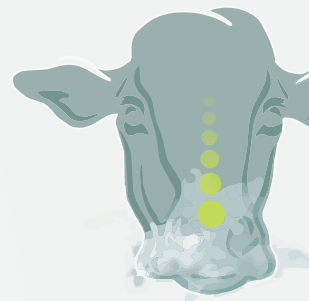




Dual-Pheromone Technology Demonstrates Health and Performance Benefits in Calves Following Arrival

Study evaluates CattleZen® against a competitive single-pheromone treatment and untreated control

Objective

To evaluate whether pheromone technology could help alleviate stress-related health and performance losses during common stressful events.

Key findings

Mortality in the **CattleZen group** was reduced by **89%** compared to the control group (0.5% vs. 4.44%, $P=0.0152$).

CattleZen-treated calves achieved greater average daily gain (ADG) than the **single-pheromone-treated calves** (0.30 kg/day ADG compared with 0.22 kg/day for calves receiving the single-pheromone treatment, $P=0.0424$).

CattleZen reduced morbidity by **42%** compared to the **single-pheromone-treated calves** (14.0% vs. 24.0%, $P=0.0151$).

REDUCED
MORTALITY
↓ **89%**

GREATER
ADG ↑

REDUCED
MORBIDITY
↓ **42%**

Background

The study compared CattleZen (dual-pheromone technology that contains maternal bovine appeasing substance (mBAS) and 2M2B calming pheromone) with FerAppease® (a single-pheromone product that contains mBAS), and an untreated control. Outcomes evaluated included ADG, salivary cortisol, morbidity and mortality.

The controlled and randomized clinical field study included 580 beef/dairy cross calves sourced from dairy operations in Alberta and British Columbia. On arrival, calves were assigned to one of three treatment groups:

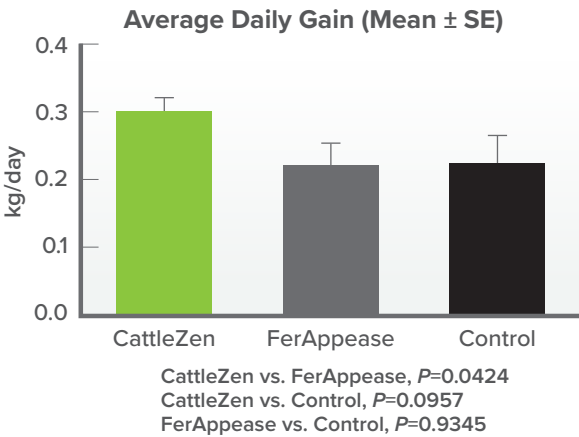
- ✓ **CattleZen dual-pheromone treatment:** 200 calves
- ✓ **FerAppease single-pheromone treatment:** 200 calves
- ✓ **Control:** 180 calves

Treatments were administered topically at enrollment following arrival. There was no significant difference in body weight ($P = 0.8441$) at the time of allocation (Day 0). Health assessments were conducted daily, and calves were weighed at enrollment and again on Day 16 or 17. Morbidity and mortality were monitored through Day 21.

Results

Dual-pheromone treatment significantly improved average daily gain

- CattleZen-treated calves achieved an average daily gain of 0.30 kg/day compared with 0.22 kg/day for calves receiving the competitive single-pheromone treatment — **approximately 36% greater ADG**.
- ADG among CattleZen-treated calves was also numerically greater than controls (0.30 vs. 0.23 kg/day), although the difference did not reach statistical significance.
- ADG was similar between the single-pheromone treatment and control groups (0.22 vs. 0.23 kg/day).



Lowest mortality observed with dual-pheromone treatment

- Mortality in the CattleZen group was reduced by 89% compared to the control group (0.5% vs. 4.44%).
- Mortality did not differ significantly between the single-pheromone and control groups (2.5% vs. 4.44%).

Treatment Group	Number Died	Percent	Number of Animals
CattleZen	1	0.5%	200
FerAppease	5	2.5%	200
Control	8	4.44%	180

CattleZen vs. FerAppease, $P=0.2152$
CattleZen vs. Control, $P=0.0152$
FerAppease vs. Control, $P=0.3990$

Lower morbidity observed with dual-pheromone treatment

- Morbidity was significantly lower in CattleZen-treated calves compared to single-pheromone-treated calves (14.0% vs. 24.0%) representing a **42% relative reduction in morbidity**.
- Morbidity was numerically lower in CattleZen-treated calves compared with untreated controls (14.0% vs. 16.7%), but the difference was not statistically significant.

Treatment Group	Morbidity (number)	Morbidity (%)
CattleZen	28	14.0%
FerAppease	48	24.0%
Control	30	16.7%

CattleZen vs. FerAppease, $P=0.0151$
CattleZen vs. Control, $P=0.4791$
FerAppease vs. Control, $P=0.0979$

Conclusion

These findings demonstrate the **potential value of a dual-pheromone approach for helping minimize the impact of stressful events** associated with cattle management practices.



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