animal welfare program

The effect of competition on the behavior of transition Holstein dairy cows

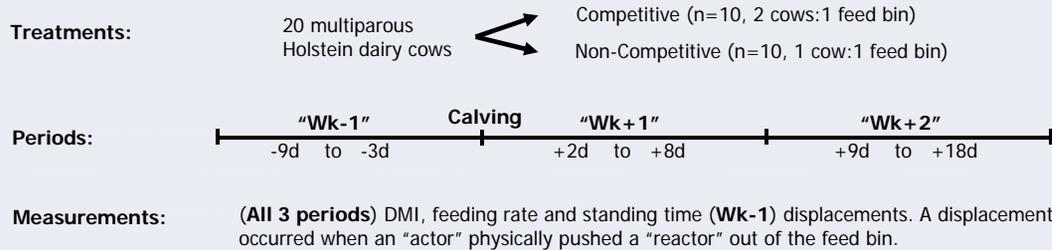K.L. Proudfoot, D. M. Veira, D. M. Weary and M.A.G. von Keyserlingk

Background

- Transition cows are the most susceptible to the negative consequences of depressed feed intake.

- Work with mid-lactation cows has shown that competition at the feed bunk can affect feeding behavior.
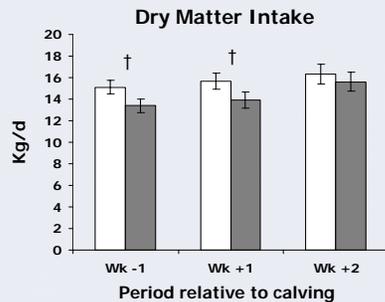
Objective

- Determine the effect of a competitive feeding environment on the feed intake, and feeding, social and standing behavior of transition dairy cows.

Methods

Treatments: 20 multiparous Holstein dairy cows
- Competitive (n=10, 2 cows:1 feed bin)
- Non-Competitive (n=10, 1 cow:1 feed bin)

Periods:

"Wk-1"	Calving	"Wk+1"	"Wk+2"
-9d to -3d		+2d to +8d	+9d to +18d

Measurements: (**All 3 periods**) DMI, feeding rate and standing time (**Wk-1**) displacements. A displacement occurred when an "actor" physically pushed a "reactor" out of the feed bin.

Results

Dry Matter Intake

Feeding Rate x Social Behavior

$R^2 = 0.82$


Idle Standing Time[2]

Cows on the competitive treatment (grey) tended to eat less in the week before calving (13.4 vs. 15.1 kg/d, SED=0.6, †P=0.06) and the week after calving (13.9 vs. 15.7 kg/d, SED=0.8, †P=0.11) compared to non-competitive cows (white).
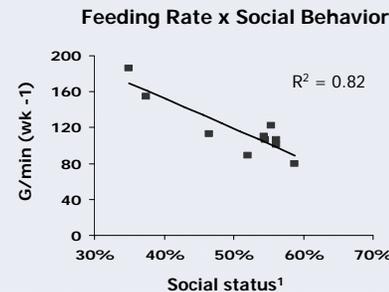
Cows fed competitively ate faster in wk+2 (142 vs. 105 g/min, SED=11, P=0.02) compared to non-competitively fed cows. Competition also increased the number of displacements at the feeder in wk -1 (24 vs. 10 no./d, SED=4, P=0.02).

Within the competitively fed group, the least aggressive cows ate the fastest (R^2=0.82, P<0.001)
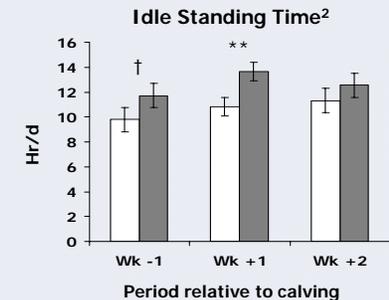
In the week before calving, competitively fed cows (grey) tended to stand idly longer than non-competitively fed cows (white, 11.7 vs. 9.8 hr/d, SED=1.0, †P<0.10).

During wk+1, competitively fed cows stood idle 2.8 hr longer than cows non-competitively fed cows (13.7 vs. 10.8 hr/d, SED=0.7, **P<0.001).

[1]Social status was calculated as the proportion of time a cow was an actor in a displacement relative to the total number of displacements she was involved in. [2]Idle standing time was calculated as the time spent standing without eating.

Conclusion

- Multiparous cows fed in competitive environment slightly reduce their intakes in the week before and after calving. Competition increased the feeding rate of cows, and the least aggressive cows increased their rate of intake the most. Competition also increased the idle standing time of cows, as they were likely waiting to gain access to the feeder.

- Transition cows are the most vulnerable to disease and lameness. Overstocking the feeder around calving alters a cow's behavior and may impact her ability to make a healthy transition to lactation.