



# Effects of pair versus single housing on calf development

Andreia De Paula Vieira, Marina A. G. von Keyserlingk and Daniel M. Weary

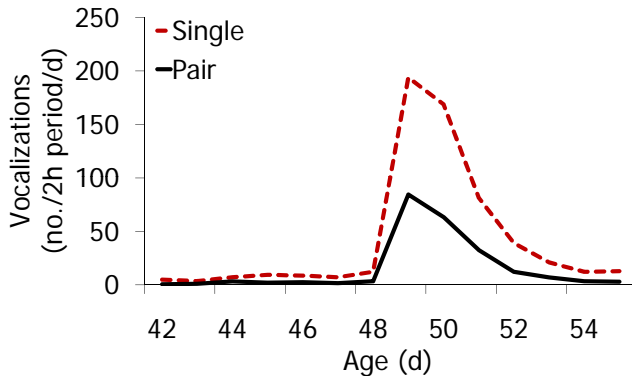


**Background:** Calves are typically housed individually during the milk-feeding period. Studies on other species have shown that single housing early in life can: 1) increase responsiveness to environmental stressors, 2) delay exploratory behavior, 3) impair cognitive development, and 4) reduce the ability to cope with unfamiliar animals.

**Aim:** To test the effects of pair versus single housing on: 1) calf responses to an environmental stressor (weaning from milk), and 2) the calves' ability to adapt to a new physical and social environment (mixing after weaning).

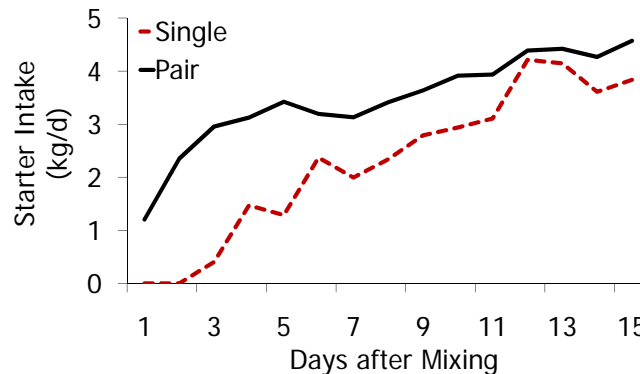
**Methods:** Holstein calves were allocated to 2 treatments: single (n=9) or pair housing (n=9 pairs). Gradual weaning followed by removal of the milk feeding teat occurred on d 49. Calves were moved to a group pen on d 56. Vocalizations were measured 2-h /d from d 42 to d 55. Starter intake and weight gains were measured daily from d 56 to d 70.

Vocalizations at Weaning



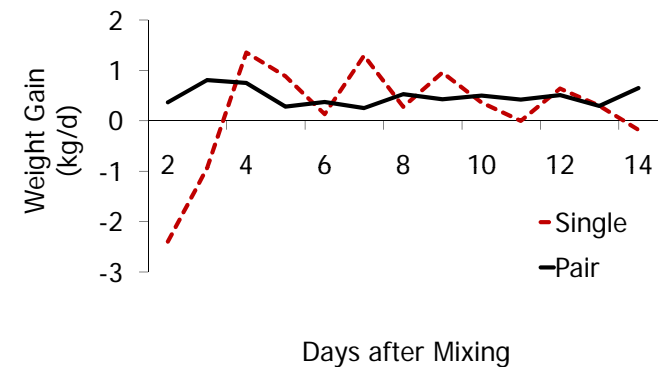
Calves vocalized in response to teat removal; this response was stronger in individually housed calves (84 vs. 194 ± 12 calls/2h period on d 49).

Feeding Behavior at Mixing



Individually housed calves began feeding only 2 d after mixing and consumed less starter in the post mixing period (3.46 vs. 2.3 ± 0.2 kg/d).

Weight Gain at Mixing



Individually housed calves gained less weight on d 2 and 3 after mixing (-2.4 vs. 0.5 ± 0.3 kg/d; and -0.94 vs. 0.85 ± 0.3 kg/d, respectively).

- Pair housing reduced calf responses to weaning and improved feed intake and weight gains at mixing
- Individual housing may impair social and cognitive development in dairy calves