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Introduction

Milk urea concentration and urinary urea excretion are common estimates of dairy cow ration balancing and nitrogen excretion. Urinary urea excretion could either be based upon total urine collection or volume estimates from creatinine concentration. Restriction of total collection to daytime would save labor.

Material and Methods



- Four change-over experiments
- 85 cow x period observations
- 9 different diets compared for production and N balance



- Diets with 14.6-17.7 % CP of DM
- Grass-legume silage made up 65-70% of DM
- 3-4 meals at ad lib or semi-restricted level 05:00-18:00 h



- Milking intervals
- 10 h (afternoon)
- 14 h (morning)



- Collection for 72 h with urine container renewal each 12th h
- 06:00 h (nighttime excretion)
- 18:00 h (daytime excretion)

Results

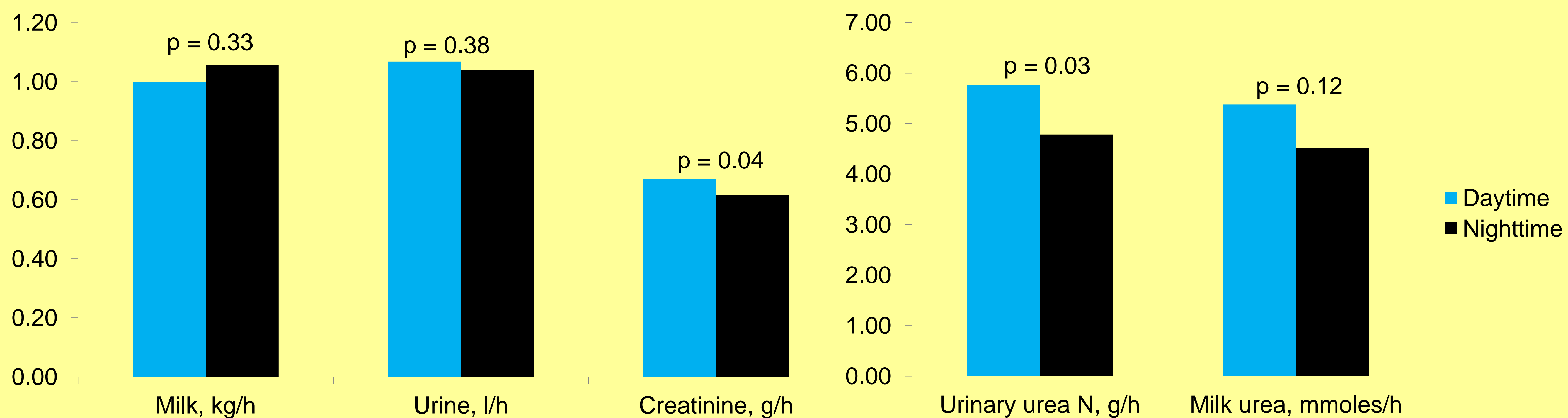


Figure 1. Hourly excretion during daytime and nighttime.

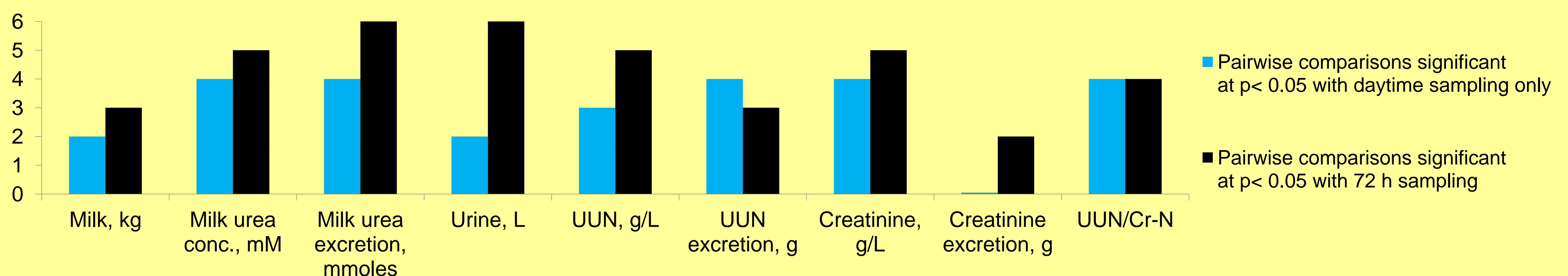


Figure 2. Number of significant diet differences (out of 6 possible, only within experiment comparisons could be done) if either values from daytime sampling or 72 h based values were used.

Conclusions

Hourly excretion of creatinine and urinary urea N were highest during daytime. Comparison based on daytime values ranked diets similar but the larger variation reduced the number of significant differences for most of the variables.