserved samples means that storage beyond 7 days is not recommended.

A paired t-test was performed to compare the MUN measurements from preserved composite samples analysed on day 1 to non-preserved composite samples analysed on day 1. MUN levels from preserved samples averaged 0.25 mg/dl higher than the non-preserved samples ($p<0.05$ and Std. Error = 0.10). However, the biological significance of a mean difference of 0.25 mg/dl could be questioned.

In conclusion, preliminary results from these experiments suggest that milk samples collected regularly by milk testing laboratories will provide MUN measurements that are reasonably well correlated with SUN levels in the cow. However, there is only moderate agreement between the MUN and SUN tests. Thus, caution should be used in assuming that the relationship between MUN levels and nutritional management or reproductive performance in dairy herds will automatically be consistent with findings from research on SUN levels. Thus, new research looking at the nature of potential associations between MUN measurements and the nutritional management and reproductive performance in dairy herds is warranted.

Potassium, Not Calcium Induces Milk Fever: Addition of Potassium or Sodium, but not Calcium, to Prepartum Rations Induces Milk Fever in Dairy Cows

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The effects of prepartal dietary potassium, sodium, and calcium concentration on the incidence of periparturient hypocalcemia or milk fever was determined in older (≥ 4th lactation) Jersey cows. Cows were fed one of six diets differing in potassium and calcium content. In addition, the effect of dietary sodium (tested only at the high dietary calcium level) was also examined. Treatments were arranged in an incomplete 2 X 4 factorial design with dietary calcium (.5 or 1.5%) and dietary strong cations (1.1, 2.1 and 3.1% potassium or 1.3% sodium) as the main effects. There were no significant effects of dietary calcium on the incidence of milk fever or the degree of hypocalcemia experienced by the cows. Milk fever occurred in 2 of 20 cows fed a 1.1% potassium, .12% sodium diet prepartum. Increasing dietary potassium to 2.1 or 3.1% increased the incidence of milk fever to 10 of 20 cows and 11 of 23 cows, respectively. Increasing dietary sodium to 1.3% in a diet containing 1.5% calcium induced milk fever in 5 of 8 cows. Addition of strong cations to the prepartal diet increased blood and urine pH values and reduced plasma hydroxyproline concentrations, suggesting an inhibition of bone calcium resorption in cows fed high potassium or high sodium diets as a result of metabolic alkalosis. These data demonstrate that dietary calcium concentration is not a major risk factor for milk fever, and that dietary strong cations, especially potassium, induce a metabolic alkalosis in the prepartum dairy cow which reduces the ability of the cow to maintain calcium homeostasis.