

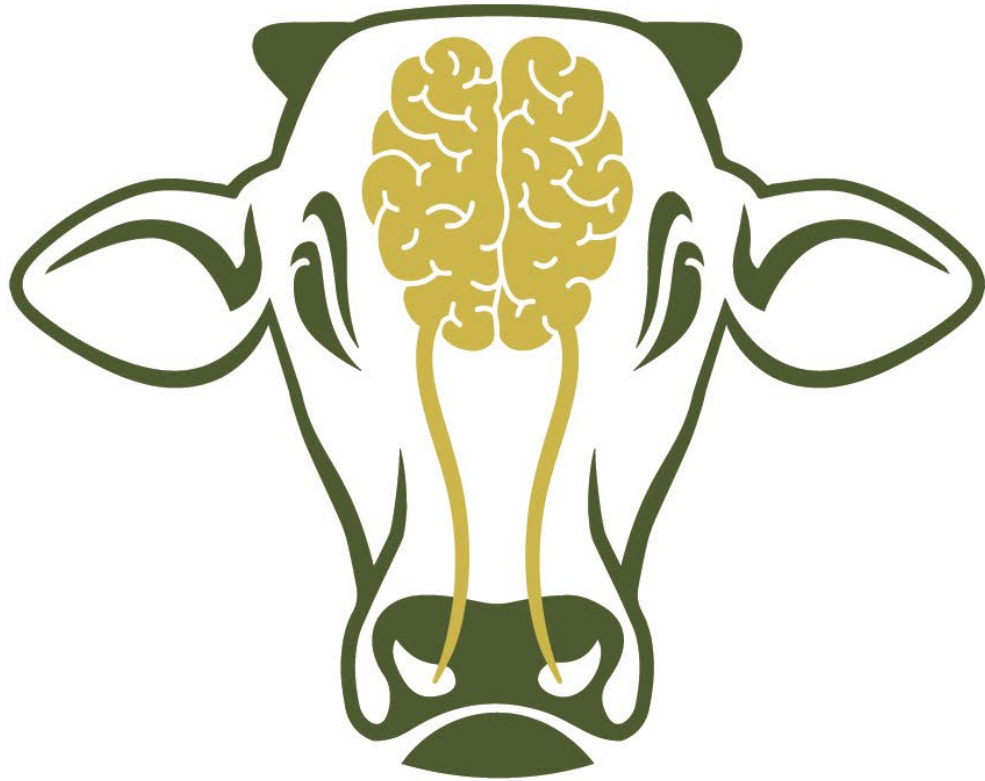
# ***FerAppease***<sup>®</sup>

Maternal Bovine Appeasing Substance



Diagnostics  
and Biologicals

# What is FerAppease®?



- Naturally occurring substance captured in a bottle which reduces stress and its negative consequences in cattle.
- The active ingredient of **FerAppease®** is a synthetic analogue of the Maternal Bovine Appeasing Substance (MBAS). MBAS is naturally secreted by the skin of the mammary gland of lactating animals.
- **FerAppease®** has the unique function of reducing fear/stress and its negative effects in cattle of all ages.

# What is FerAppease®?



# Threat Perception



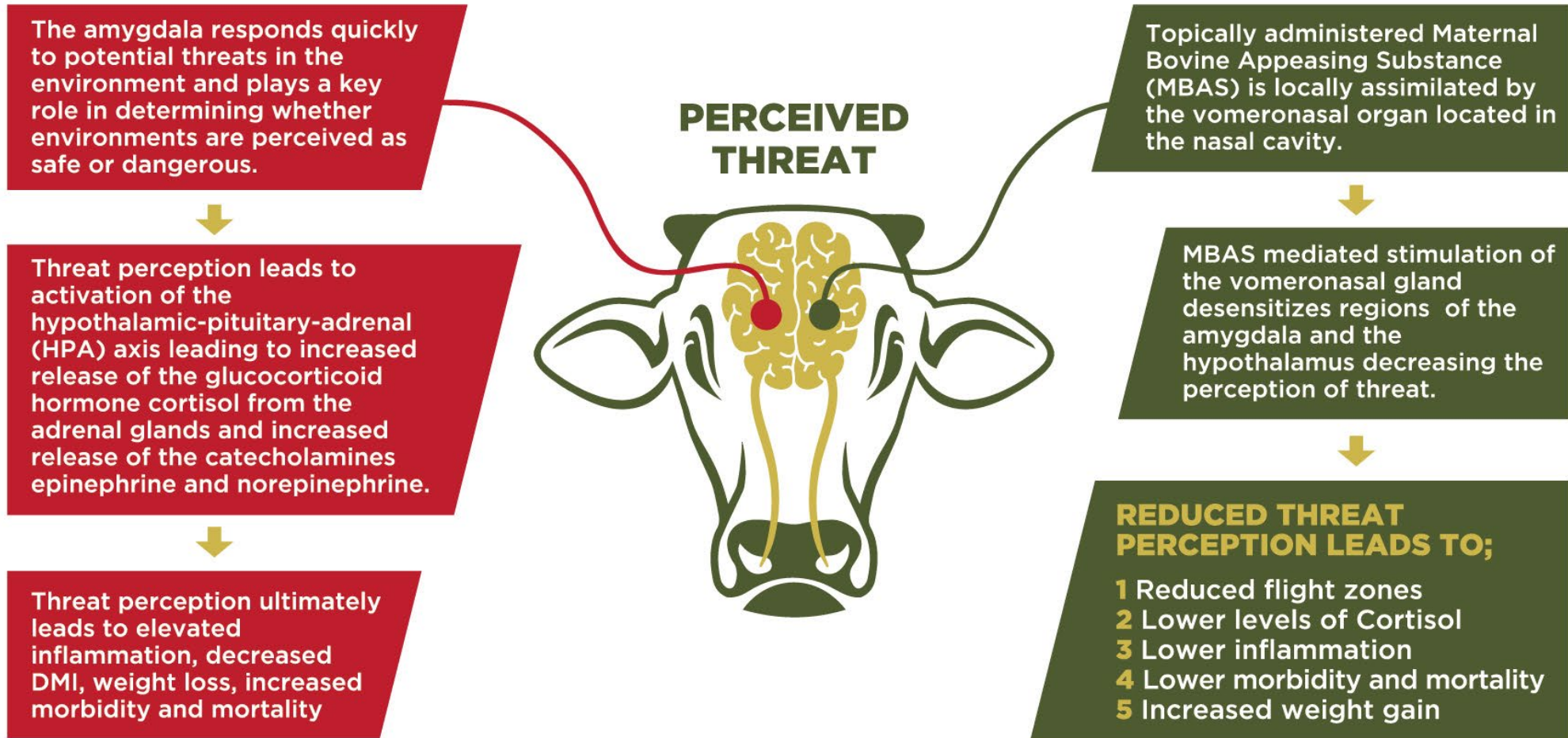
- Domesticated food animals are prey species that evolved over thousands of years to perceive threats and avoid predation.
- In a threatening situation, the amygdala and areas of the hypothalamus are overstimulated and will trigger short- and long-term physiological changes.
- Under current farming conditions, threat perception serves little to no purpose. Fear leads to stress and eventually, to increase morbidity, mortality, and lost productivity.

# Threat Perception and FerAppease®



- The vomeronasal gland is directly linked to the amygdala and the hypothalamus.
- MBAS is assimilated by the vomeronasal gland, which sends signals to the amygdala and the hypothalamus resulting in a reduction of the threat perception and its physiological downstream consequences.

# Threat Perception and FerAppease®



FerAppease®



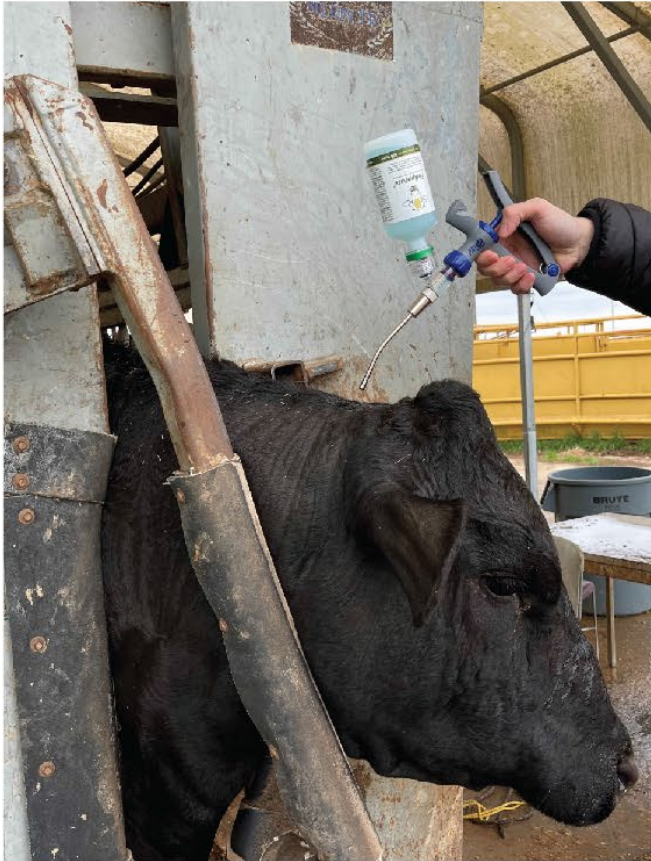
Diagnostics  
and Biologicals

# ***When should we use FerAppease®?***



- ***FerAppease®*** can and should be used every time animals are exposed to management and physiological stressors, where suppression of threat perception is desirable, such as:
- Stressful management events ***weaning, dehorning, castration, branding, transportation, commingling, vaccination, transportation to packer etc.***
- Stressful physiological events such as, ***parturition, interruption of lactation (dry off), breeding, etc.***

# How is FerAppease<sup>®</sup> applied?



- **FerAppease<sup>®</sup>** is for use only in healthy cattle by topical administration to the nuchal skin and the skin above the muzzle.
- For adult animals: Apply 5ml of **FerAppease<sup>®</sup>** to the nuchal skin and a second 5 ml application to the skin above the muzzle.
- For youngstock: Apply 2.5ml of **FerAppease<sup>®</sup>** to the nuchal skin and a second 2.5 ml application to the skin above the muzzle.



**Multiple studies demonstrated  
that *FerApease* improves  
health and weight of calves**

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# Effect of FerAppease on performance and incidence of diarrhea in preweaned dairy calves

Calf Study 1: Willet Dairy – Lane Farm  
06/06/2022

# Ongoing FerAppease<sup>®</sup> studies: DAIRY COWS

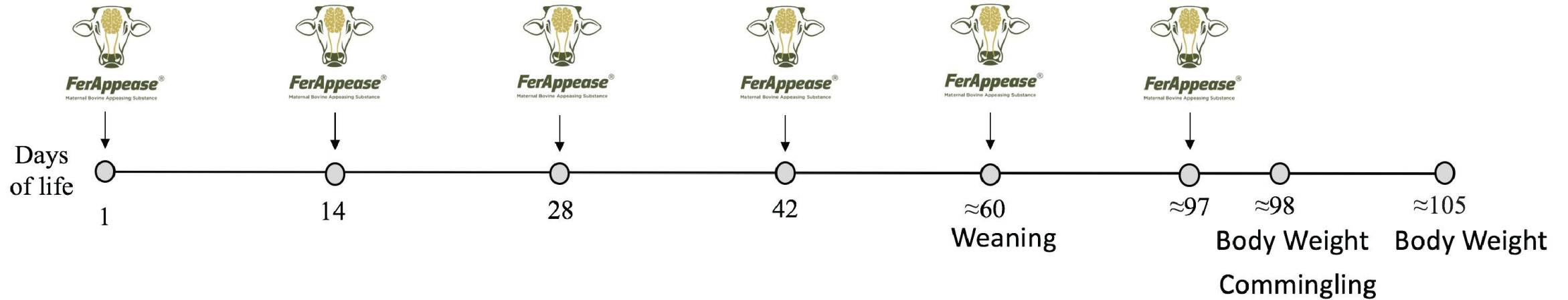
FerAppease

Control

FerAppease

Control

FerAppease

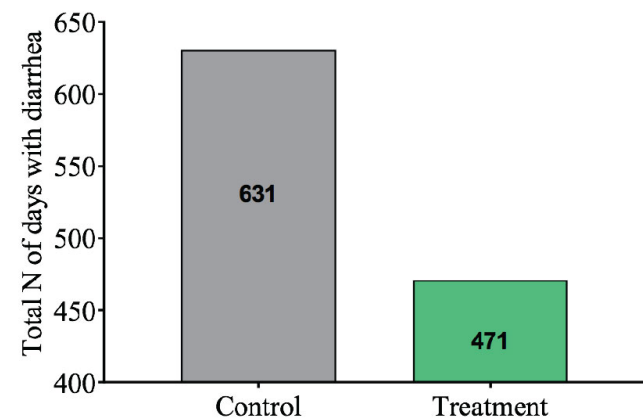
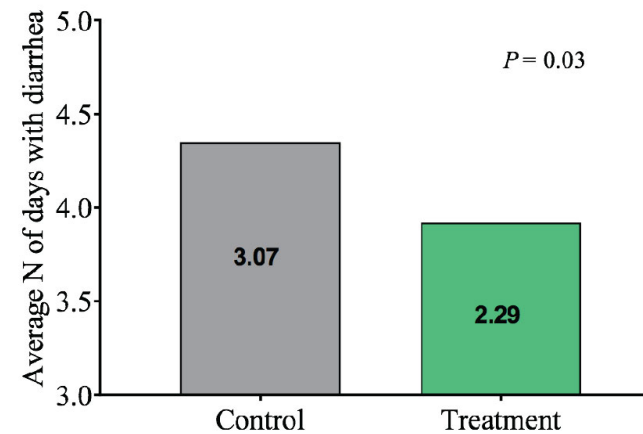
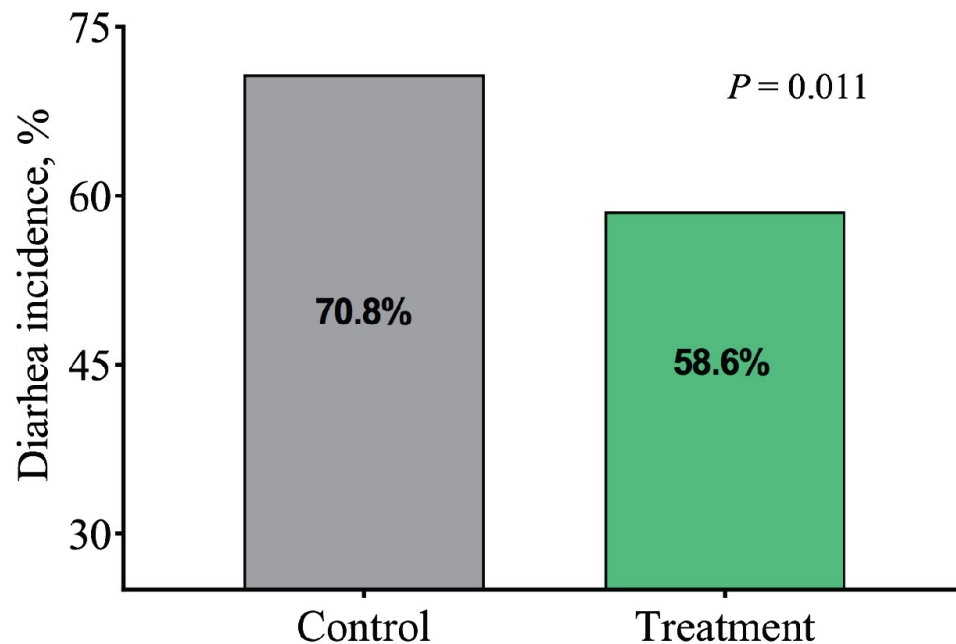


# *Descriptive data*

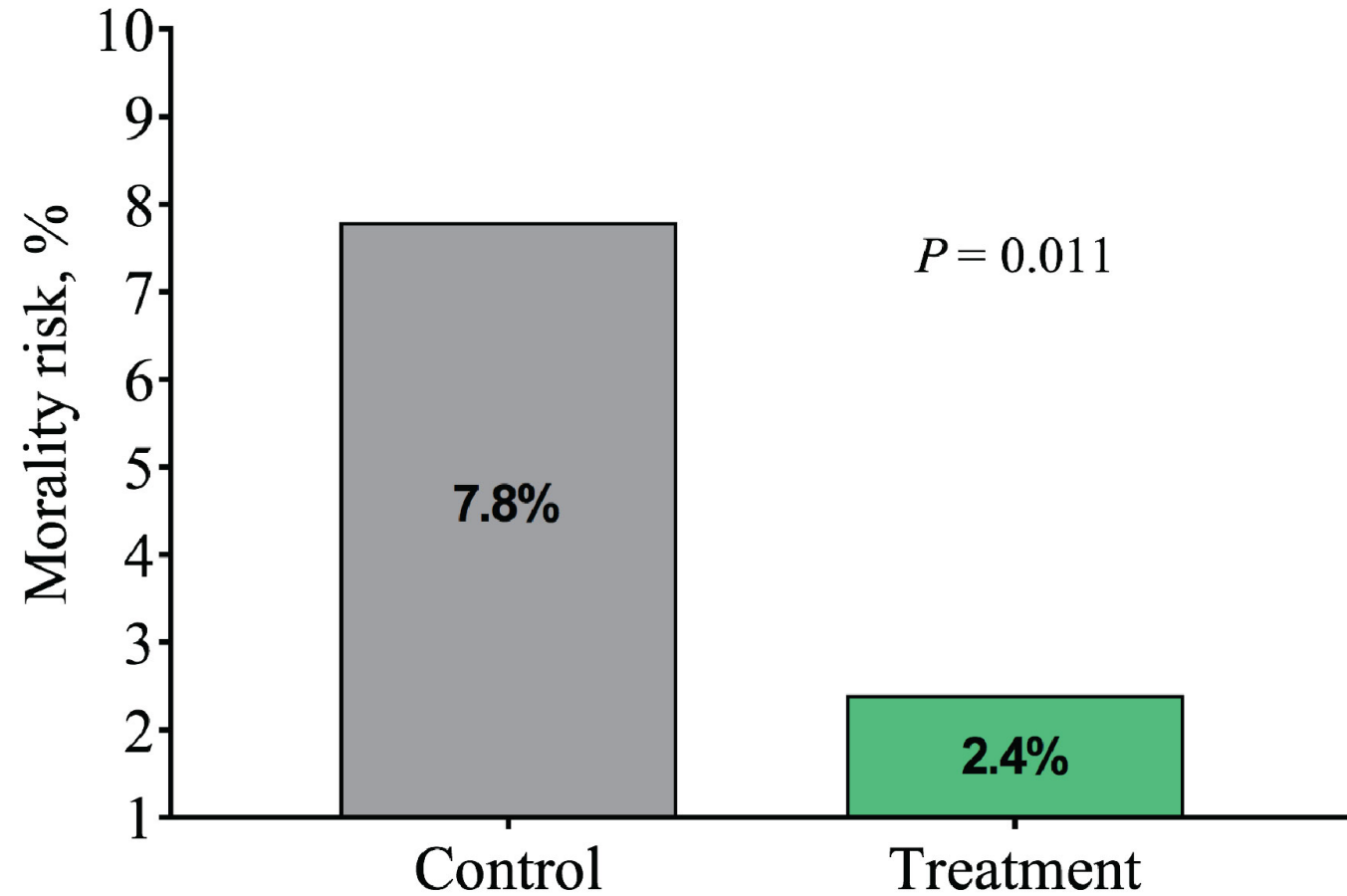
Item	Treatment		<i>P - value</i>
	Control	FerAppease	
Enrolled calves	205	205	0.88
Calves from primiparous	135	132	0.75
Calves from multiparous	70	73	
Total Protein (g/dl)	6.42	6.49	0.34
Assisted parturition	7	11	0.33



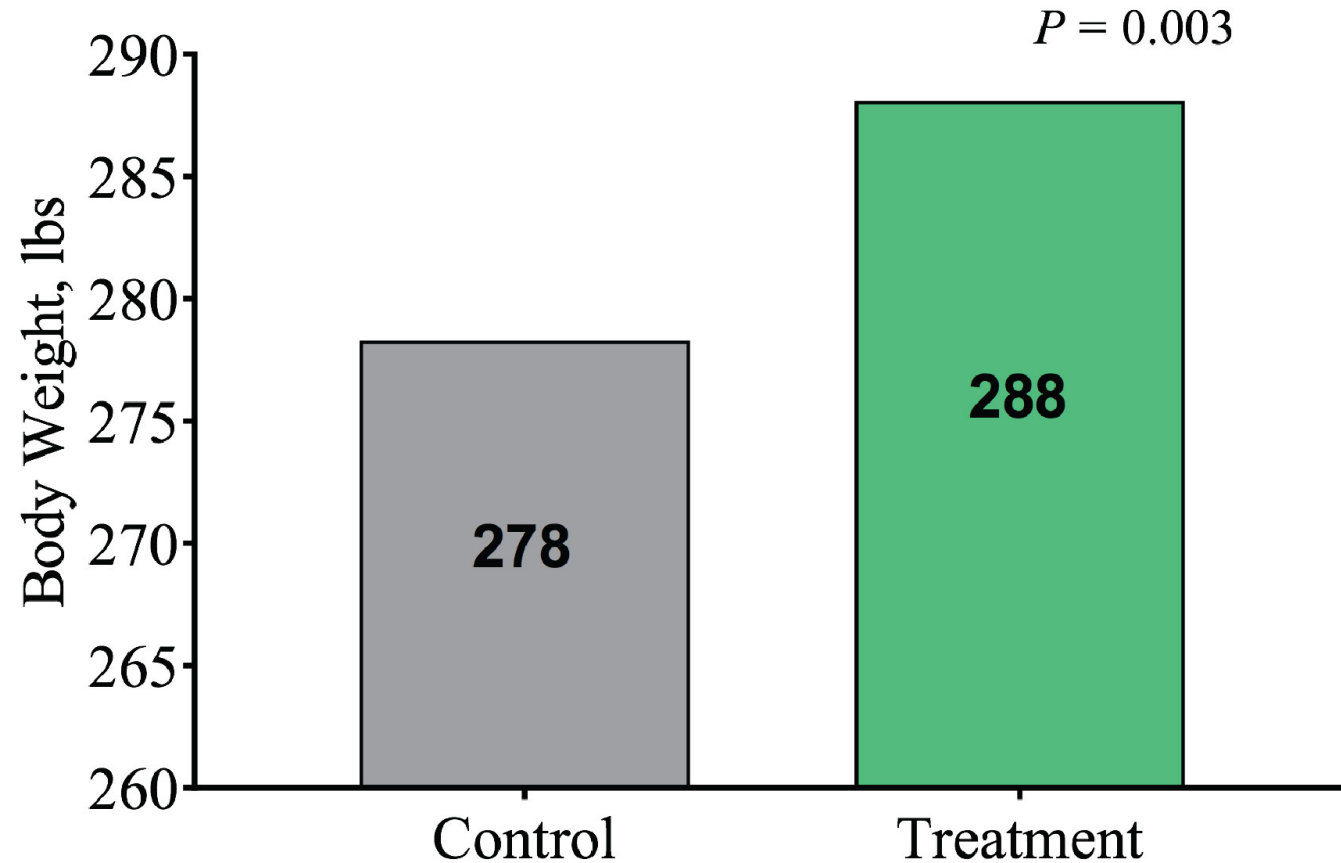
# ***FerAppease<sup>®</sup> reduced incidence of diarrhea: DAIRY CALVES***



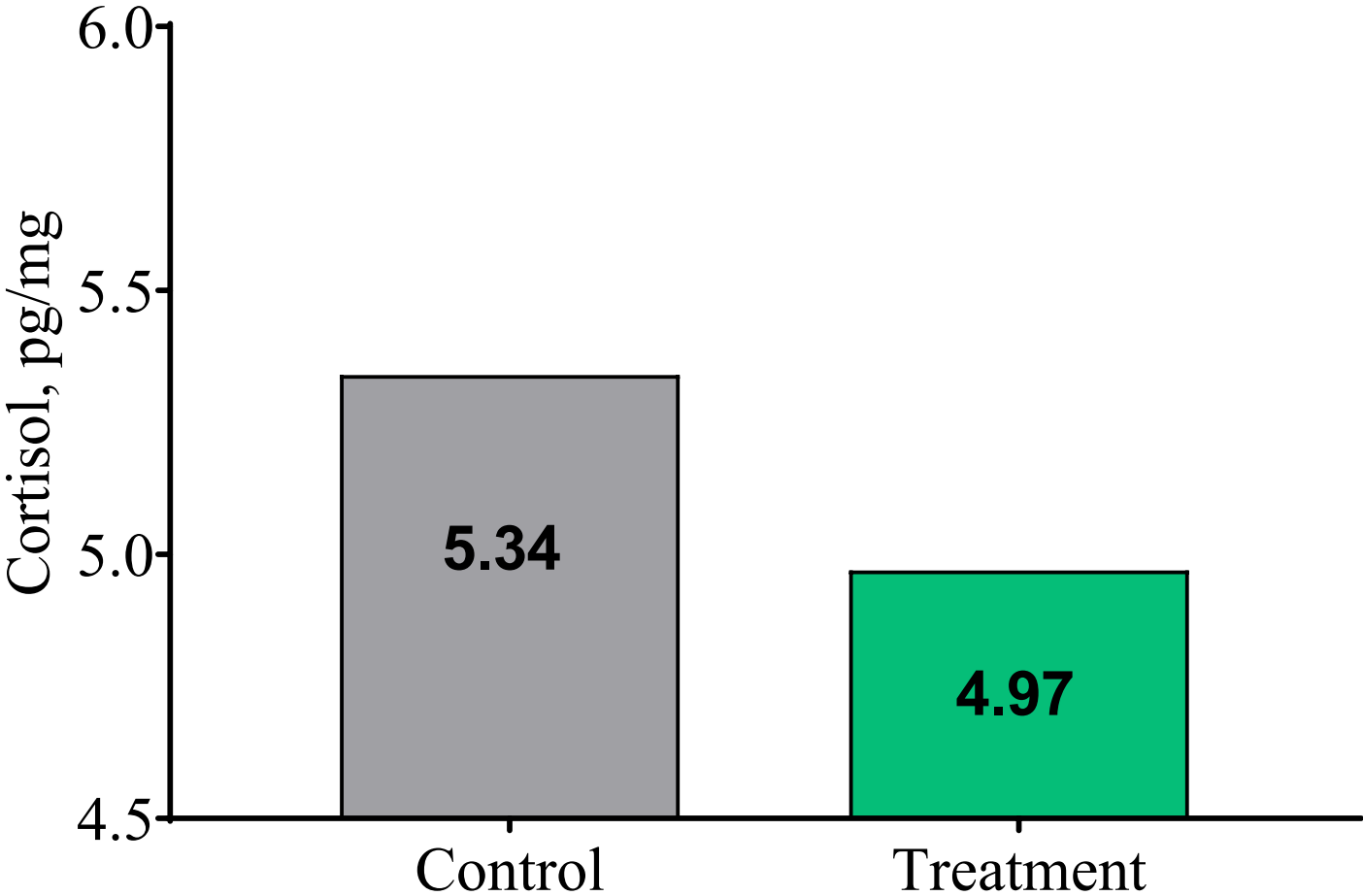
# ***FerAppeas<sup>®</sup> reduced mortality: DAIRY CALVES***



# ***FerAppease<sup>®</sup> increased body weight: DAIRY CALVES***



# *FerAppease* reduced cortisol levels during 14 days after comingling





# ***STUDY CONCLUSIONS***

## ***FerAppease***<sup>®</sup>

- Decreased incidence of diarrhea by 18%
- Decreased the number of days calves had diarrhea by 26%
- Decreased mortality risk by 69%
- Increased body weight 7 days after moving by 10 lbs

# Effect of FerAppease on performance and diseases incidence in preweaned dairy calves

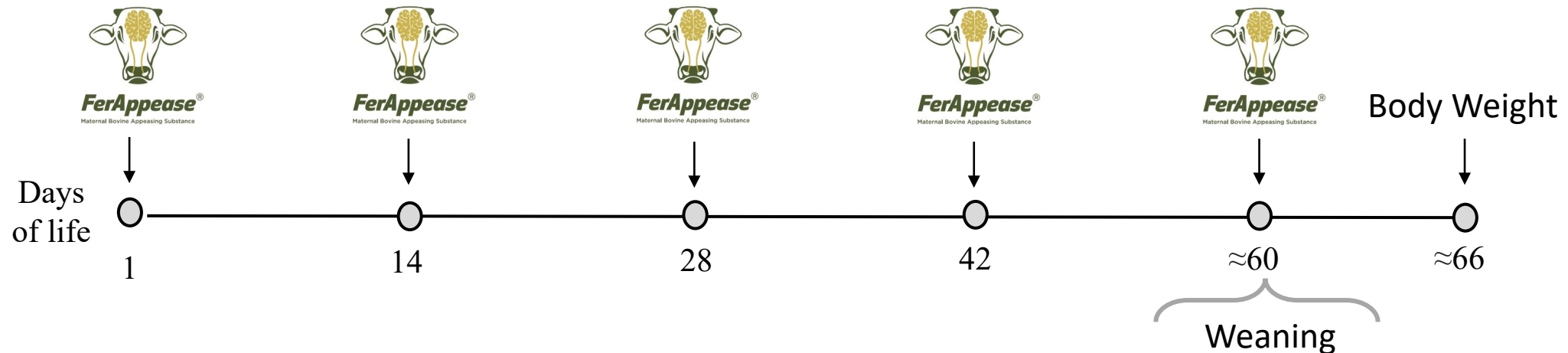
Calf study 2: Sunnyside Farms

06/08/2022



# Study Design

- Calves were allocated in group pens of 20 animals per pen.
- **FerAppease** was applied to all calves in every other pen
- **FerAppease** was applied every 14 days as shown in the scheme below:

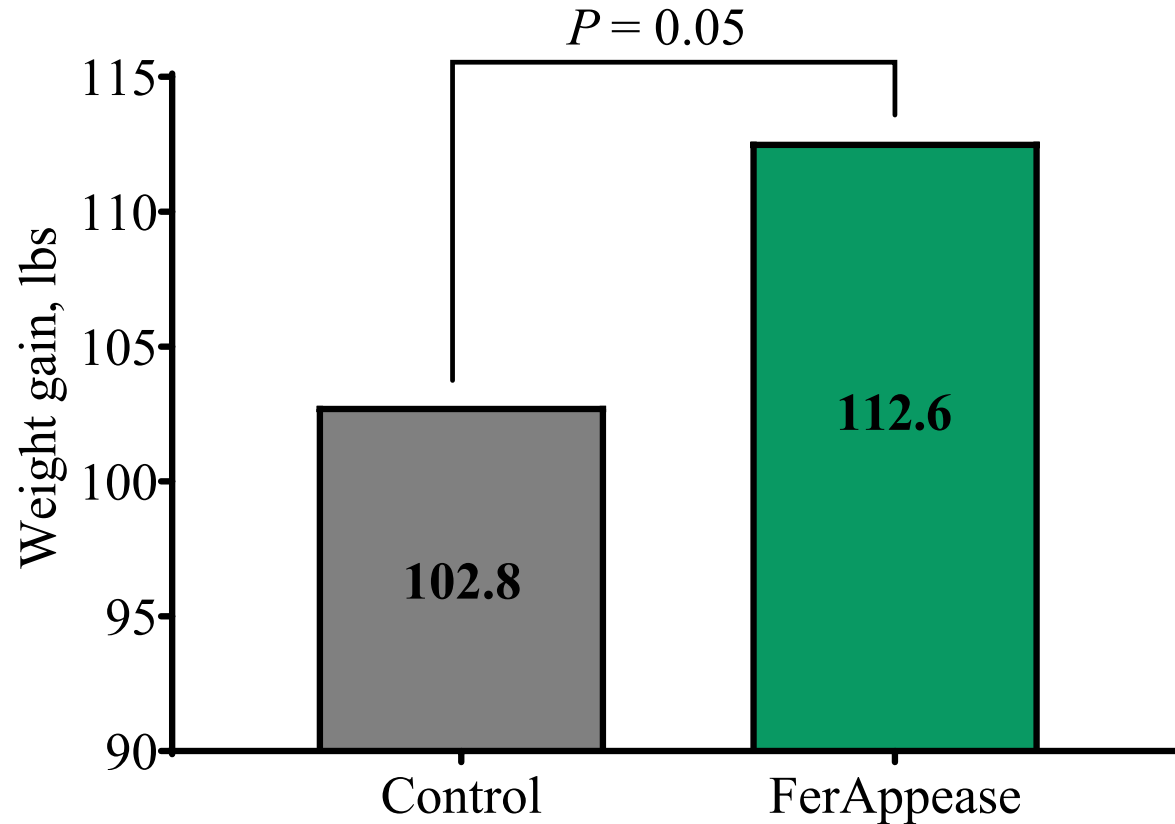


# Descriptive data of calves at enrollment

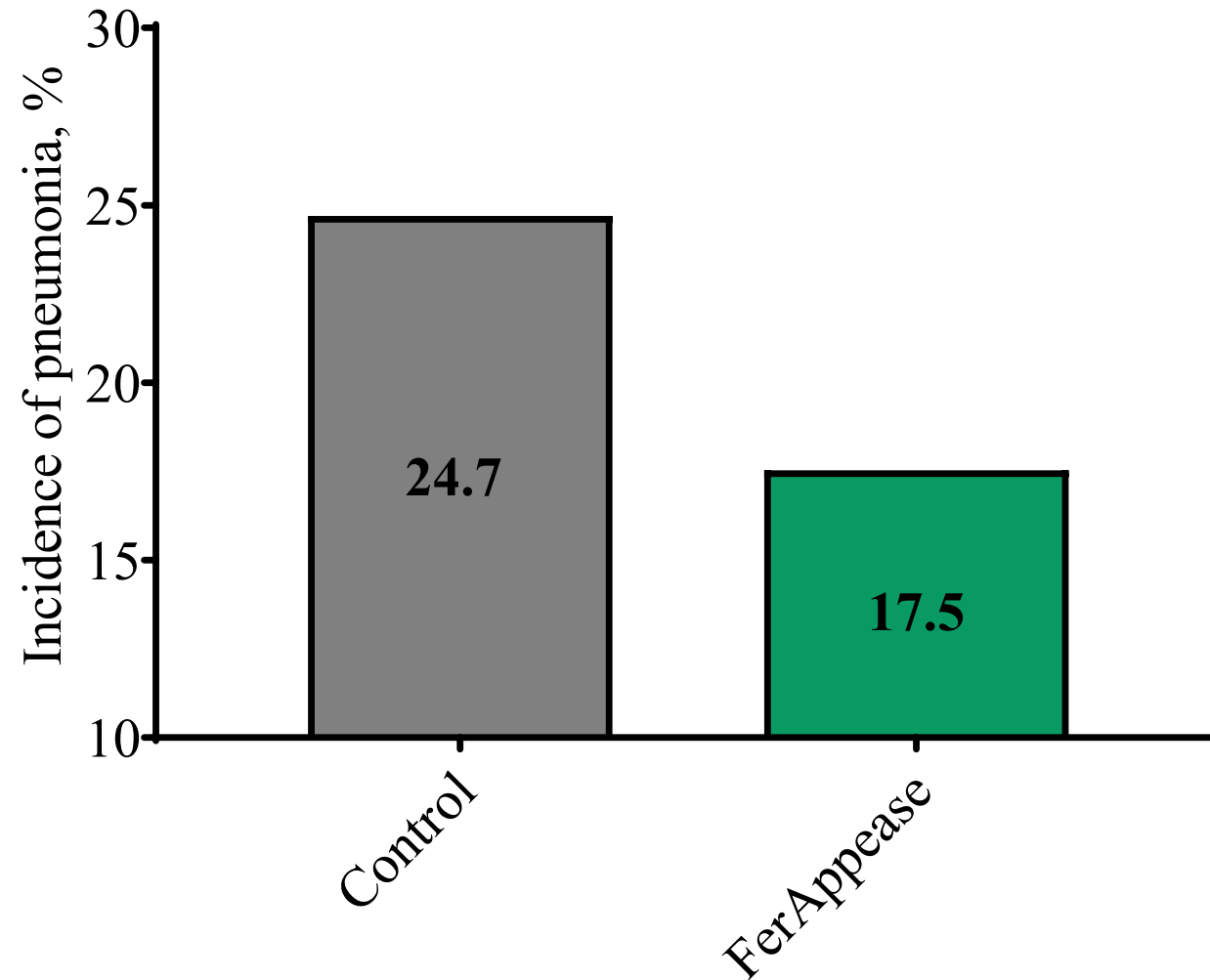
Item	Treatment		<i>P - value</i>
	Control	<i>FerAppease</i>	
Enrolled calves	166	154	0.88
Calves from primiparous	107	95	0.39
Calves from multiparous	59	59	
Birth Weight (lbs)	85.2	84.7	0.86
Assisted parturition	11	4	0.04



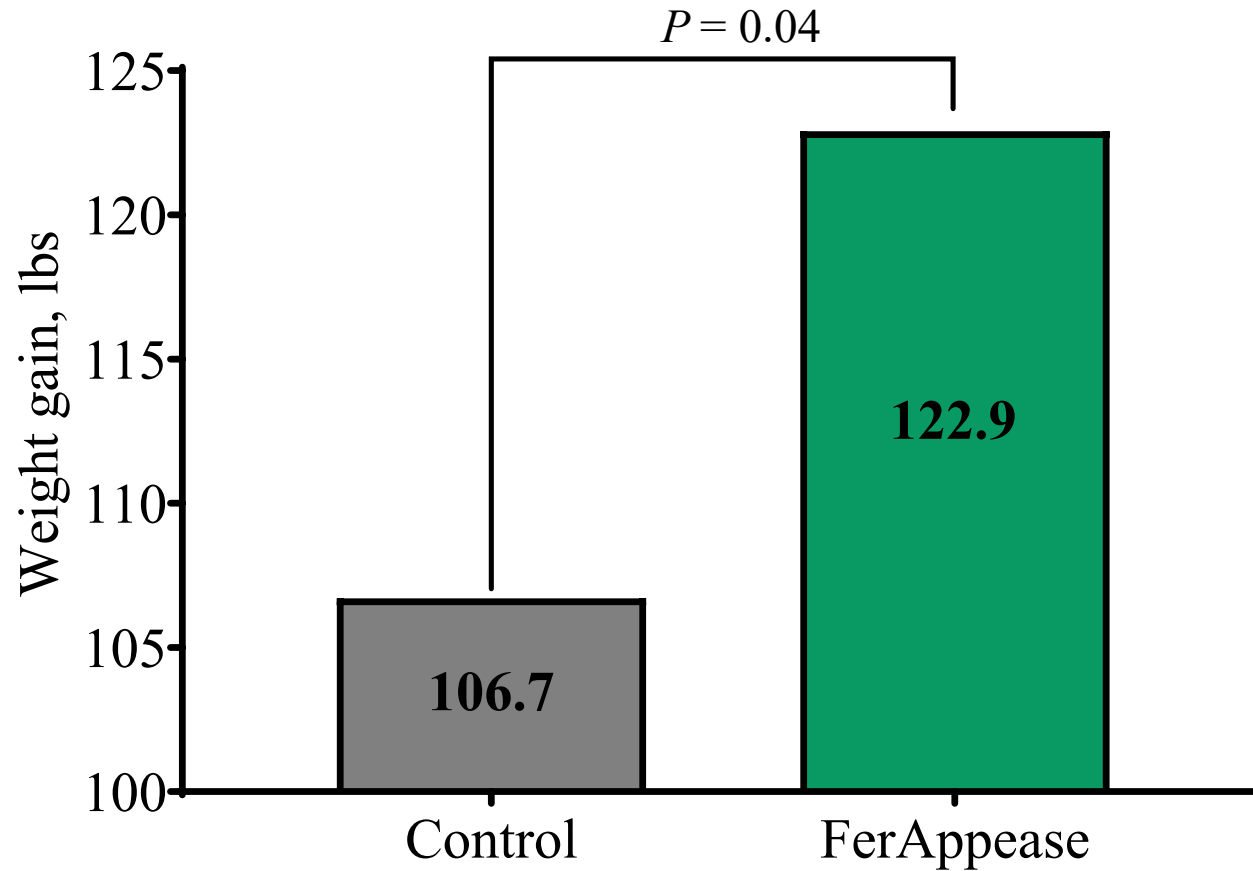
# Weight gain from birth until weaning



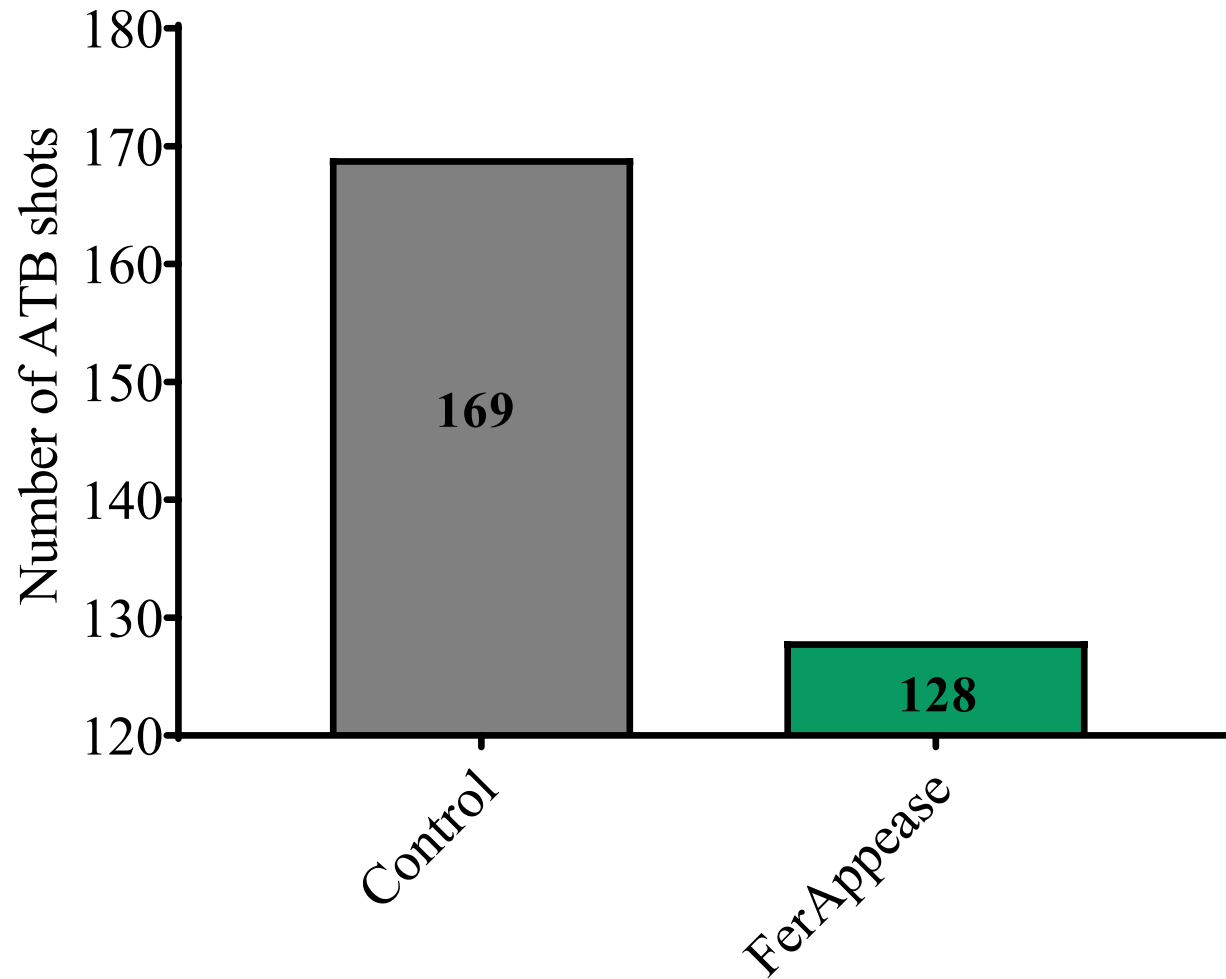
# Incidence of pneumonia



# Weight gain (only calves that had pneumonia)

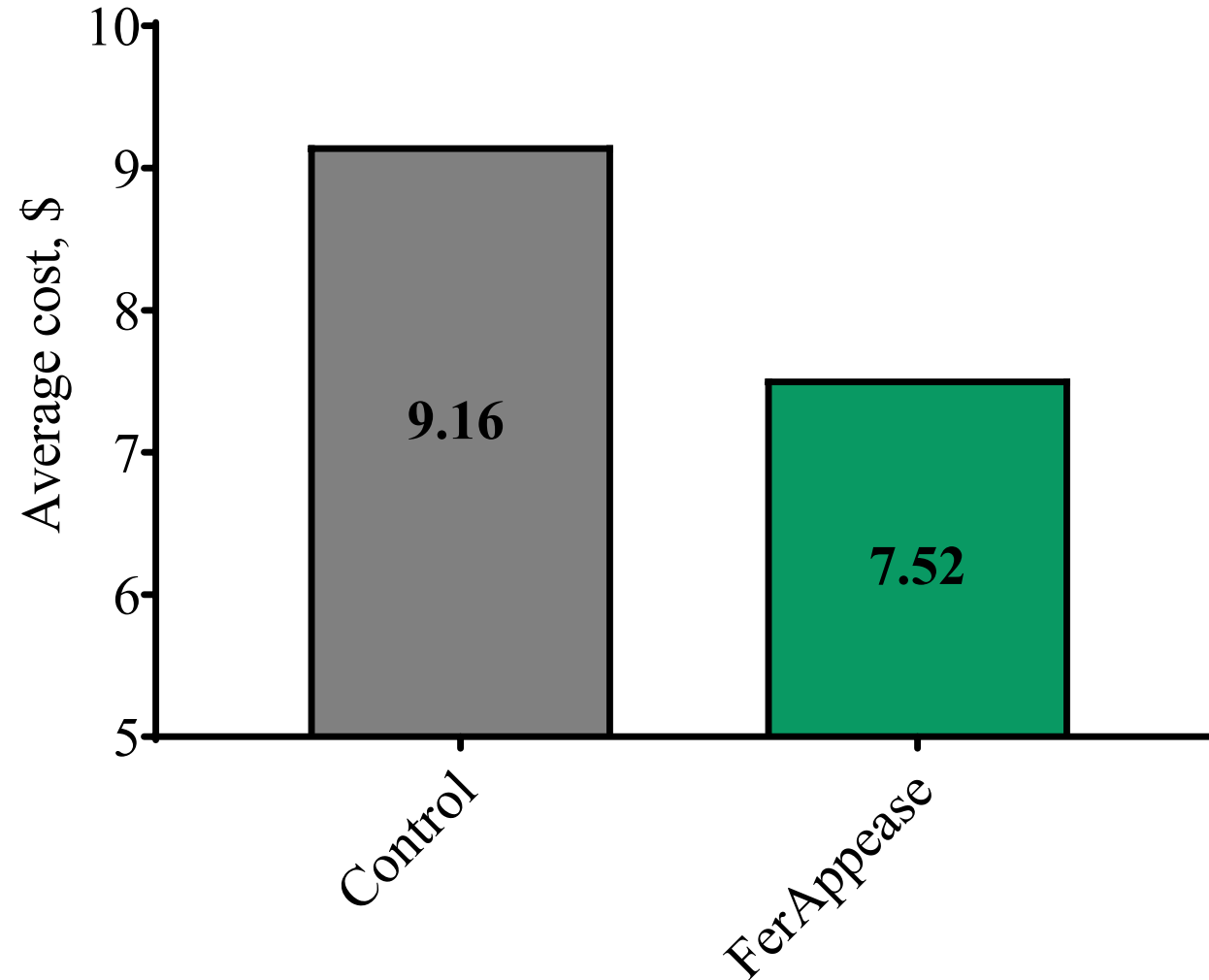


# Total number of antibiotic shots

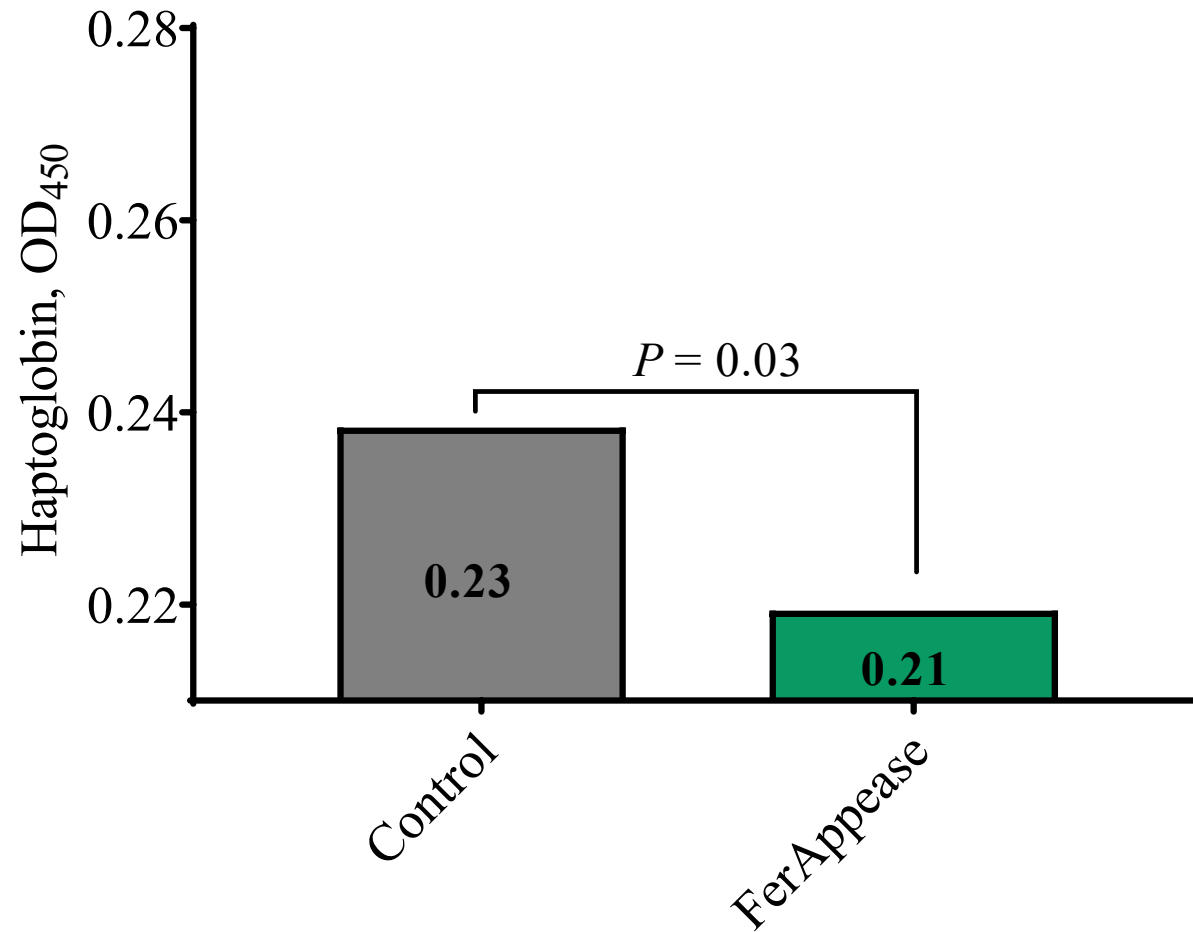




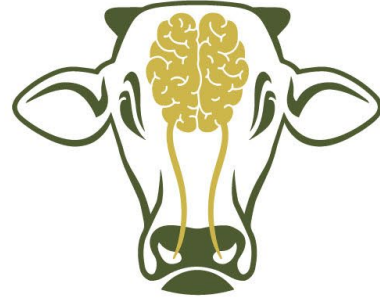
# Average cost with antibiotics per calf



# Concentration of Haptoglobin at D7 (inflammation indicator)



# ***FINAL CONSIDERATIONS***



***FerAppease***<sup>®</sup>  
Maternal Bovine Appeasing Substance

- Increased weight gain during preweaning by 10 lbs
- Increased body weight at weaning by 10 lbs
- Improved ADG
- Calves that had pneumonia, otitis, or diarrhea had a better performance in weight gain when treated with ***FerAppease***<sup>®</sup>
- Antibiotic usage was decreased by 20% in calves treated with ***FerAppease***<sup>®</sup>

# Effect of FerAppease applied at arrival in Holstein newborn calves

Calf Study 3: Calf Care veterinary group, Lafayette, Indiana

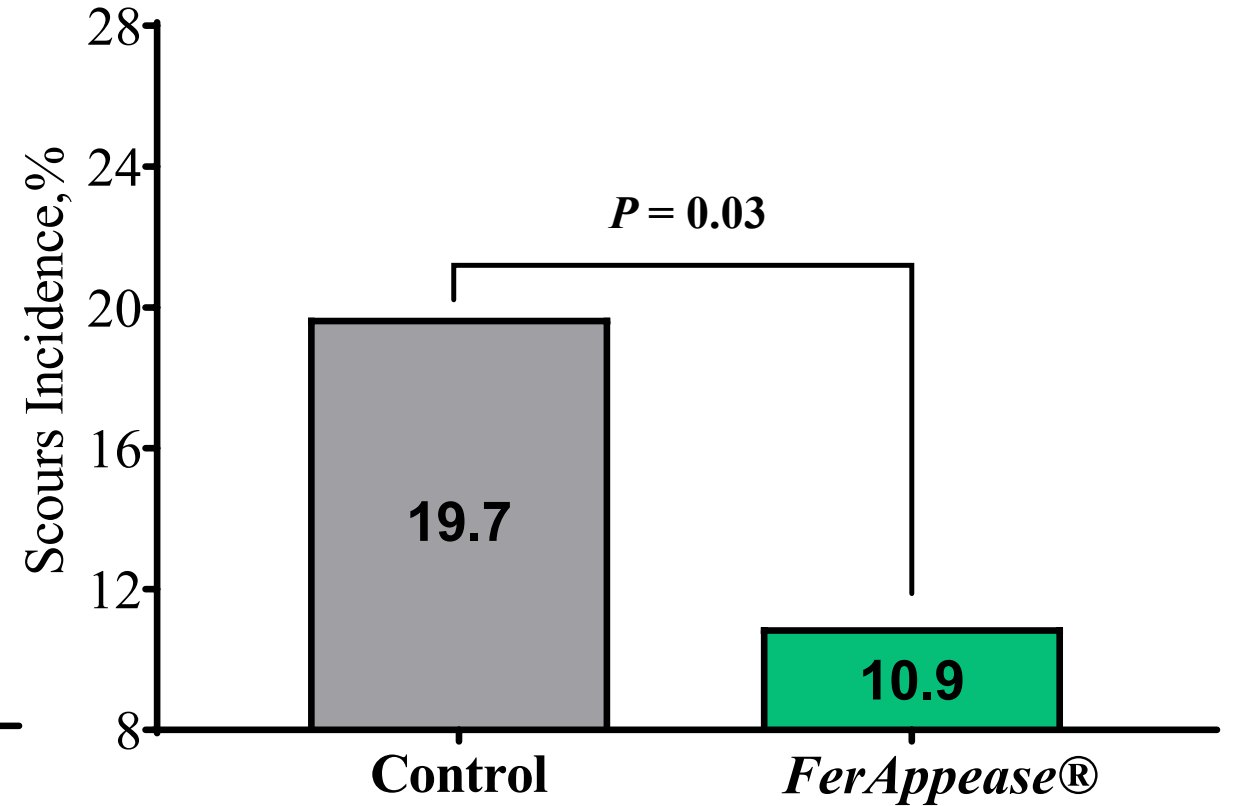
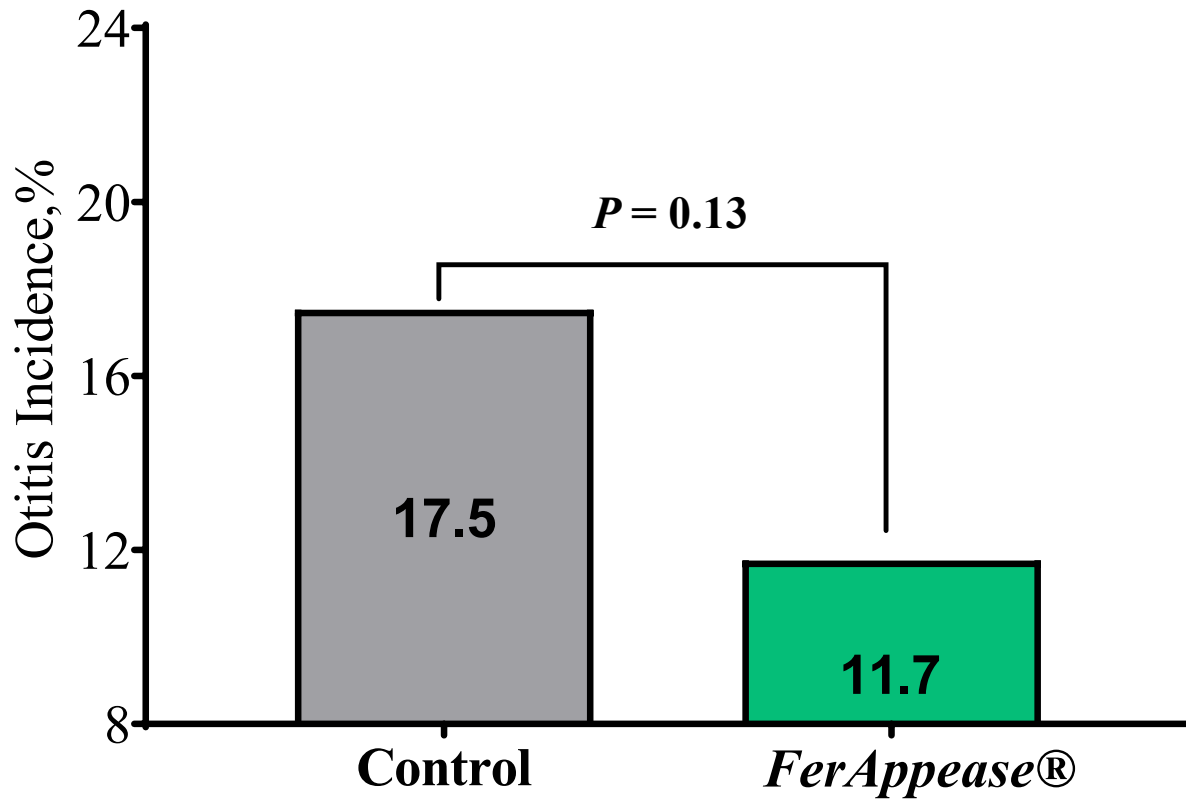
June – August 2022



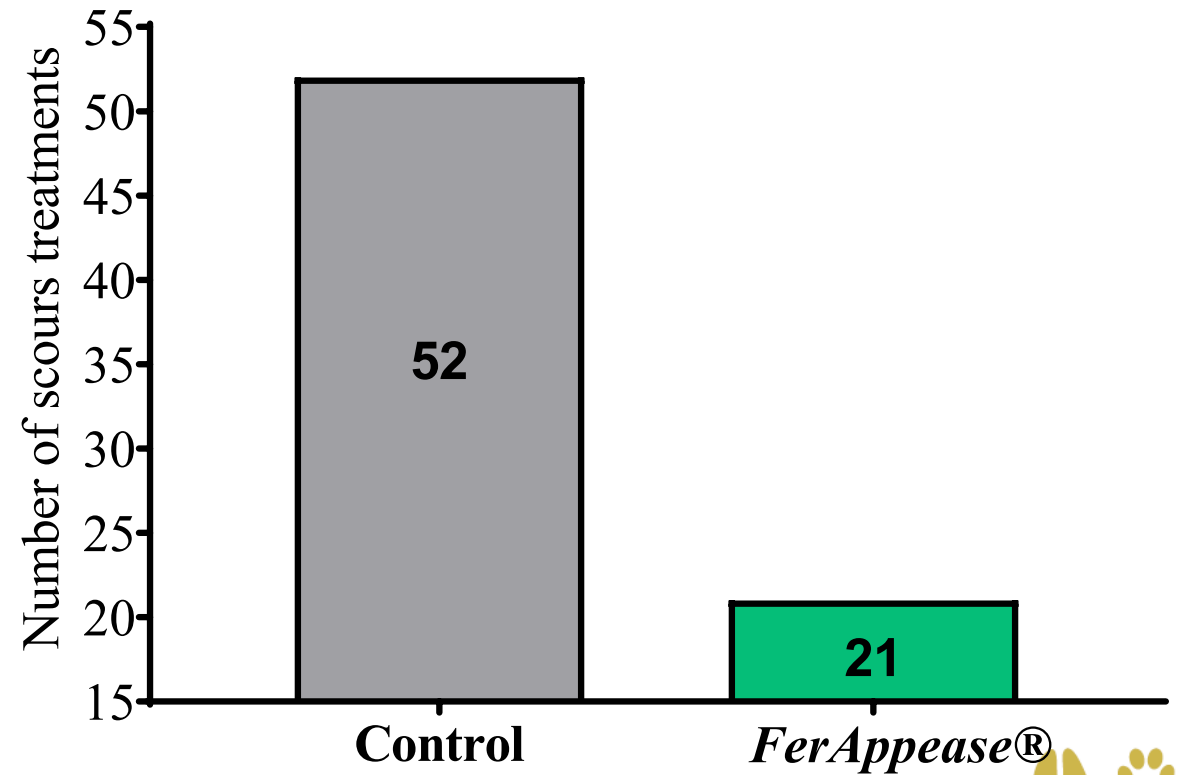
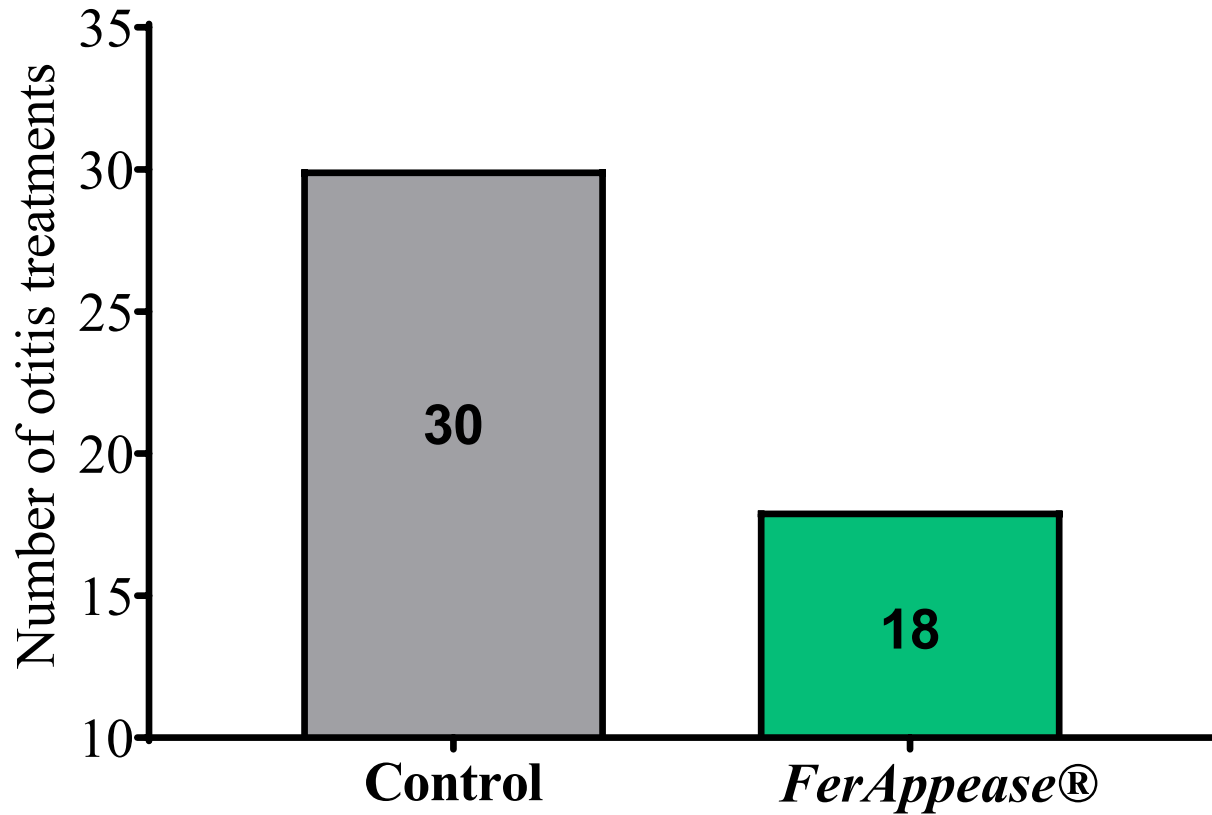
# Effect of FerAppease applicated at arrival in Holstein newborn calves

- Independently performed trial - Calf Care veterinary group, Lafayette Indiana
- Sample size: 138 Control calves, 121 FerAppease treated calves
- Animals: 3–5-day old bull calves, beef on dairy crosses, acquired from sale barn
- Treatment protocol: FerAppease group received a single treatment of 10ml (5ml behind the head and 5ml above the muzzle) at arrival
- Outcomes
  - Morbidity
  - Mortality
  - Weight gain

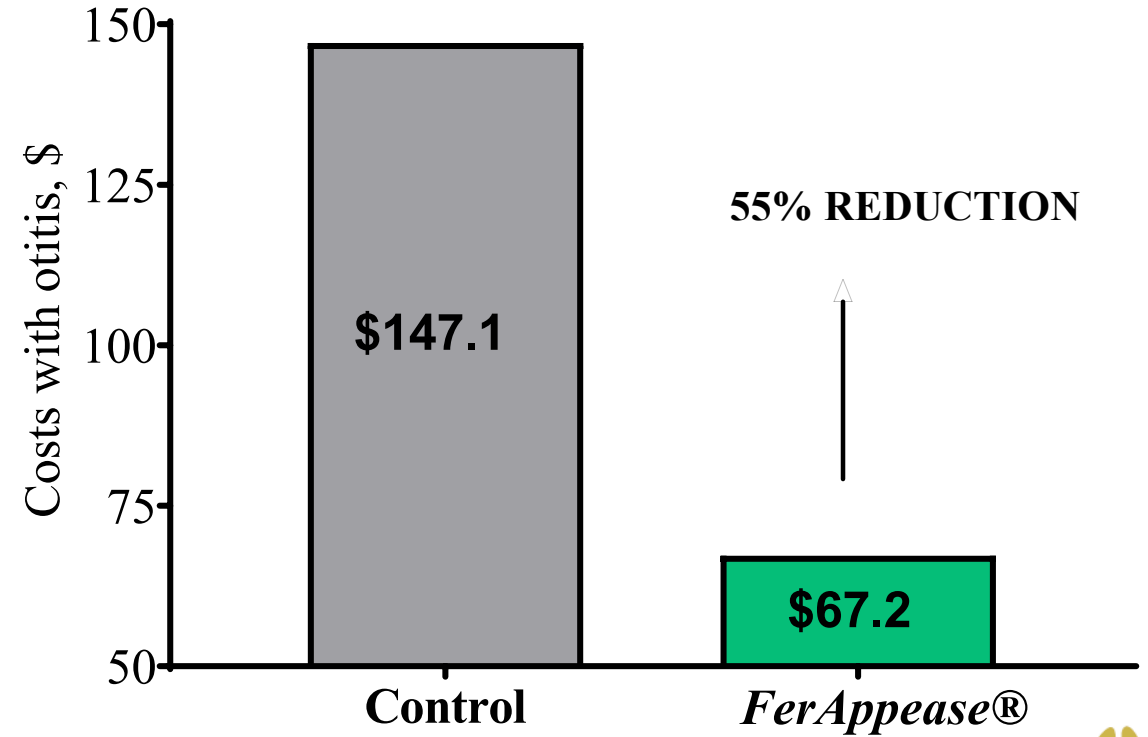
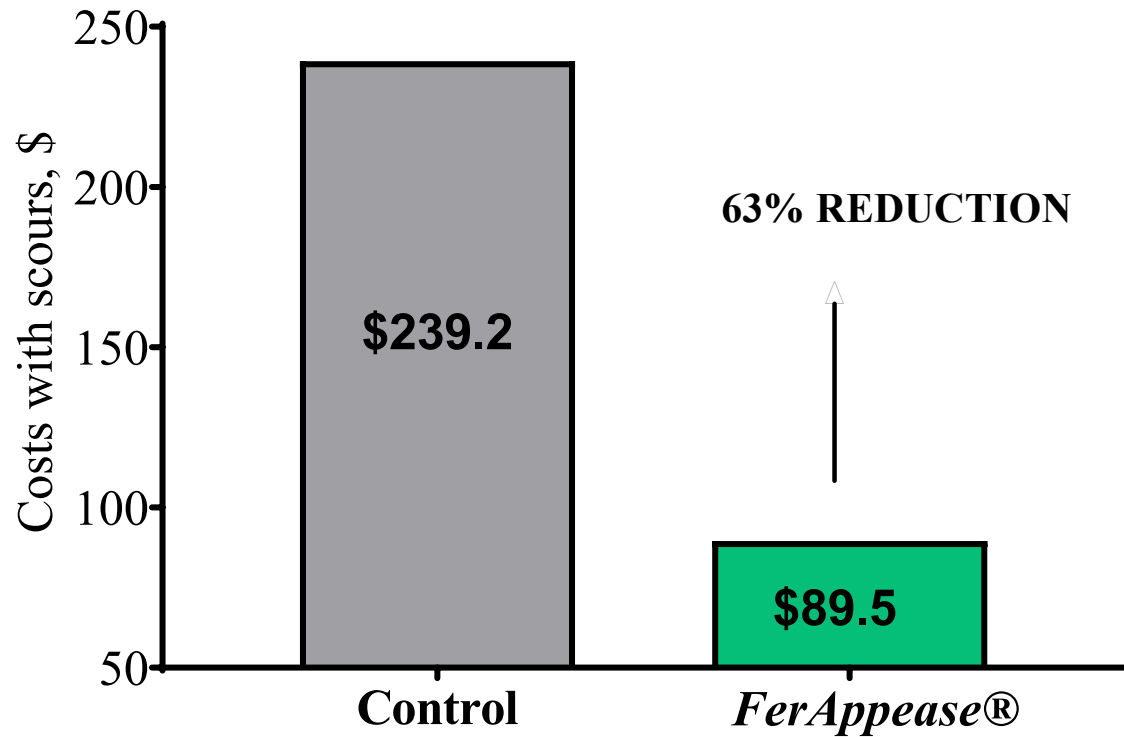
# Otitis and scours incidence



# Otitis and scours – number of cases

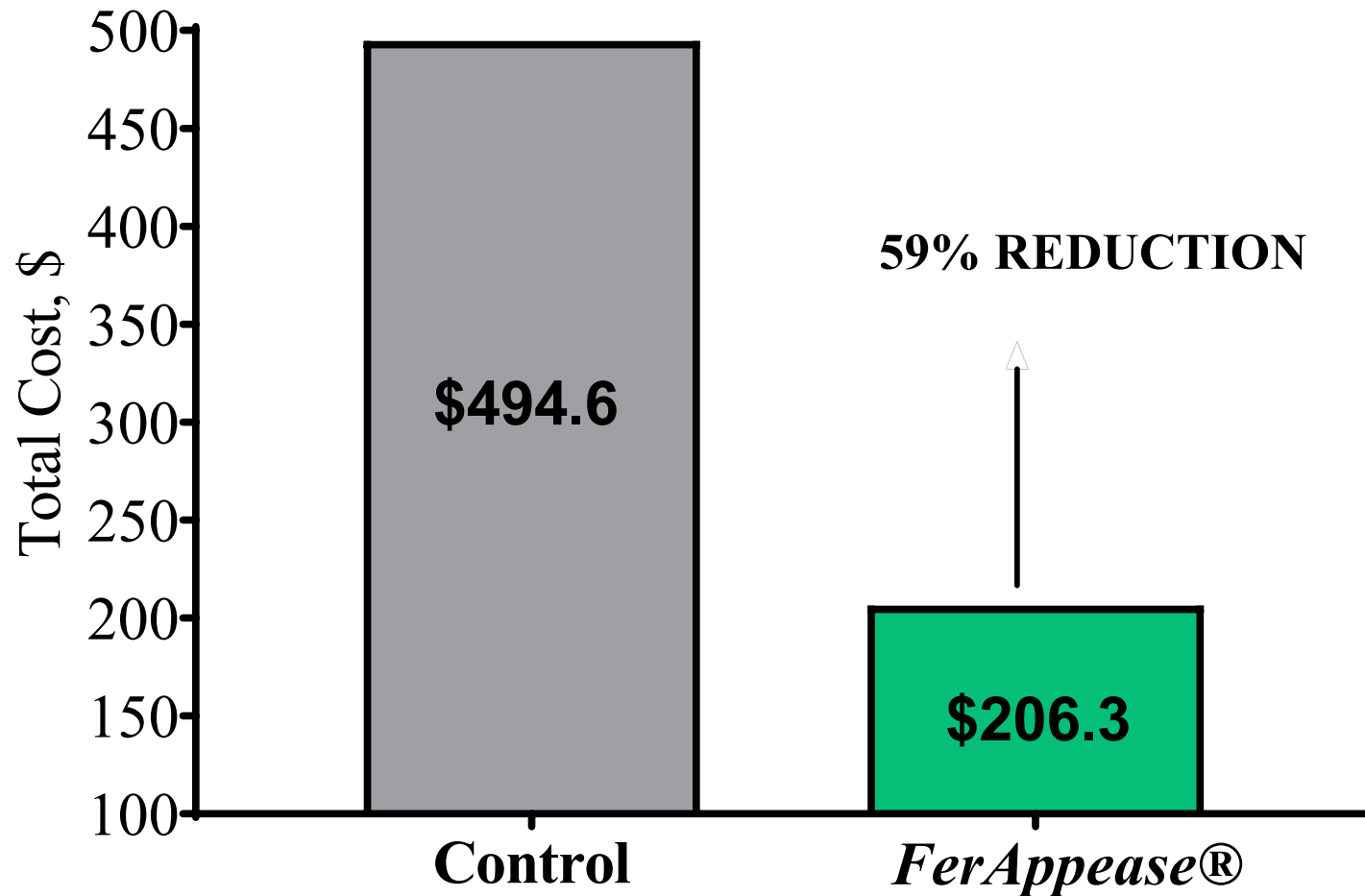


# Treatment costs due to scours signs and otitis

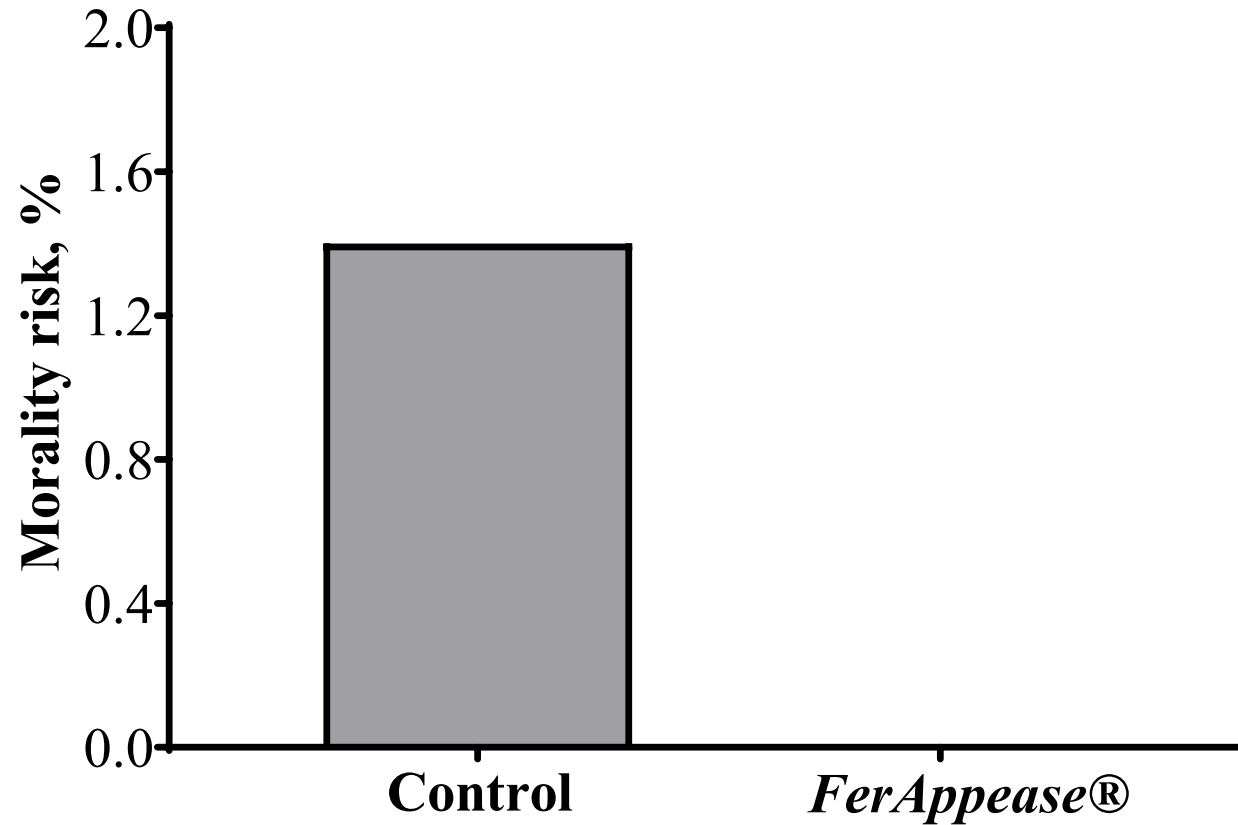




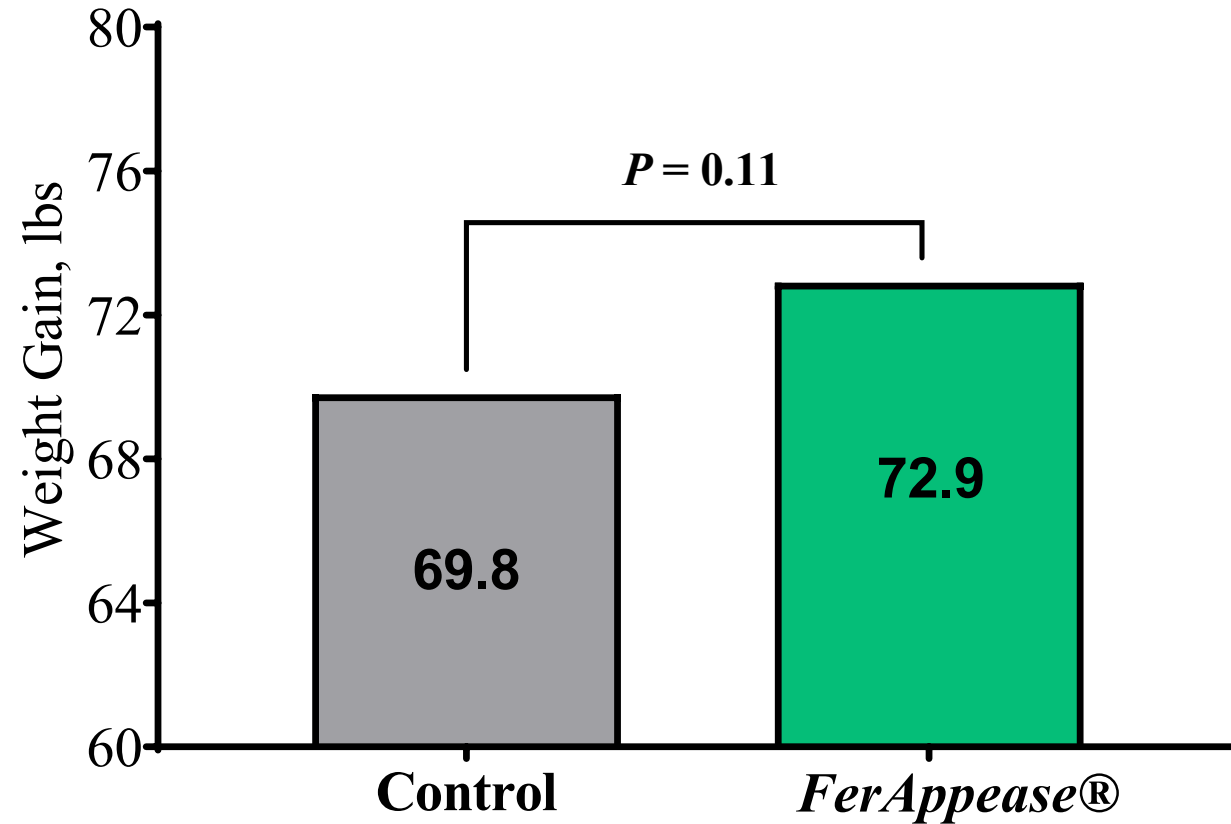
# Treatment costs during the first 28 d after arrival



# Mortality Risk



# Weight gain



# Effect of FerAppease applied at dehorning and castration of beef on dairy bull calves

Calf Study 4: Dr. Thomas Smith, Geneseo, New York

July – September 2022



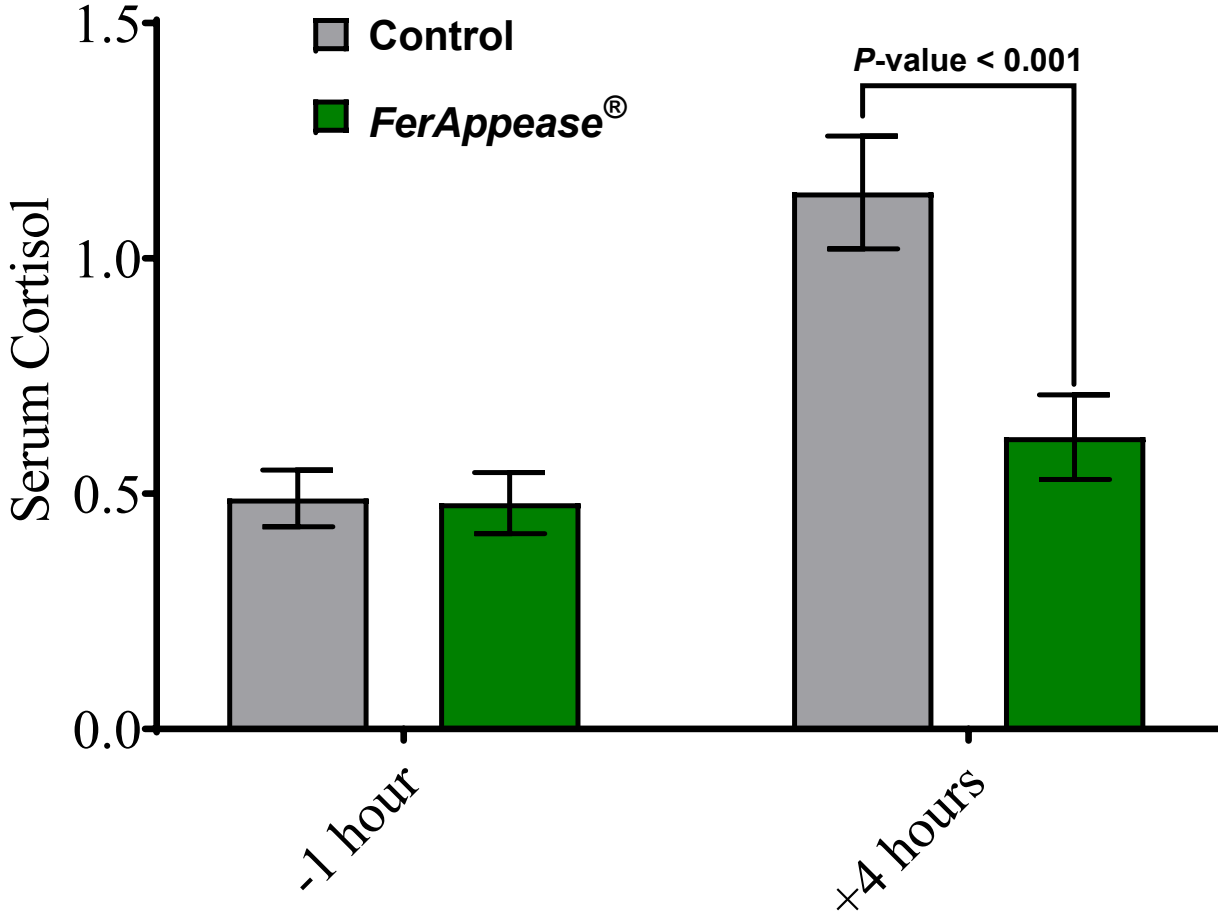
# Effect of FerAppease applied at dehorning and castration of beef on dairy calves

- Independently performed trial – Dr. Thomas Smith, New York
- Sample size:
  - Castration = 33 Control calves, 42 FerAppease treated calves
  - Dehorning = 37 Control calves, 32 FerAppease treated calves
- Animals: 14-day old bull calves, beef on dairy crosses, acquired from sale barn
- Treatment protocol: FerAppease group received a single treatment of 10ml (5ml behind the head and 5ml above the muzzle) immediately before the procedure
- Outcomes
  - Cortisol (marker of stress)
  - Substance P (marker of pain)
  - Weight gain

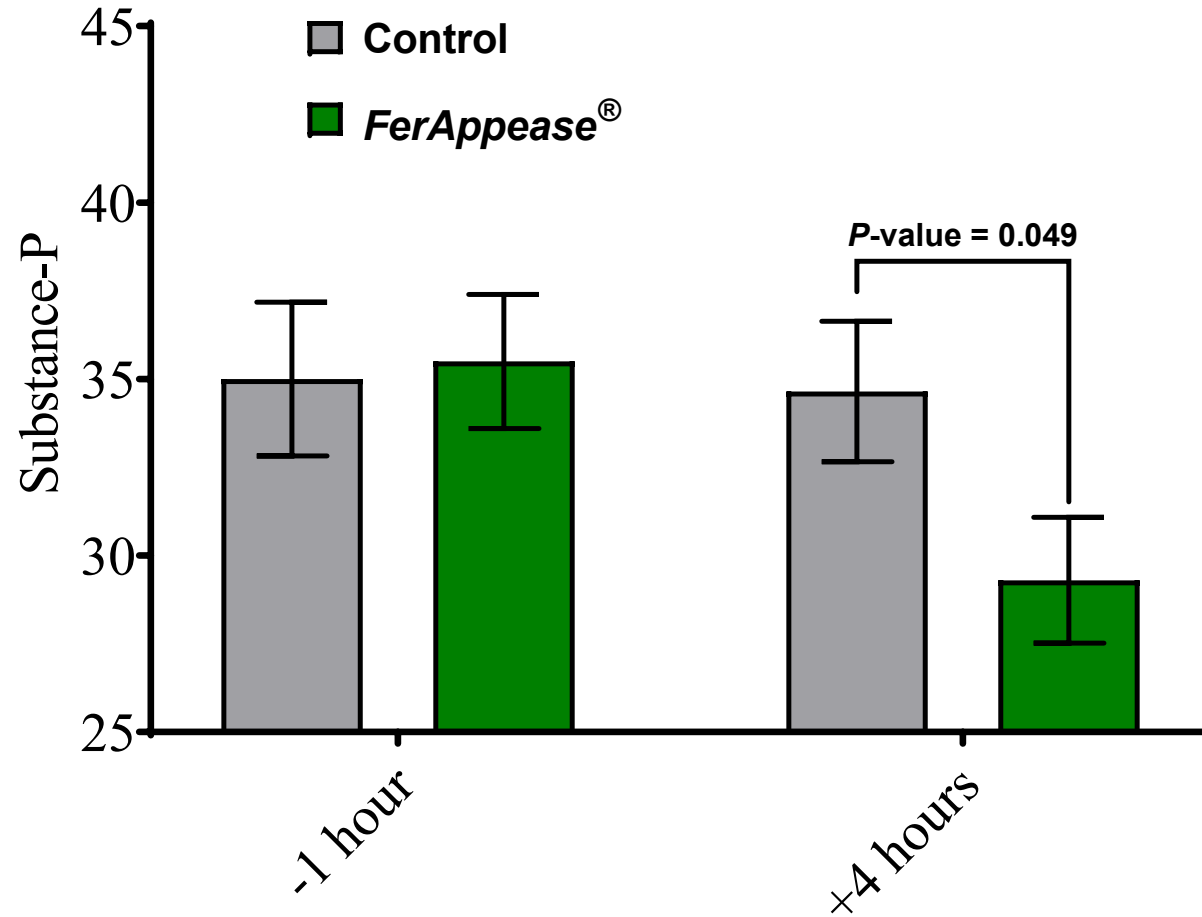
# Results of the castration trial



# FerAppease decreased Cortisol levels following castration

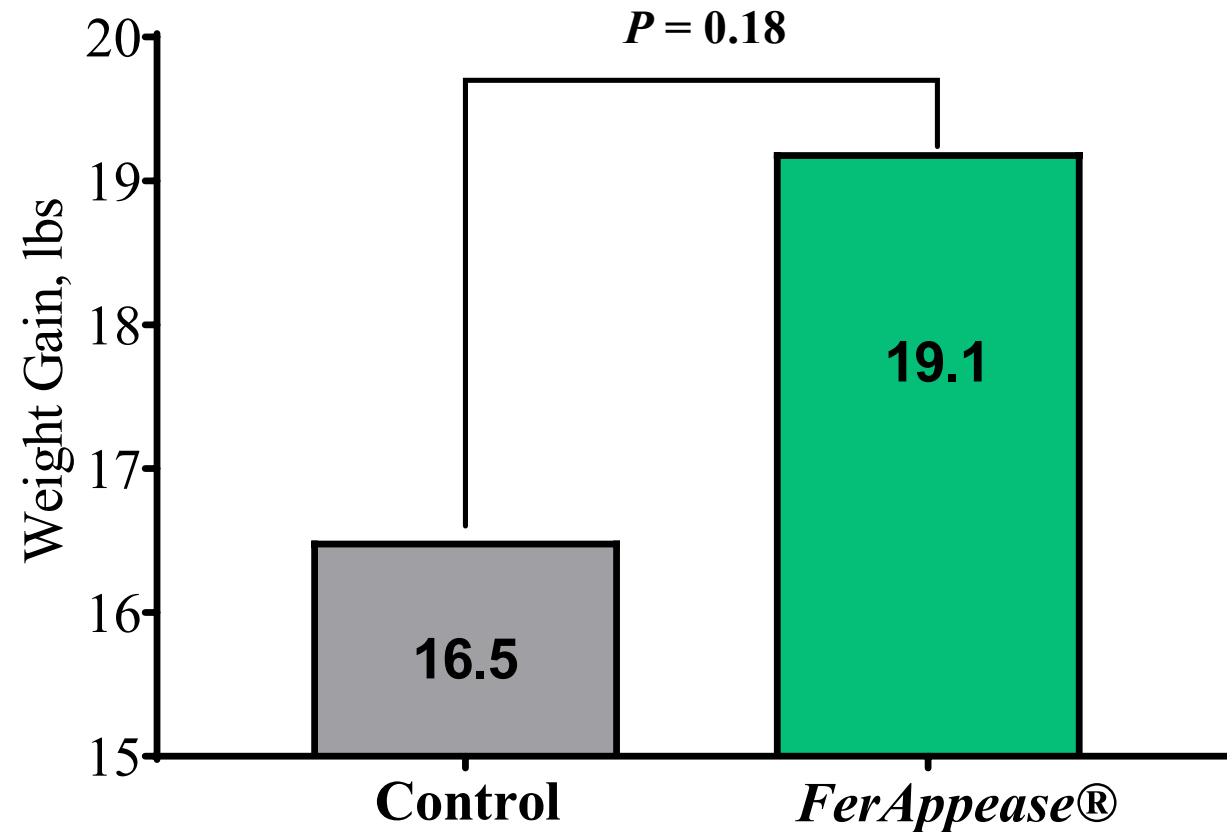


# FerAppease decreased *Substance-P* levels following castration





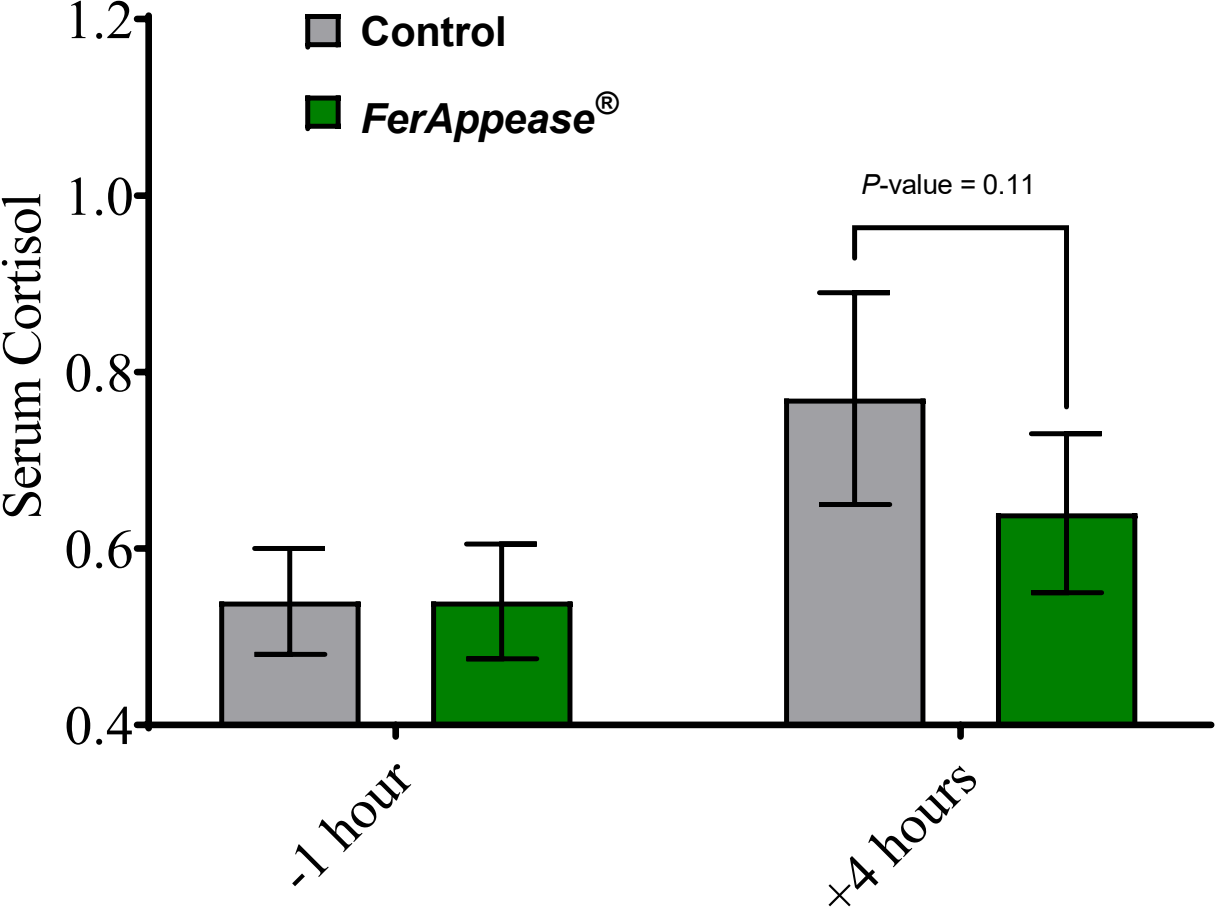
# FerAppease tended to increase weight gain 17-d post-castration



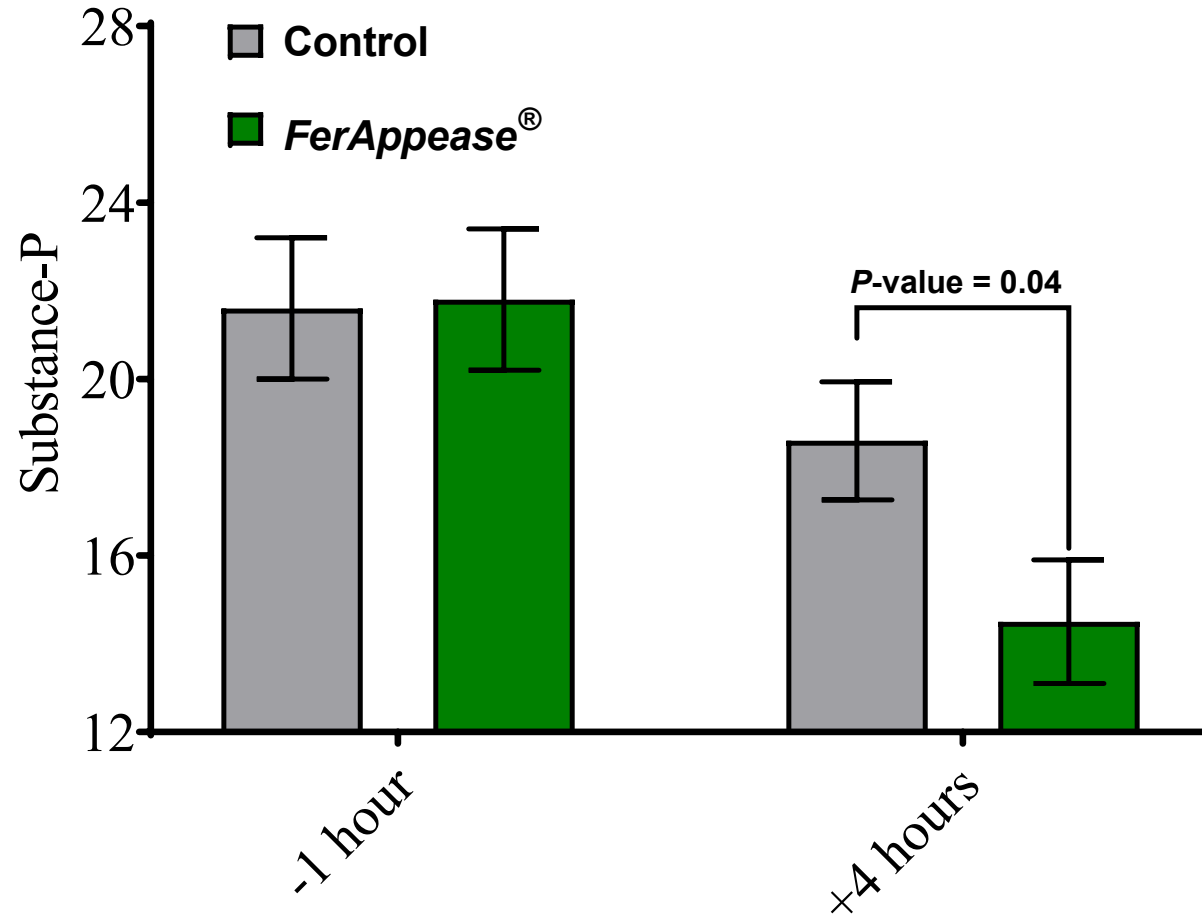
# Results of the dehorning trial



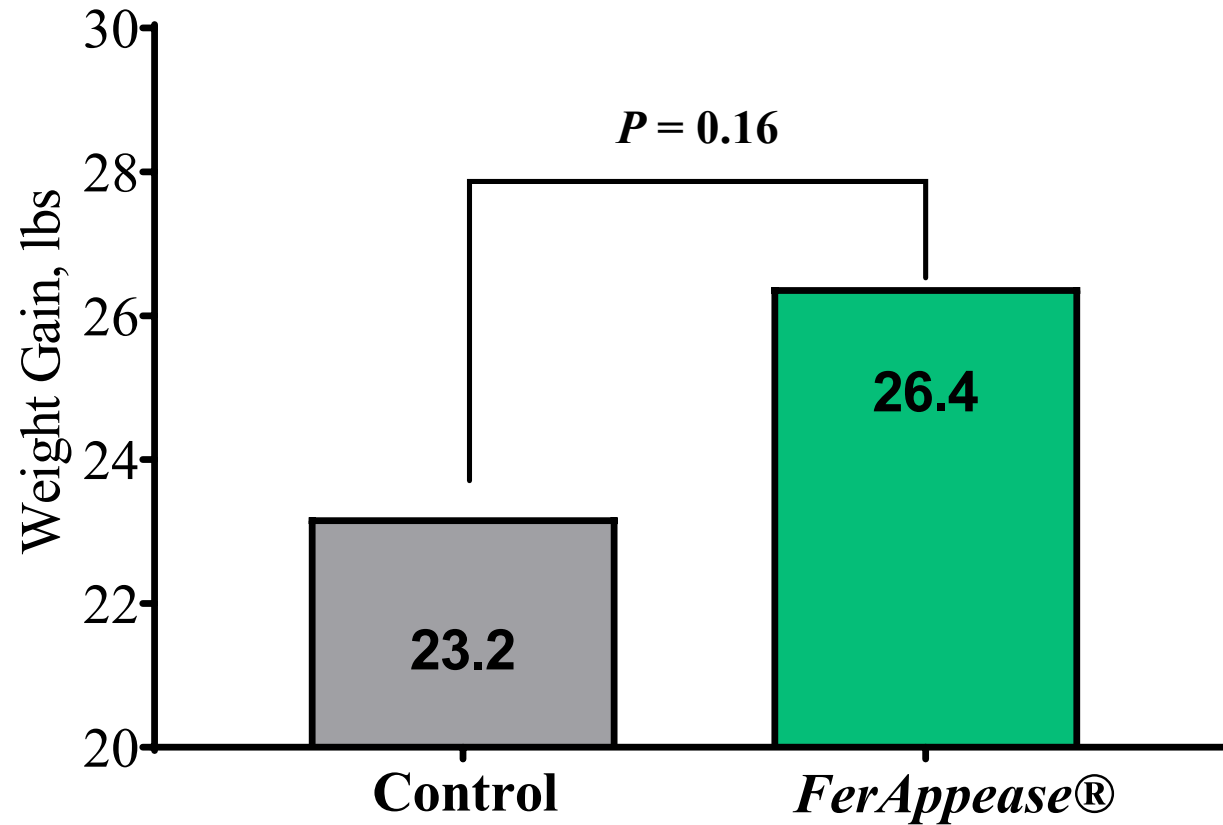
# FerAppease decreased Cortisol levels following dehorning



# FerAppease decreased *Substance-P* levels following dehorning



# FerAppease tended to increase weight gain 17-d post-dehorning



# ***Scientific evidence and economic benefits of FerAppease<sup>®</sup> : BEEF CALF WEANING***

➤ The effect of the use of MBAS at weaning in preconditioned calves has been evaluated in several independent studies. The body of the literature suggests the following positive effects of MBAS:

- *Decreased flight zone; decreased speed when exiting the chute.*
- *Decreased cortisol and haptoglobin levels.*
- *Increase antibody production after vaccination.*
- *Increased body weight at the end of the 45-d preconditioning period.*

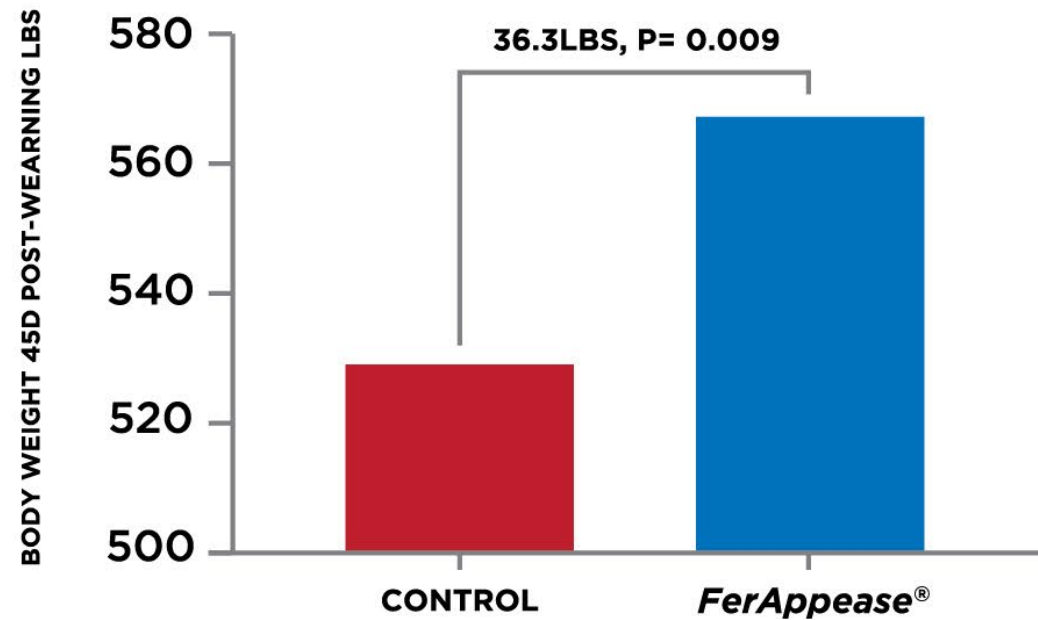
➤ ***Studies have reported a live weight difference of 10-40 pounds***

- *“Collectively, MBAS administration to beef calves at weaning alleviated stress-induced physiological reactions, improved temperament evaluated via chute exit velocity, enhanced humoral immunity acquired from vaccination, and appeared to have accelerated adaptation to novel management scheme and environment.”*

<https://doi.org/10.1093/jas/skaa269>



# Scientific evidence and economic benefits of FerAppease<sup>V</sup> : BEEF CALF WEANING



<https://doi.org/10.1016/j.livsci.2020.104067>

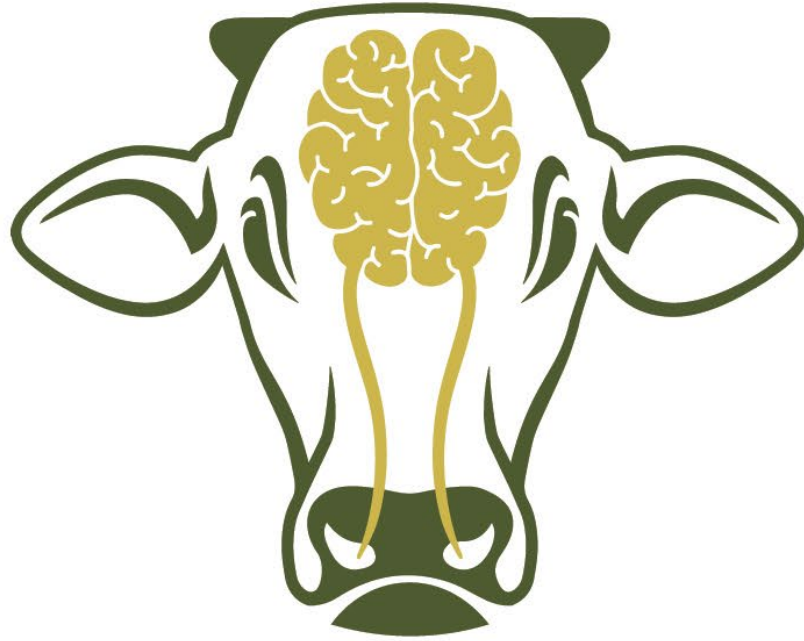


# ***What is the financial benefit for weaned beef calves?***

- Calves treated with BMAS were **36.3 lbs. heavier** at the end of a 45-d pre-conditioning
- Cost of *FerAppease*<sup>®</sup> application = \$3.00
- Price per lbs. live weight = \$1.55
- **Price difference per calf sold \$56.26**
- **ROI = 18.7**







# ***FerAppease***<sup>®</sup>

Maternal Bovine Appeasing Substance



Diagnostics  
and Biologicals

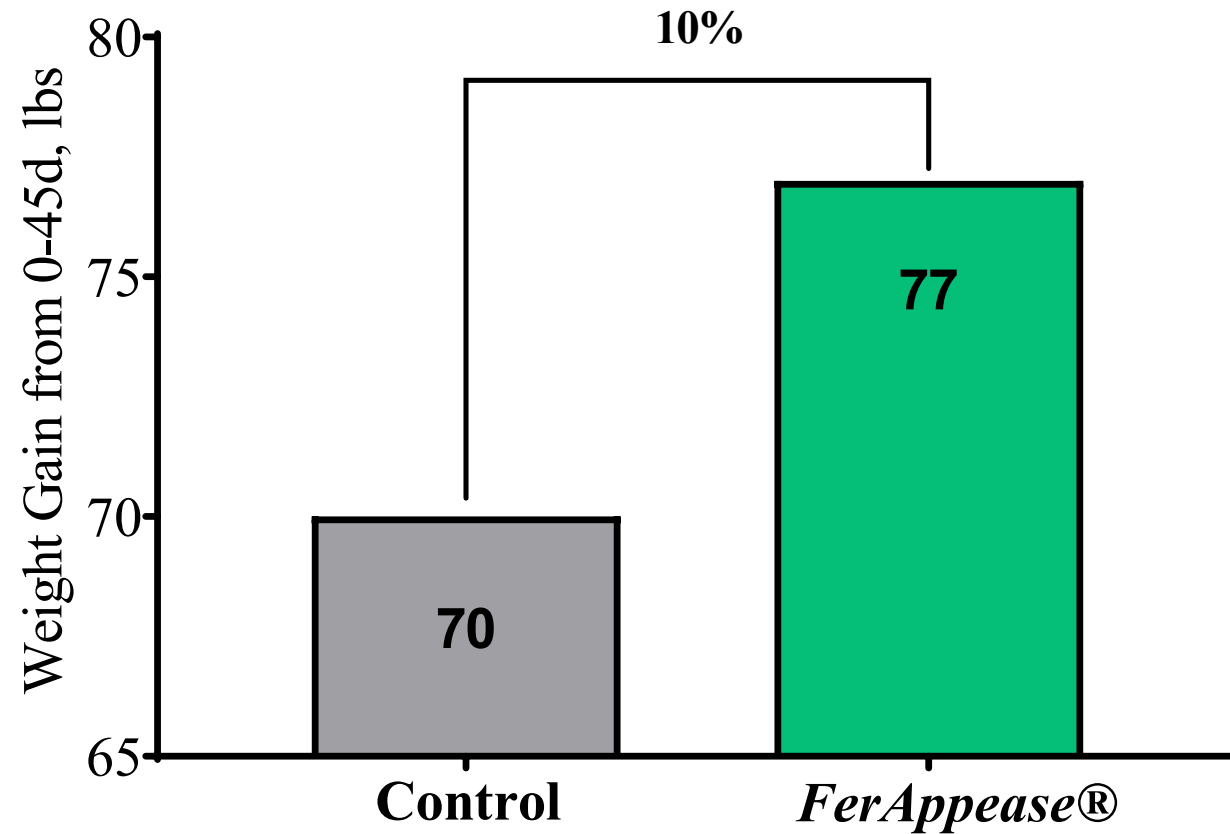
# Results summary of a series of field trials performed by Trotter & Scarmardo Cattle Company



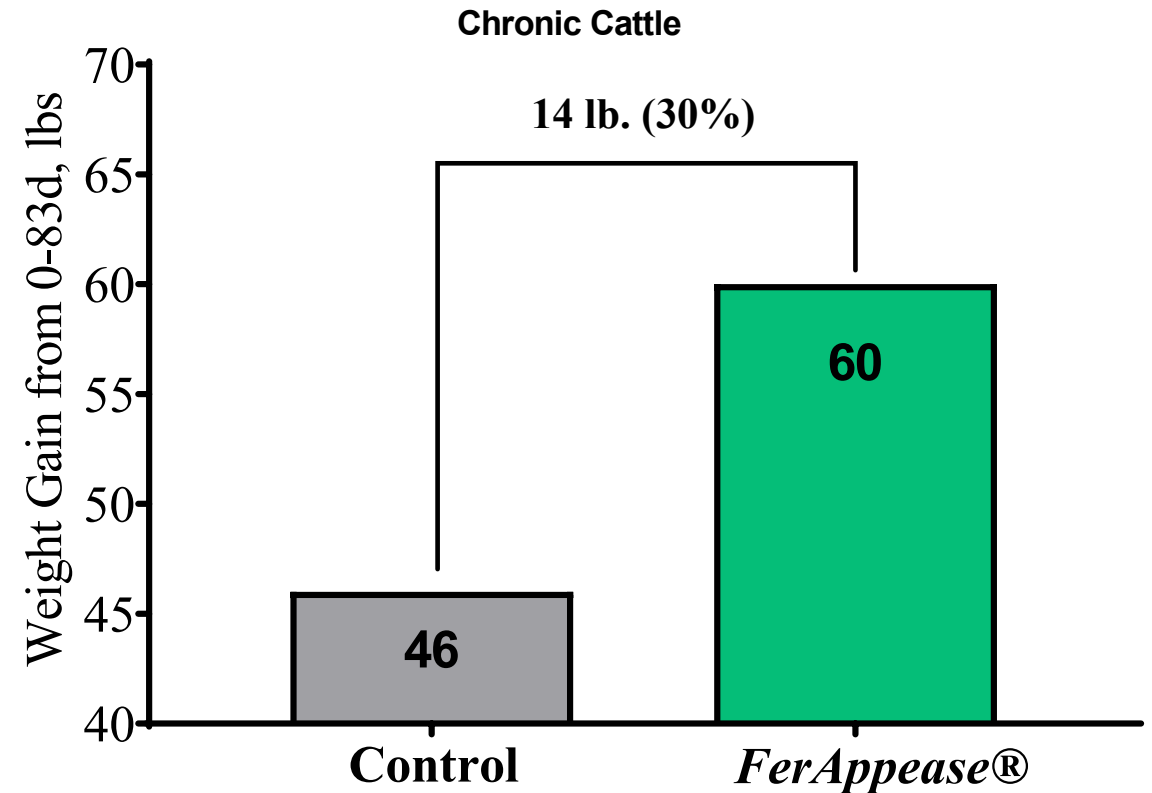
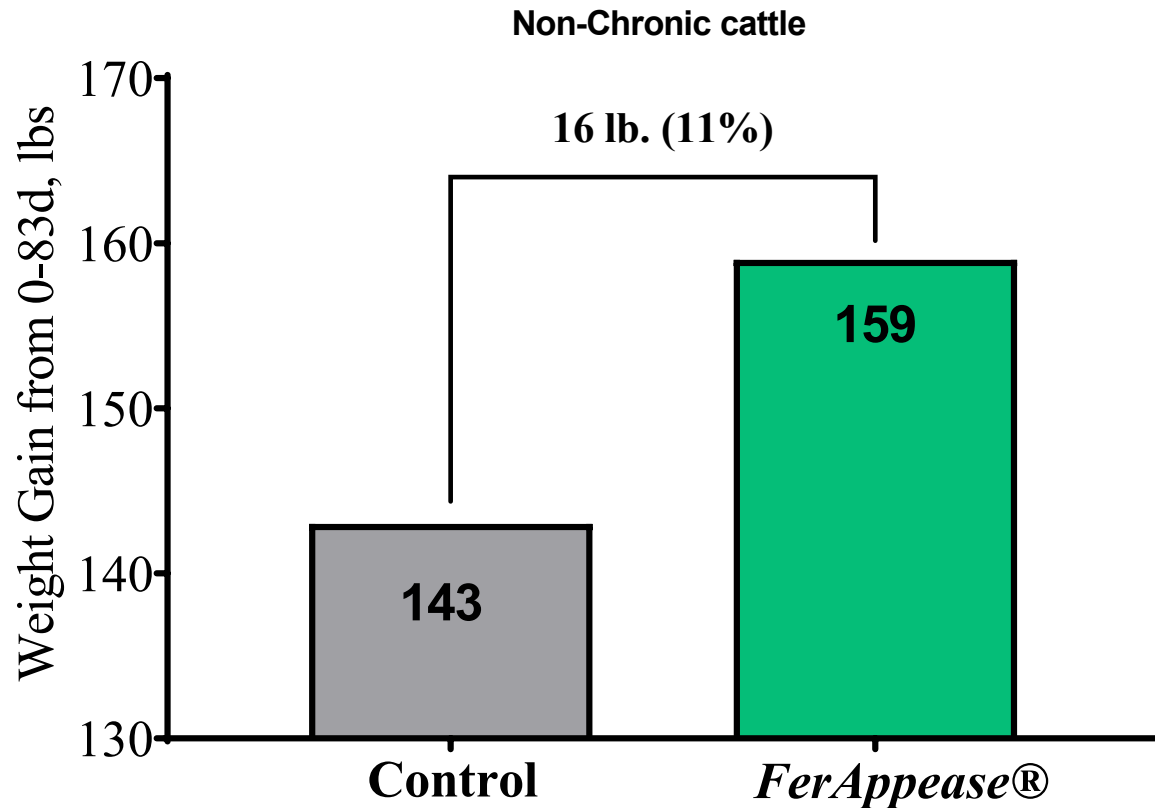
# Trial 1: Effect of FerAppease on health and performance of light weight cattle

- Independently performed trial – Trotter & Scarmardo Cattle Company
- Cattle were not randomly allocated to treatment and treatment was applied to 3 pens of cattle and 3 other pens were used as controls
- Sample size: 824 Control calves, 591 FerAppease treated calves
- Animals: weaned beef heifers with starting weights around 327 lb. Heifers were procured from sale barns.
- Treatment protocol: FerAppease group received two treatments of 10ml (5ml behind the head and 5ml above the muzzle) at arrival and at re-vaccination
- Outcomes
  - Morbidity
  - Mortality
  - Weight gain

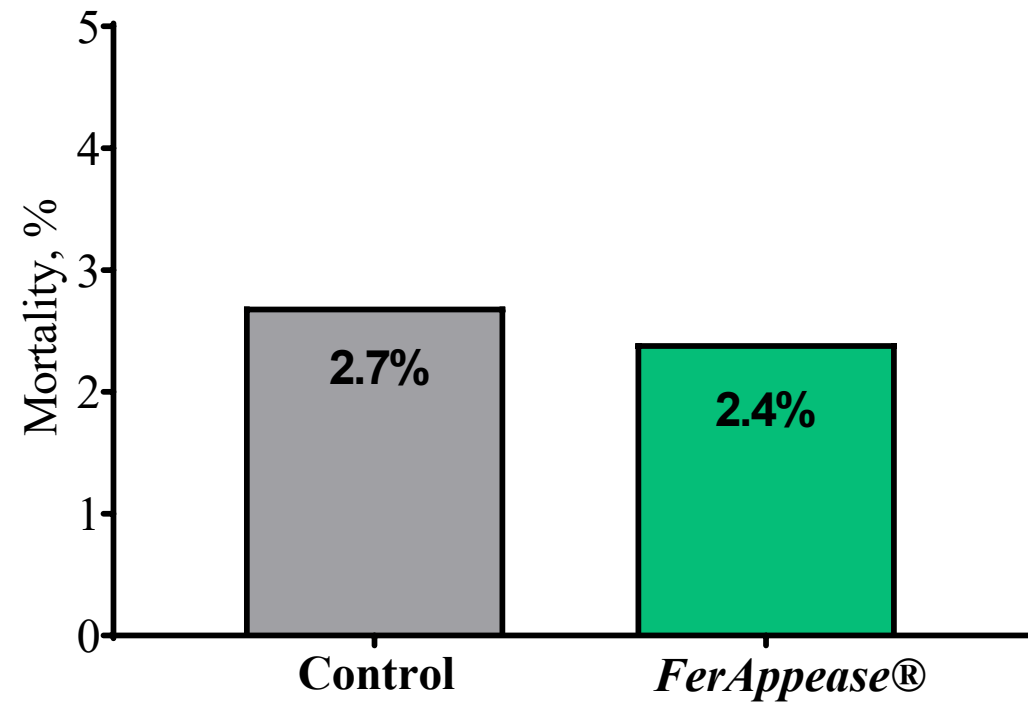
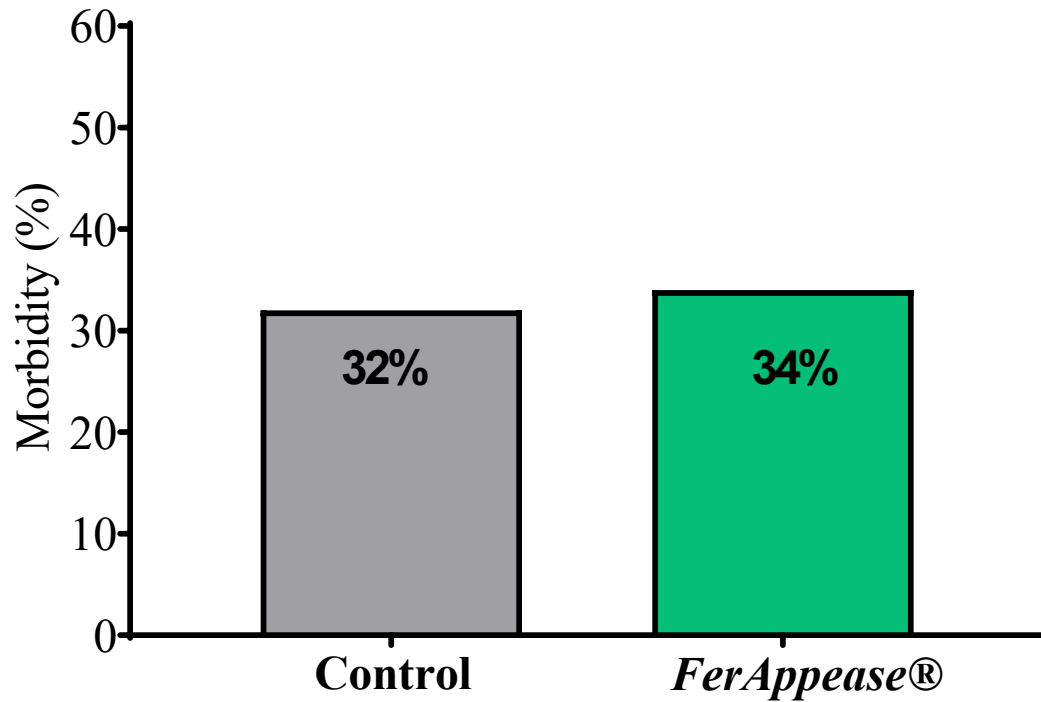
# Effect of *FerAppease* on weight gain (0-45 days). Only healthy cattle



# Effect of *FerAppease* on weight gain (0-83 days). Only BRD affected cattle (pulls)



# Effect of *FerAppease* on morbidity and mortality



# FINAL CONSIDERATIONS

## Trial-1



***FerAppease***<sup>®</sup>  
Maternal Bovine Appeasing Substance

- Calves in the *FerAppease* group arrived 14-d after the control calves arrived. Therefore, the *FerAppease* group had the disadvantage of 14 fewer days on feed compared to the controls which sets them back at least 14 lbs. in body weight.
- *FerAppease* group endured a wet spell during a critical period post-arrival that most likely triggered an outbreak of BRD.
- Nevertheless, *FerAppease* treated cattle outperformed the control cattle while maintaining similar health outcomes.

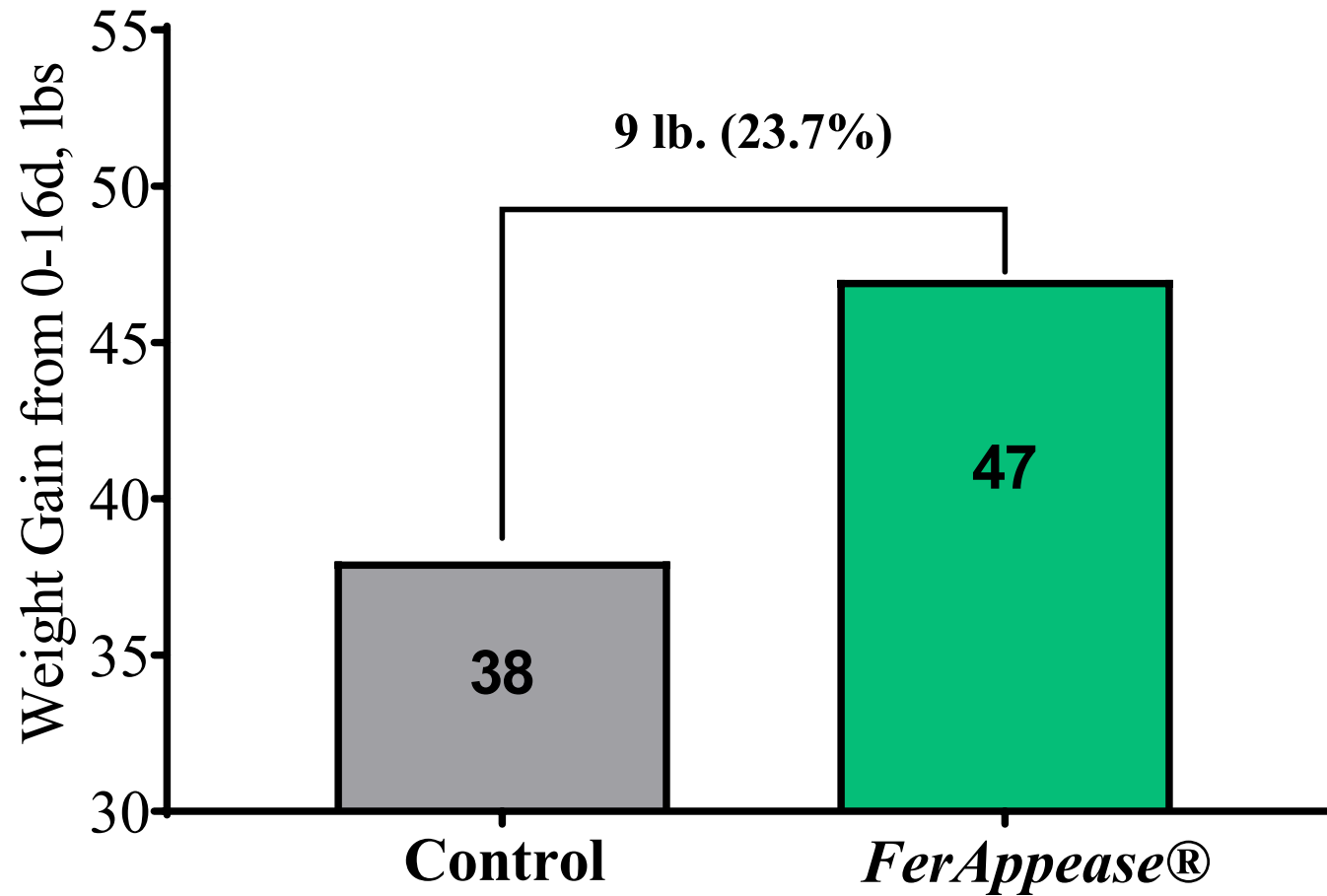


# Trial 2: Effect of FerAppease on health and performance of light weight cattle. Split pens

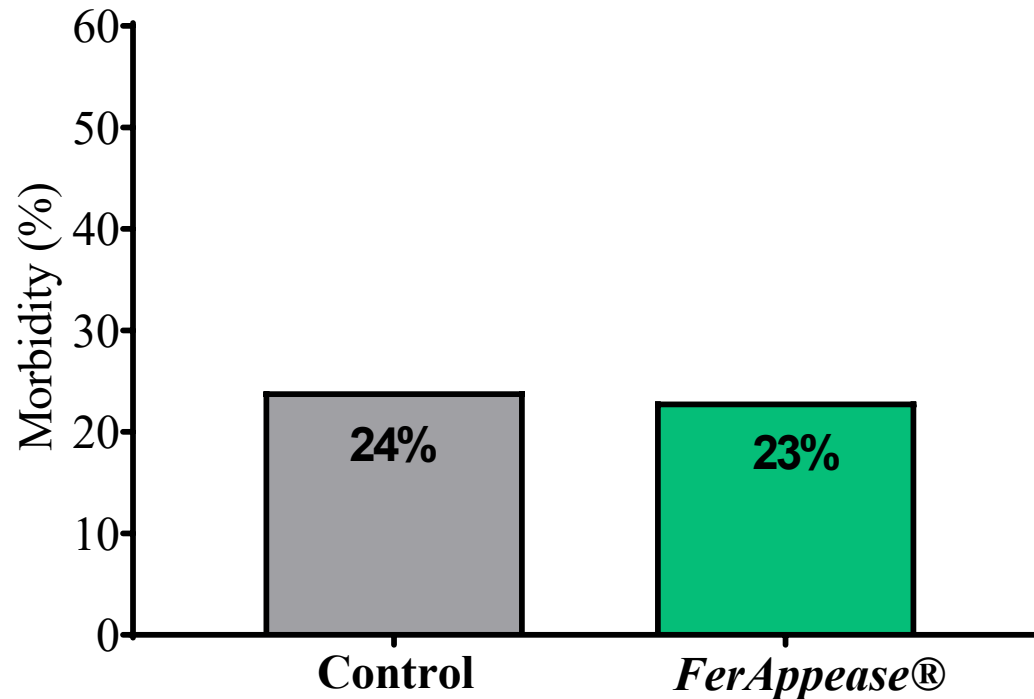
- Independently performed trial – Trotter & Scarmardo Cattle Company
- Single sourced cattle (sale barn) were allocated as FerAppease treated or controls
- Sample size: 79 Control calves, 82 FerAppease treated calves
- Animals: weaned calves with average starting weights of 334lb.
- Treatment protocol: FerAppease group received a single treatment of 10ml (5ml behind the head and 5ml above the muzzle) at arrival
- Outcomes
  - Morbidity
  - Mortality
  - Weight gain



# Effect of *FerAppease* on weight gain (0-16 days). Only healthy cattle



# Effect of *FerAppease* on morbidity and mortality



# FINAL CONSIDERATIONS

## Trial-2



**FerAppease**<sup>®</sup>  
Maternal Bovine Appeasing Substance

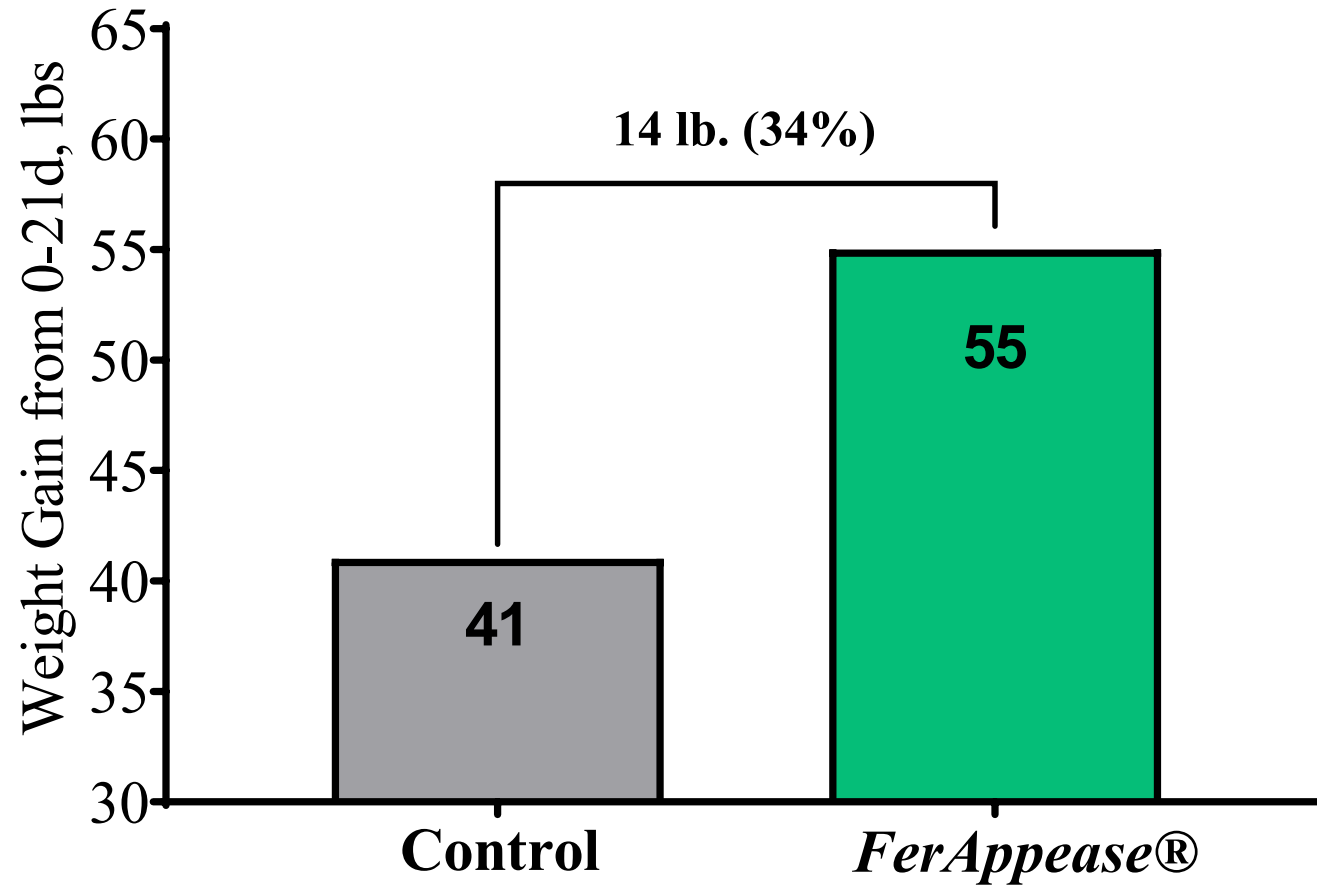
- *FerAppease* treated cattle outperformed the control cattle gaining 24% more weight in the first 16 days in feed compared to control calves.
- Up to now, there was no difference in the BRD incidence between treatment groups. It is possible that the pulled cattle in the *FerAppease* group will outperform the controls as was the case in Trial 1.



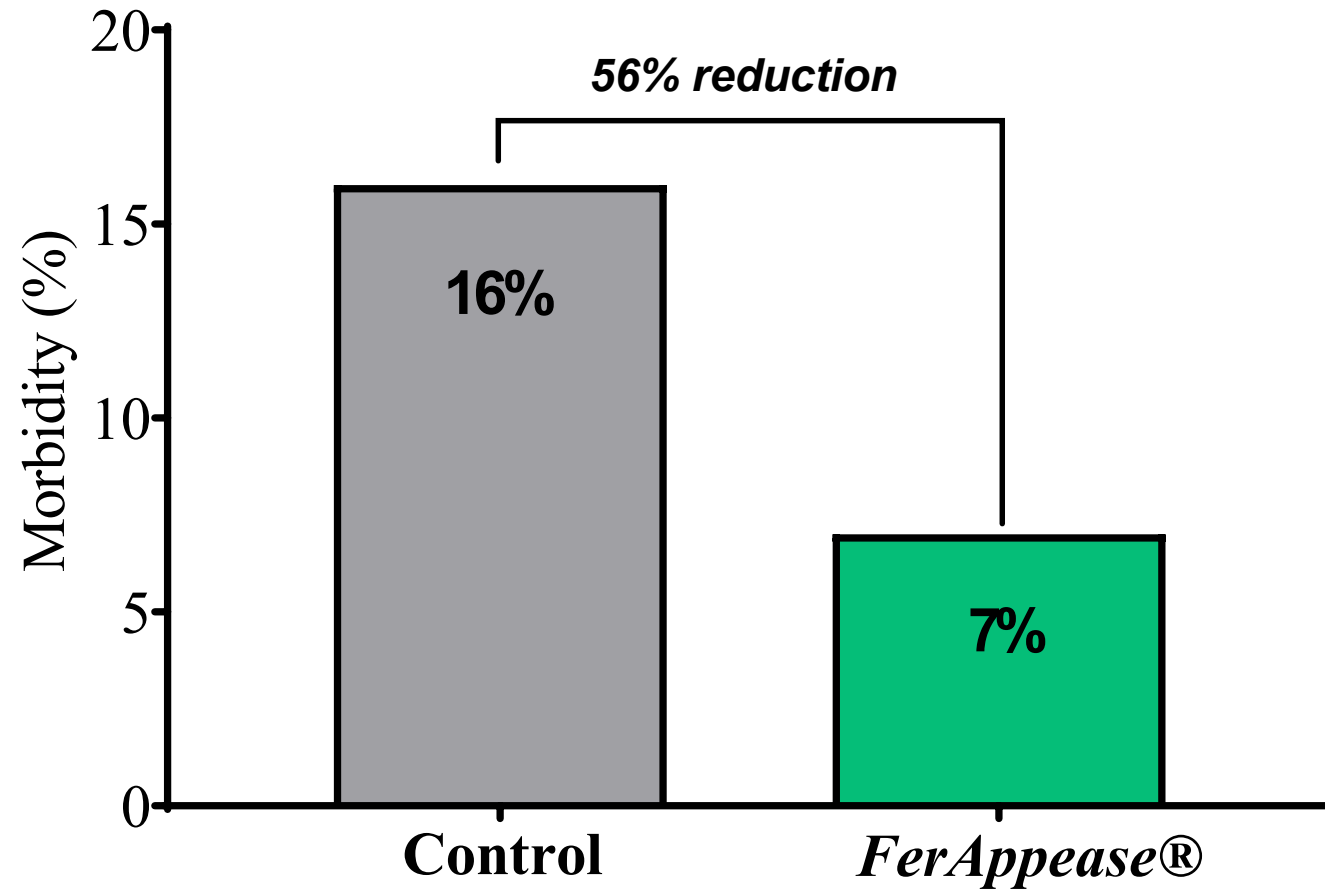
# Trial 3: Effect of FerAppease on health and performance of 5-weight cattle. Split pens

- Independently performed trial – Trotter & Scarmardo Cattle Company
- Single sourced cattle (sale barn) were allocated as FerAppease treated or controls
- Sample size: 112 Control calves, 112 FerAppease treated calves
- Animals: weaned calves with average starting weights of 497lb.
- Treatment protocol: FerAppease group received a single treatment of 10ml (5ml behind the head and 5ml above the muzzle) at arrival
- Outcomes
  - Morbidity
  - Mortality
  - Weight gain

# Effect of *FerAppease* on weight gain (0-21 days). Only healthy cattle



# Effect of *FerAppease* on morbidity and mortality



# FINAL CONSIDERATIONS

## Trial-3



**FerAppease**<sup>®</sup>  
Maternal Bovine Appeasing Substance

- *FerAppease* treated cattle outperformed the control cattle gaining 34% more weight in the first 21 days in feed compared to control calves.
- A dramatic reduction in BRD incidence is being observed, as of 10/21/2022. Control cattle have been treated BRD twice more frequent compared to *FerAppease* treated calves.
- It is possible that older/heavier cattle have already developed immunity to infectious agents and sickness is mainly driven by stress, hence, the more significant benefit of *FerAppease* on these cattle.



# ***Scientific evidence and economic benefits of FerAppease<sup>®</sup> : FEEDLOT RECEIVING CATTLE***

➤ This experiment evaluated the impacts of administering MBAS at feedlot entry to receiving cattle.

- *Steer BW gain was greater ( $P = 0.04$ ) in MBAS vs. CON (1.01 vs. 0.86 kg/d, SEM = 0.05). Feed intake did not differ ( $P = 0.95$ ) between treatments, resulting in greater ( $P = 0.05$ ) feed efficiency in BAS vs. CON (171 vs. 142 g/kg, SEM = 10).*
- *Plasma cortisol concentration was greater ( $P = 0.05$ ) and plasma glucose concentration was less in CON vs. MBAS on day 7.*

➤ Hence, BAS administration to steers upon feedlot arrival improved BW gain during a 45-d receiving period by enhancing feed efficiency. Moreover, results suggest that BAS improved steer performance by facilitating early detection of BRD signs, lessening the disease recurrence upon first antimicrobial treatment.

[doi:10.1093/jas/skaa339](https://doi.org/10.1093/jas/skaa339)





# ***Scientific evidence and economic benefits of FerAppease<sup>®</sup>: TRANSPORTATION TO PACKER***

➤ In this study cattle were randomly allocated to received MBAS or a placebo before they were loaded into a truck and transported to the packer.

- *Animals treated with MBAS had lower carcass pH compared to controls (5.75 vs. 5.82,  $P < 0.0001$ )*
- *Risk of Dark Cutter was significantly lower for MBAS treated cattle compare to controls (42.2 vs. 26.2%,  $P < 0.0001$ )*

Cappellozza et al (2018) <https://doi.org/10.1016/j.livsci.2020.104067>





***FerAppease***<sup>®</sup>  
Maternal Bovine Appeasing Substance

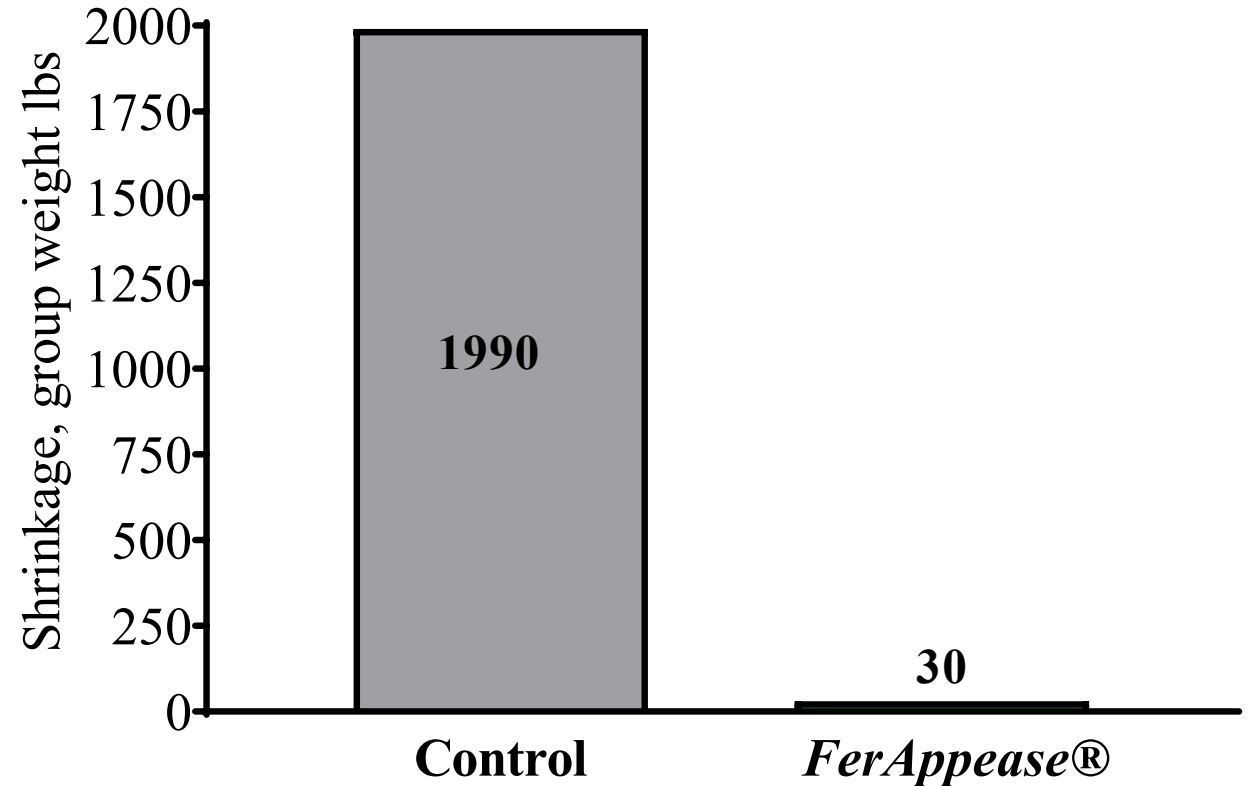
## ***Effects of FerAppease<sup>®</sup> in Beef cattle***

- ***Improved response to vaccination***
- ***Shrinkage reduction in transported animals***
- ***Increase in Hot Carcass Weight at slaughterhouse***

# *Scientific evidence of the benefits of FerAppease®*

## *Beef calves transported from KY to NY*

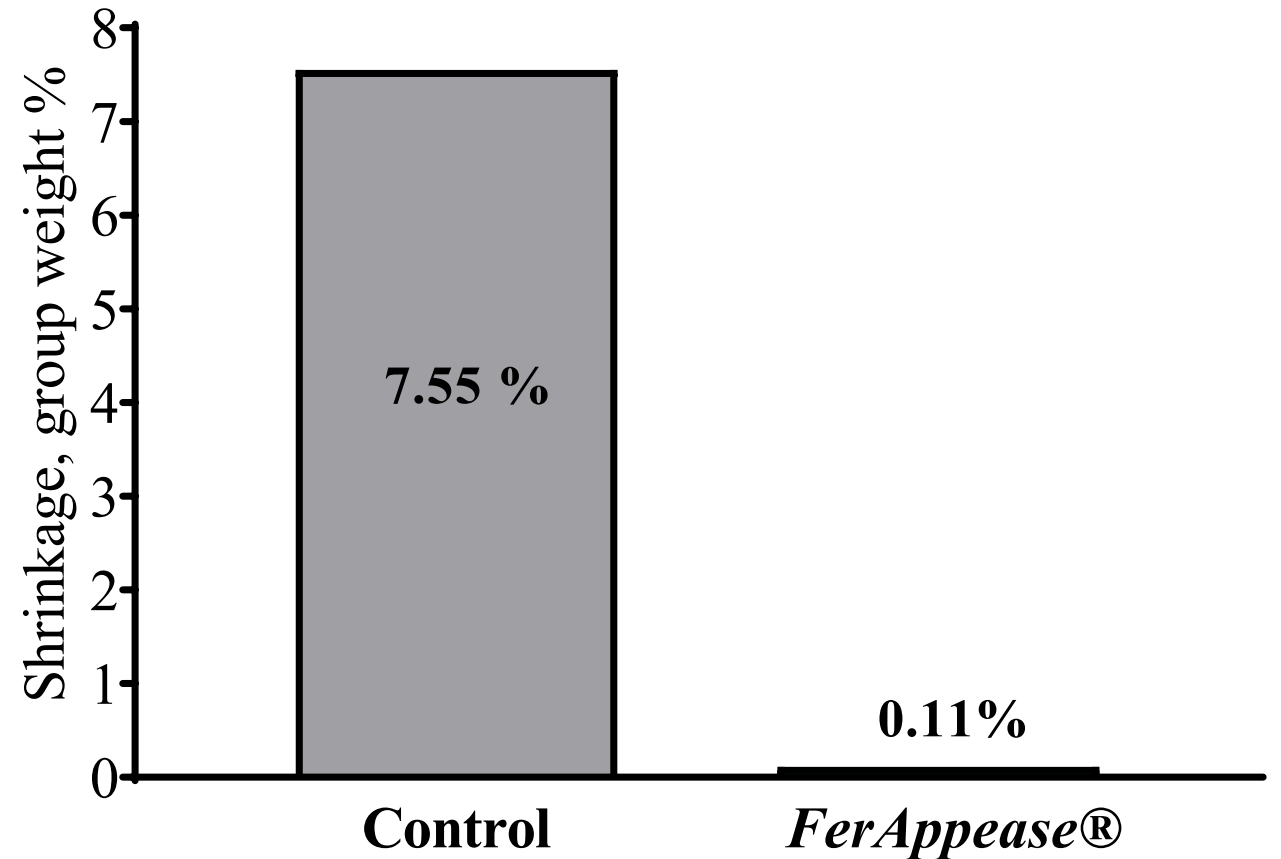
- *FerAppease applied moments before loading to the trailer*
  - *44 calves per group*
  - *Transported from the sale barn in KY to NY*
  - *Shrinkage due to transportation was drastically reduced.*



# *Scientific evidence of the benefits of FerAppease®*

## *Beef calves transported from KY to NY*

- *FerAppease applied moments before loading to the trailer*
  - *44 calves per group*
  - *Transported from the sale barn in KY to NY*
  - *Shrinkage due to transportation was drastically reduced.*

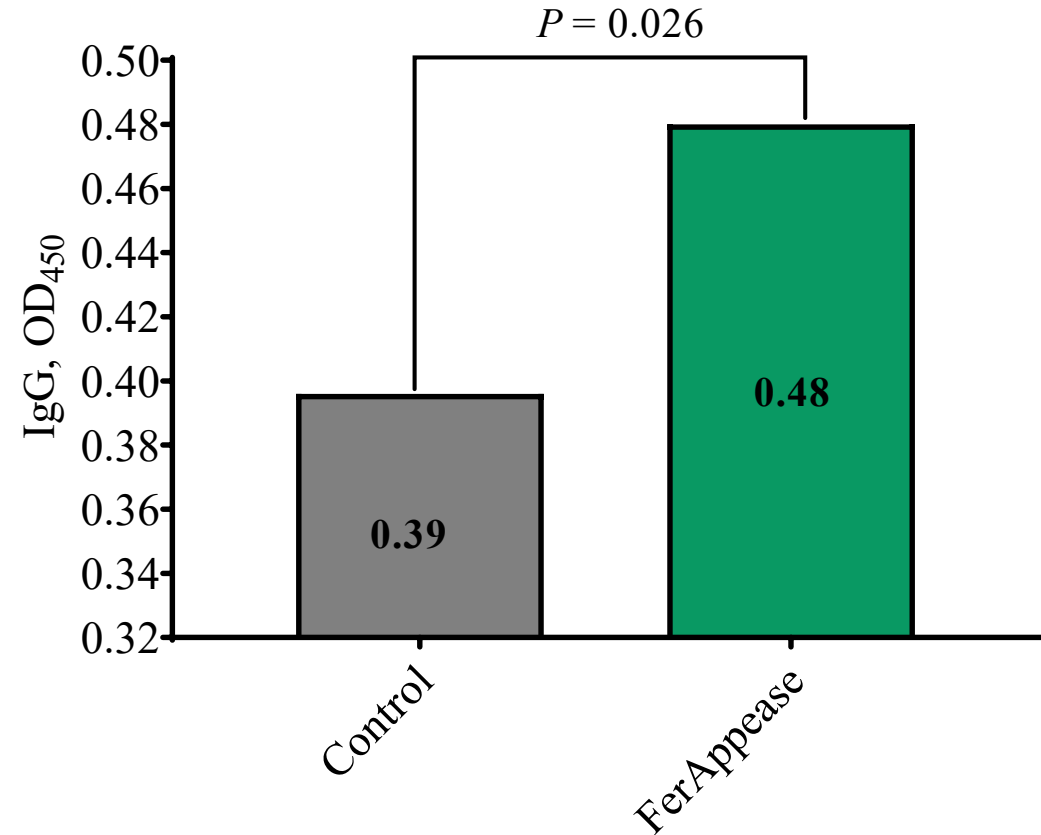


# Scientific evidence of the benefits of FerAppease®

## Beef calves transported from KY to NY

- FerAppease applied moments before loading to the trailer
  - Treated animals had significantly higher titers of IgG specific against *M haemolytica* toxoid (Presponse® SQ)

IgG response 25-d post vaccination with *M. haemolytica* toxoid

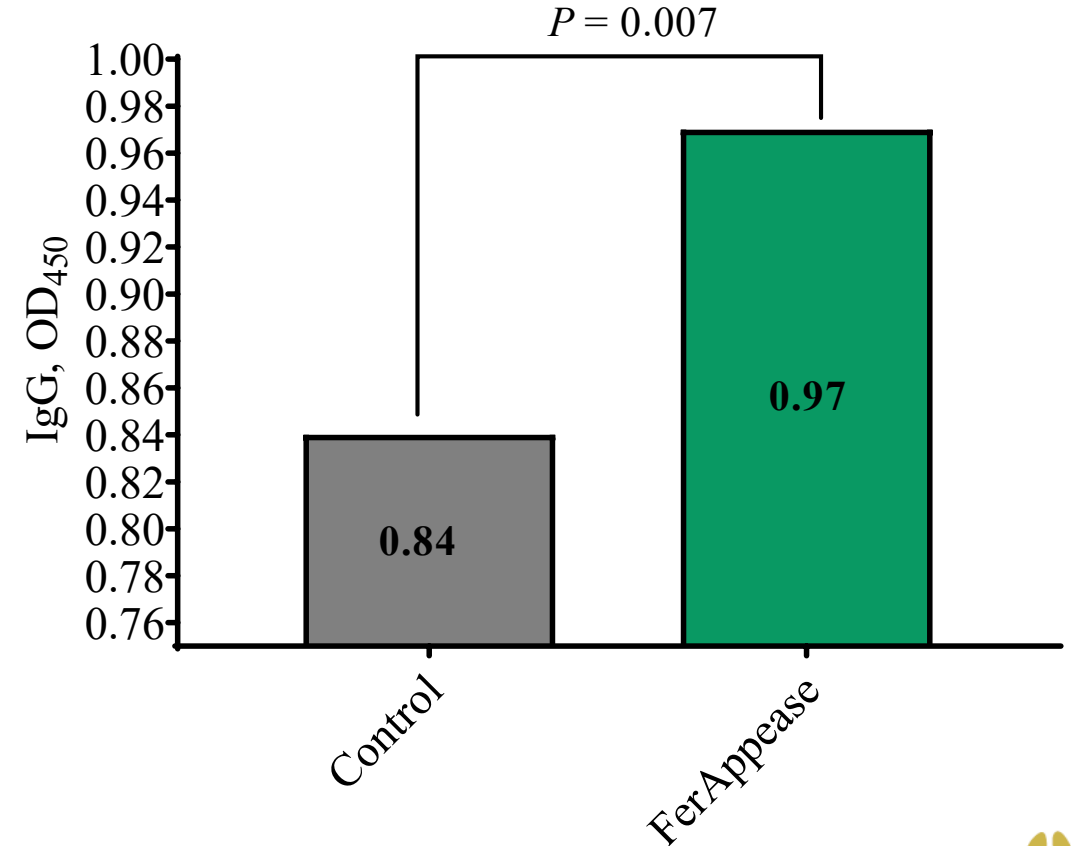


# Scientific evidence of the benefits of FerAppease®

## Beef calves transported from KY to NY

- *FerAppease applied moments before loading into the trailer*
- *Treated animals had significantly higher titers of IgG specific against antigens of the Bovilis Nasalgen vaccine*

IgG response 25-d post vaccination with Bovilis Nasalgen

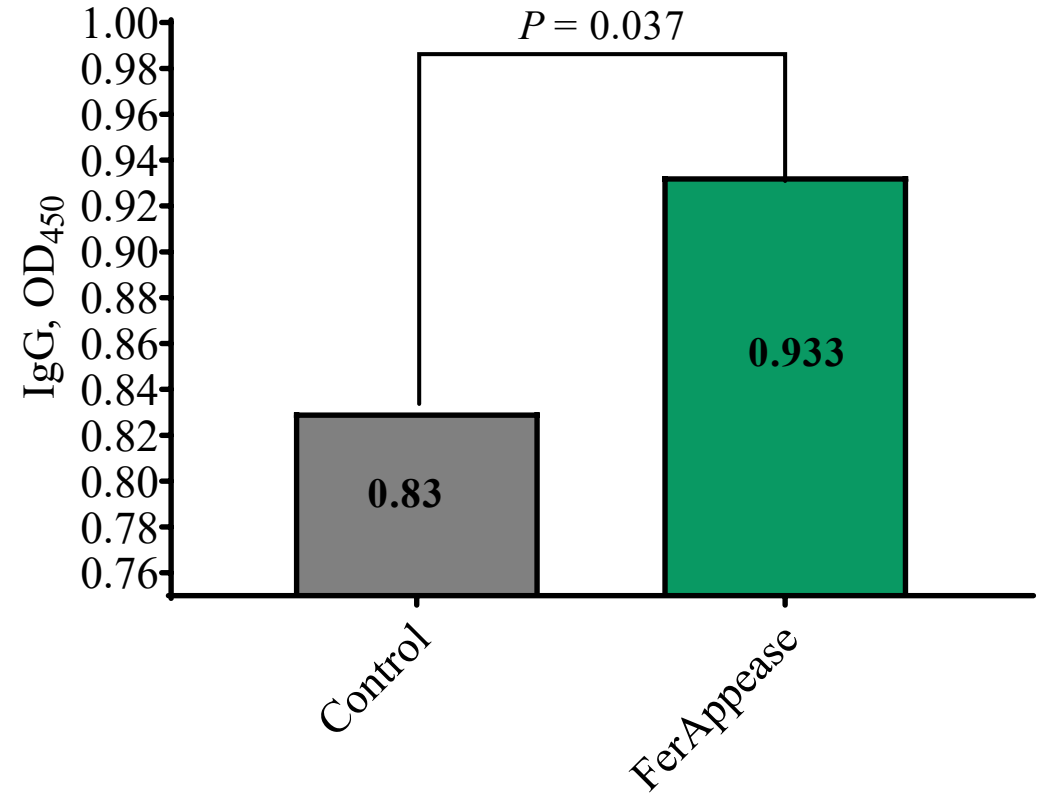


# Scientific evidence of the benefits of FerAppease<sup>®</sup>

## Beef calves transported from KY to NY

- *FerAppease* applied moments before loading into the trailer
  - Treated animals had significantly higher titers of IgG specific against *antigens of the BarVac, Clostridium* vaccine

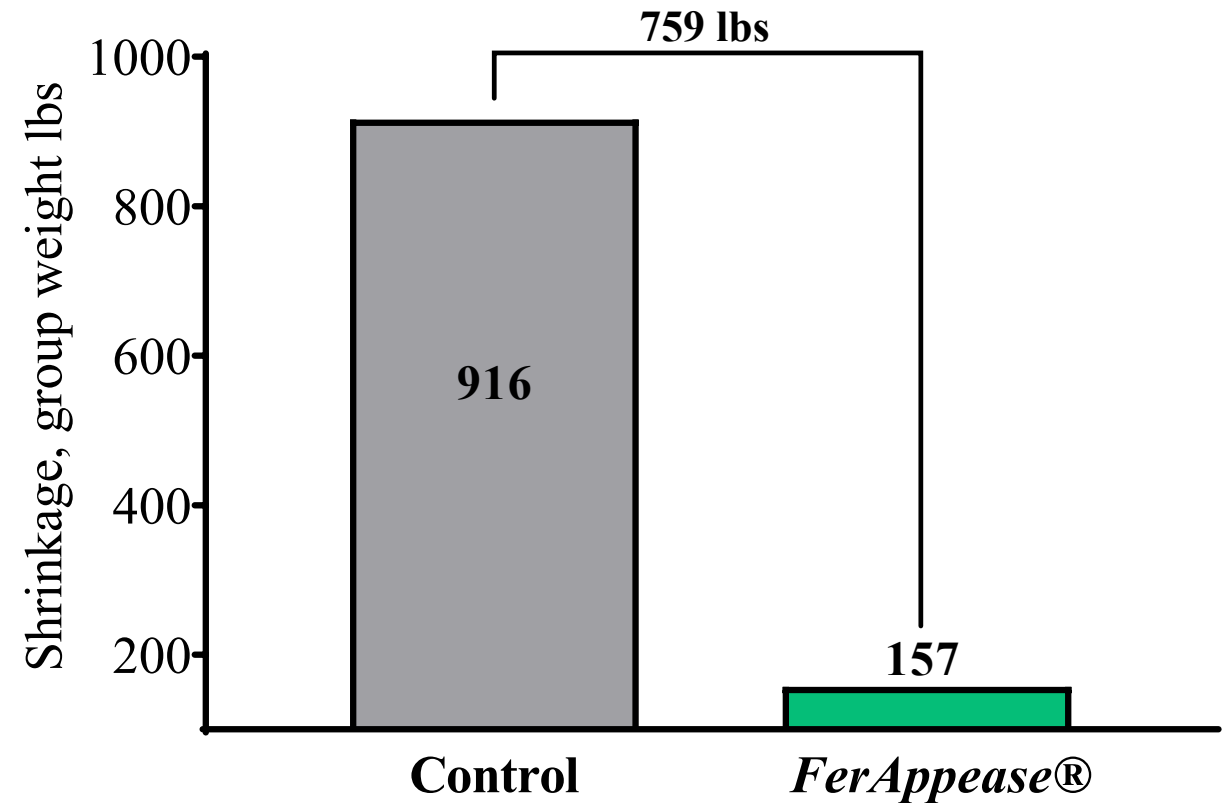
IgG response 25-d post vaccination with Clostridium, BarVac



# *Scientific evidence of the benefits of FerAppease®*

## *Weaned calves transportation - Texas*

- *FerAppease applied moments before loading to the trailer*
  - *19 Weaned calves per group (avg 600 lbs.)*
  - *Shrinkage due to transportation was drastically reduced.*

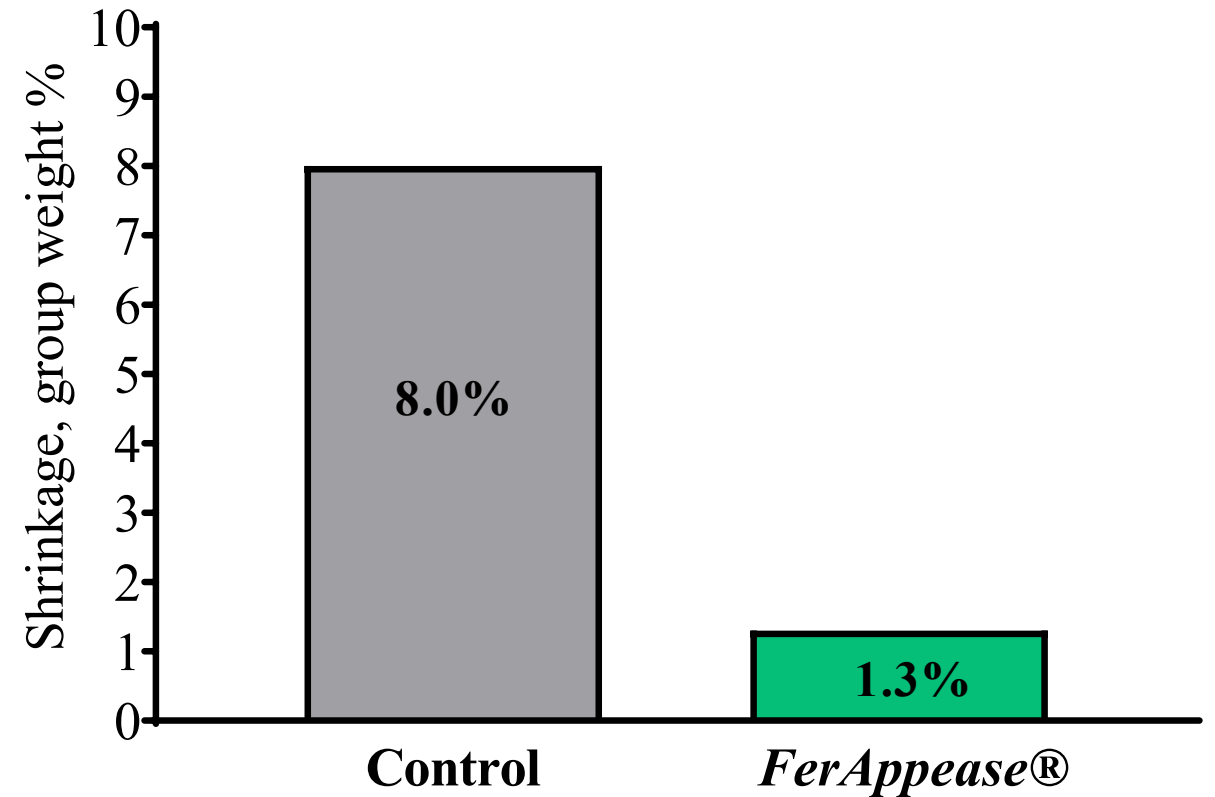




# *Scientific evidence of the benefits of FerAppease®*

## *Weaned calves transportation - Texas*

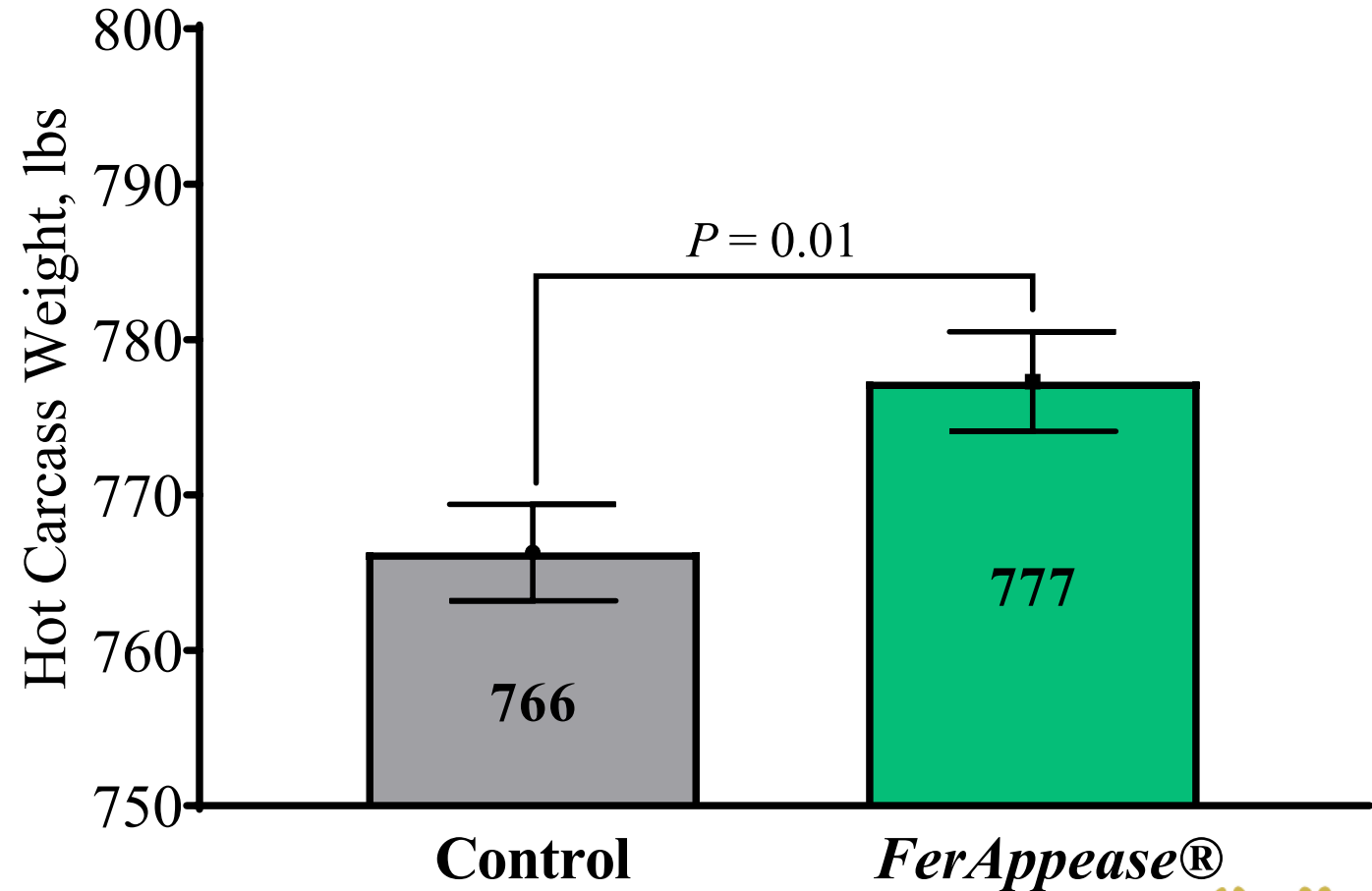
- *FerAppease applied moments before loading to the trailer*
  - *19 Weaned calves per group (avg 600 lbs.)*
  - *Shrinkage due to transportation was drastically reduced.*



# Scientific evidence of the benefits of FerAppease®

## Hot Carcass Weight - NY

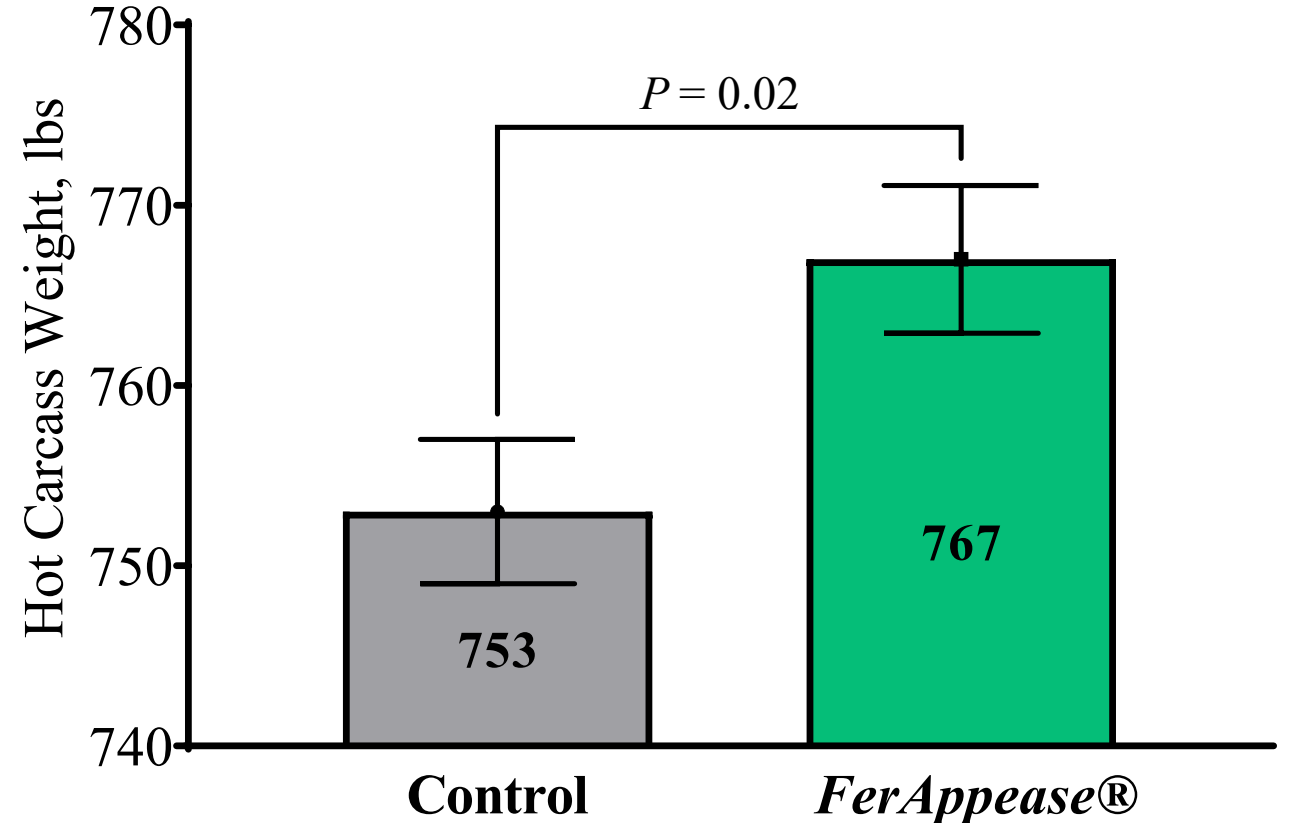
- Overall data
- FerAppease applied moments before cattle being transported to the slaughterhouse
  - 38 animals per group
  - 11 lbs. increase in HCW



# Scientific evidence of the benefits of FerAppease®

## Hot Carcass Weight

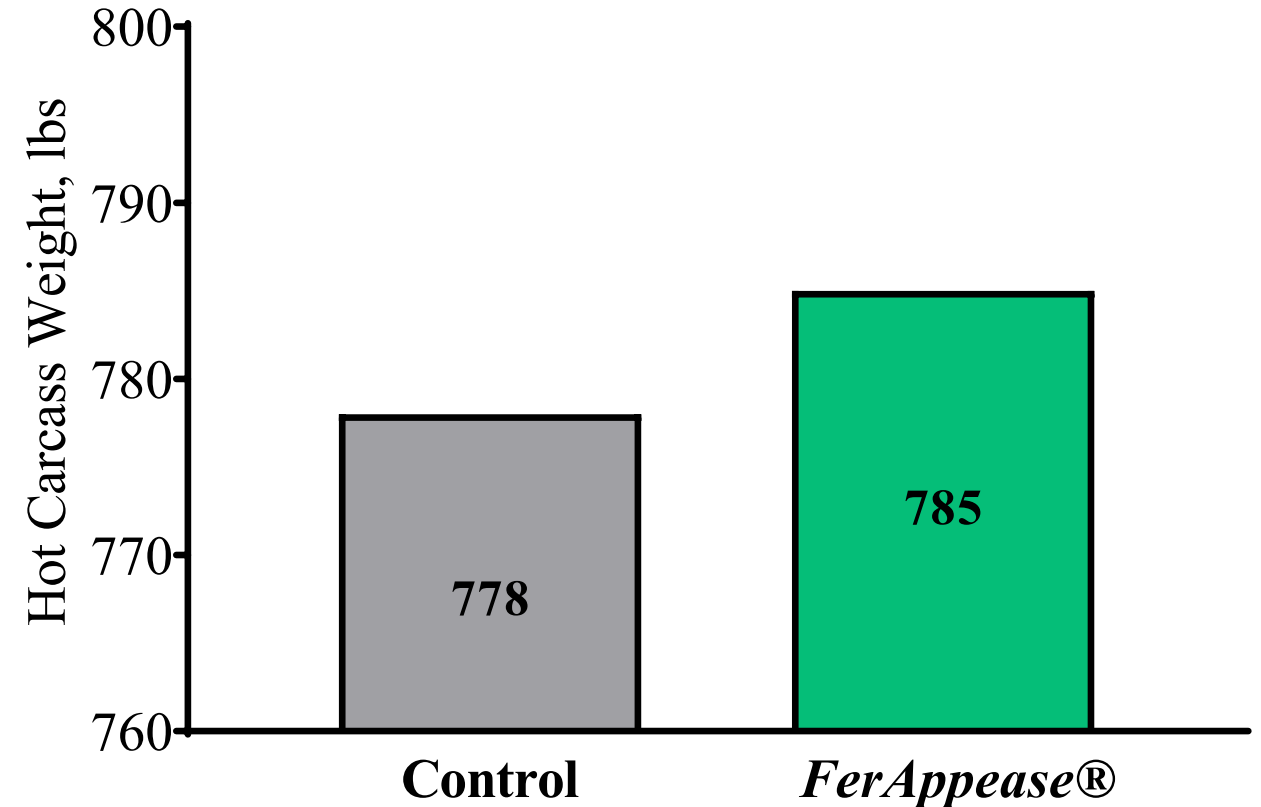
- **Group 1**
- **FerAppease applied moments before cattle being transported to the slaughterhouse**
  - **19 animals per group**
  - **All beef cattle**
  - **7h in trailer. 3-4hrs pre-slaughter at plant**
  - **14 lbs. increase in HCW**



# Scientific evidence of the benefits of FerAppease®

## Hot Carcass Weight

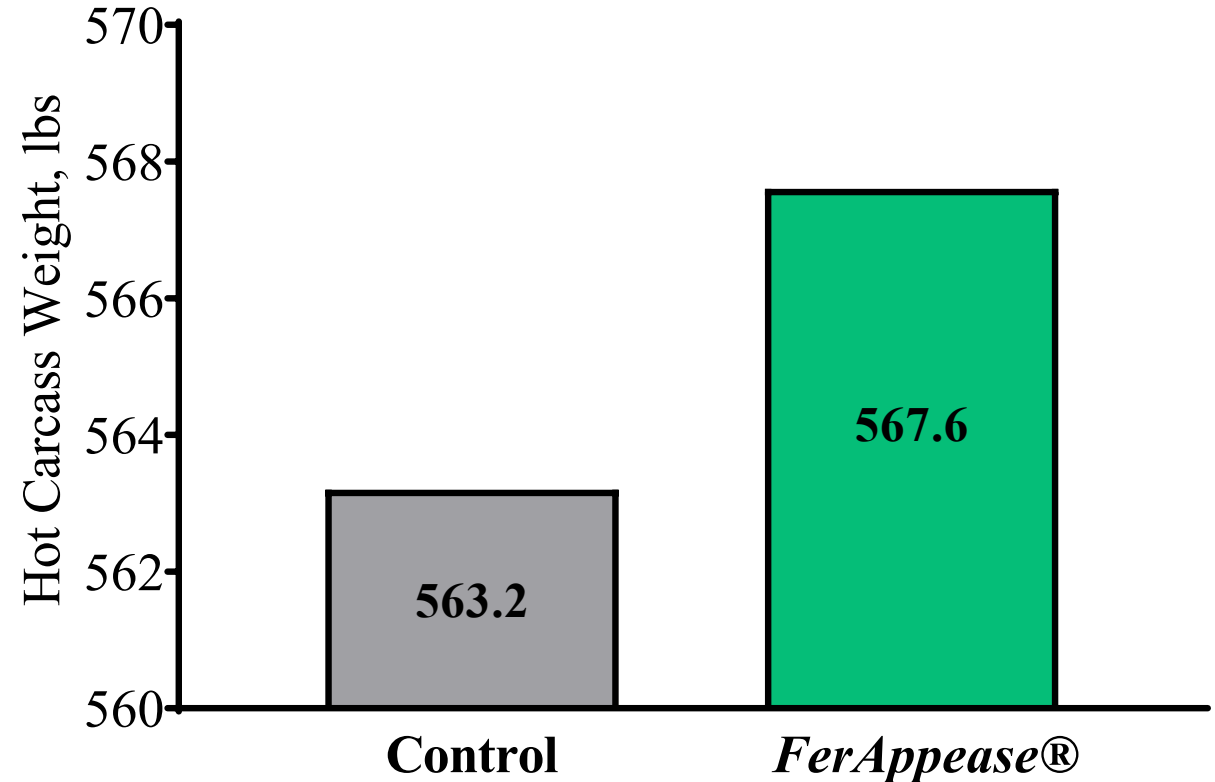
- **Group 2**
- **FerAppease applied moments before cattle being transported to the slaughterhouse**
  - **19 animals per group**
  - **Beef/dairy cross cattle**
  - **2-4hrs in trailer. <1hr pre-slaughter at plant**
  - **7 lbs. increase in HCW**



# Scientific evidence of the benefits of FerAppease®

## Steers sent to slaughterhouse - Paraguay

- Study design:
- FerAppease applied 15-17 hrs before cattle being transported to the slaughterhouse
  - 120 Nelore steers per group (avg=1,030 lbs)
  - 4 - 7.5 hrs in trailer. 15 – 18 hr pre-slaughter at plant.
  - 4.4 lbs. increase in HCW



# *Scientific evidence of the benefits of FerAppease®*

## *Steers sent to slaughterhouse - Paraguay*

*Treated animals were visually calmer*



*Control group*

*100% of animals standing*



*FerAppease*

*~50% of animals lying down*

“Despite the fact that we gradually wean our calves, we still notice that when we move calves out of the hutches and into group housing, our calves usually “cry” for at least two days after the move. When we started using FerAppease, we noticed the calves were quiet and the social stress was gone. More importantly, dry matter intake increased and post-weaning treatments were reduced.”

*Scott Blevins – Dairy  
Manager Wiese Brothers*



**“We are following the recommended FerAppease protocol for our baby calves. They are treated from birth and every 14 days until we move them out of the hutches. Our pre-weaning mortality rate has dropped dramatically and calves are 18 lbs heavier one week after they are moved to group housing. Calves are visually calmer, heavier and healthier.”**



***Dennis Eldred – Owner,  
Willet Dairy Farm,***



“Milking fresh heifers on a large western dairy farm is a task that few people take pleasure in doing. When I heard of FerAppease, I thought about my fresh heifers. We started using FerAppease within 24 hours from calving and our heifers are much calmer, and parlor loading has improved significantly. We believe this technology will help our people as much as it will help our animals.”

*Jeff Poland, Dairy  
Operations Manager,  
13,000-cow New*



“We started using FerAppease on our fresh heifers and we immediately noticed that treated animals were calmer and were much easier to load into the parlor, making it safer for the animals and the people.”

*Scott Blevins – Dairy  
Manager, Wiese  
Brothers,  
Greenleaf, WI*



**FerAppease**®



# ***FerAppease***<sup>®</sup>

Maternal Swine Appeasing Substance

# *Scientific evidence of the benefits of FerAppease®*

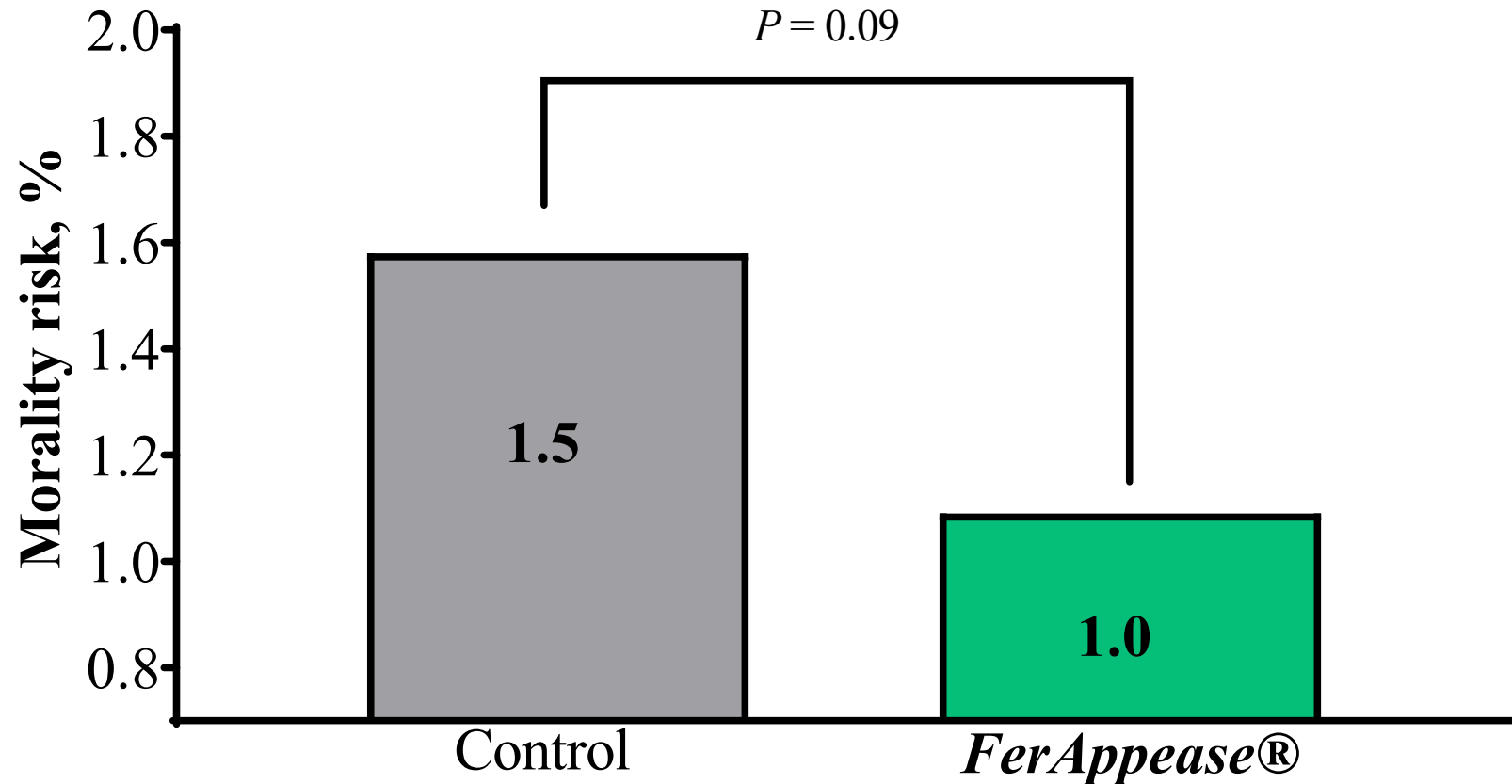
- *The effect of the use MSAS has been evaluated in several independent studies. The body of the literature suggests the following positive effects:*
  - *Weaned pigs:*
    - *Stimulation of feeding behaviors*
    - *Reduced fighting*
    - *Increasing in average daily gain (AVG) and feed efficiency*
  - *Sows at comingling:*
    - *Aggressiveness drastically reduced*
      - *Lower number of aggression events*
      - *Total and average duration of aggression is reduced*

# Evaluation of a single administration of *FerAppease*<sup>®</sup> at nursery arrival on weight gain and mortality

	Treatment	
	Control	<i>FerAppease</i>
Enrolled piglets	<b>3,000</b>	<b>3,000</b>
Piglets per pen	<b>60</b>	<b>60</b>
Number of pens	<b>50</b>	<b>50</b>

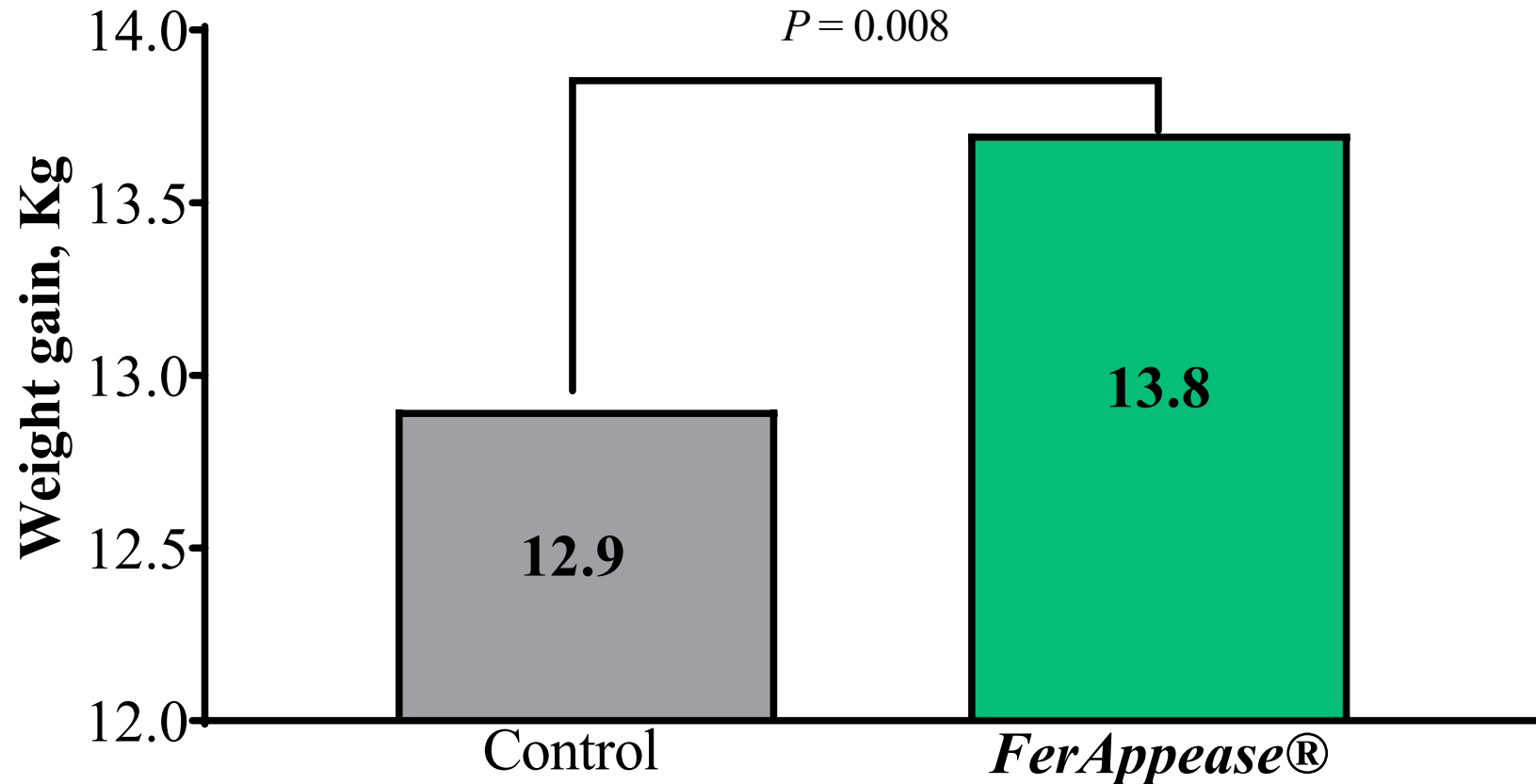
# *Effect of FerAppease<sup>®</sup> administration at nursery arrival on weight gain*

- *3 weeks old pigs received FerAppease<sup>®</sup> at nursery arrival*
- *Mortality rate tended to be decreased in the FerAppease group*



# *Effect of FerAppease<sup>®</sup> administration at nursery arrival on weight gain*

- *Weaned piglets received FerAppease<sup>®</sup> at nursery arrival*
- *Nursery weight gain was significantly improved with FerAppease administration*



# *Effect of FerAppease<sup>®</sup> administration at nursery arrival on weight gain*

## *➤ Conclusions*

- There was a strong statistical tendency for a decreased mortality risk for the FerAppease treated group compared to controls*
- Piglets in the FerAppease treated group gained significantly more weight during the nursery period compared to controls*



# ***Synthetic maternal pheromone stimulates feeding behavior and weight gain in weaned pigs***

**Synthetic maternal pheromone stimulates feeding behavior and weight gain in weaned pigs<sup>1</sup>**

**J. J. McGlone<sup>2</sup> and D. L. Anderson**

Pork Industry Institute, Texas Tech University, Lubbock 79409-2141

<https://doi.org/10.2527/2002.80123179x>

# *Synthetic maternal pheromone stimulates feeding behavior and weight gain in weaned pigs*

**Table 1.** Effects of application of a putative synthetic maternal pheromone or a control odor on weaned pig behavior<sup>a</sup>

Measure	Treatments			SE <sup>b</sup>	P-value <sup>b</sup>	P-value contrast <sup>b</sup>
	Control	Pheromone feeder	Pheromone snout			
No. of pigs	42	42	42	—	—	—
No. of replicates	14	14	14	—	—	—
Scan sample, % of observations						
Feeding (head in feeder)	1.33 <sup>y</sup>	3.06 <sup>z</sup>	2.54 <sup>z</sup>	0.29	0.0007	0.0003
Drinking (mouth on waterer)	0.67 <sup>y</sup>	0.30 <sup>z</sup>	0.27 <sup>z</sup>	0.11	0.02	0.007
Lying close to feeder	18.2	9.21	9.25	4.06	0.21	0.08
Lying far from feeder	65.1	69.9	71.8	4.66	0.58	0.32
Lying (total)	83.2 <sup>y</sup>	79.1 <sup>z</sup>	81.0 <sup>yz</sup>	1.32	0.10	0.06
Stand and walk (active)	12.9 <sup>y</sup>	16.1 <sup>z</sup>	13.0 <sup>z</sup>	0.92	0.03	0.14
Agonistic behaviors	1.52 <sup>y</sup>	0.82 <sup>z</sup>	0.96 <sup>yz</sup>	0.24	0.11	0.04

<sup>a</sup>Table values are raw data and SE of raw data. Analyses were performed on transformed data and the P-values represent those for the transformed data.

<sup>b</sup>P-value refers to the treatment effect while the P-value contrast refers to a linear contrast comparing control with the combined pheromone treatments.

<sup>y,z</sup>Means with a different superscript differed  $P < 0.05$ .

<https://doi.org/10.2527/2002.80123179x>

# *Synthetic maternal pheromone stimulates feeding behavior and weight gain in weaned pigs*

**Table 2.** Effects of application of a putative synthetic maternal pheromone or a control odor on weaned pig weight performance

Measure	Treatments			SE	P-value	P-value contrast <sup>a</sup>
	Control	Pheromone Feeder	Pheromone Snout			
Number pigs	48	48	48	—	—	—
Number replicates	16	16	16	—	—	—
Wean weight, kg	6.07 <sup>y</sup>	5.07 <sup>z</sup>	5.71 <sup>yz</sup>	0.13	0.09	0.03
End of nursery, kg	10.6 <sup>y</sup>	11.6 <sup>z</sup>	12.0 <sup>z</sup>	0.35	0.02	0.01
ADG, kg/d						
0 to 7 d	0.09	0.12	0.11	0.015	0.36	0.16
7 to 14 d	0.16	0.15	0.18	0.015	0.36	0.95
14 to 21 d	0.29 <sup>y</sup>	0.32 <sup>yz</sup>	0.36 <sup>z</sup>	0.02	0.098	0.08
21 to 28 d	0.30	0.36	0.40	0.03	0.42	0.24
0 to 28 d	0.198 <sup>y</sup>	0.236 <sup>z</sup>	0.253 <sup>z</sup>	0.01	0.004	0.001
Feed intake, kg/d						
0 to 7 d	0.17	0.19	0.18	0.01	0.61	0.38
7 to 14 d	0.45	0.45	0.46	0.017	0.90	0.78
14 to 21 d	0.63	0.63	0.64	0.028	0.95	0.80
21 to 28 d	0.95	0.98	1.00	0.03	0.12	0.07
0 to 28 d	0.52	0.51	0.54	0.01	0.45	0.25
Feed:gain ratio <sup>b</sup>						
0 to 7 d	0.24	1.98	0.39	1.40	0.61	0.58
7 to 14 d	7.66	1.57	4.91	1.57	0.37	0.83
14 to 21 d	2.51	2.44	2.02	0.25	0.26	0.25
21 to 28 d	3.75 <sup>y</sup>	3.25 <sup>yz</sup>	2.47 <sup>z</sup>	0.42	0.11	0.09
0 to 28 d	2.65 <sup>y</sup>	2.22 <sup>z</sup>	1.95 <sup>z</sup>	0.13	0.005	0.002

# *Scientific evidence of the benefits of FerAppease®*

## *Study conducted in comingled sows:*

- *Pregnant sows treated in individual Stalls*



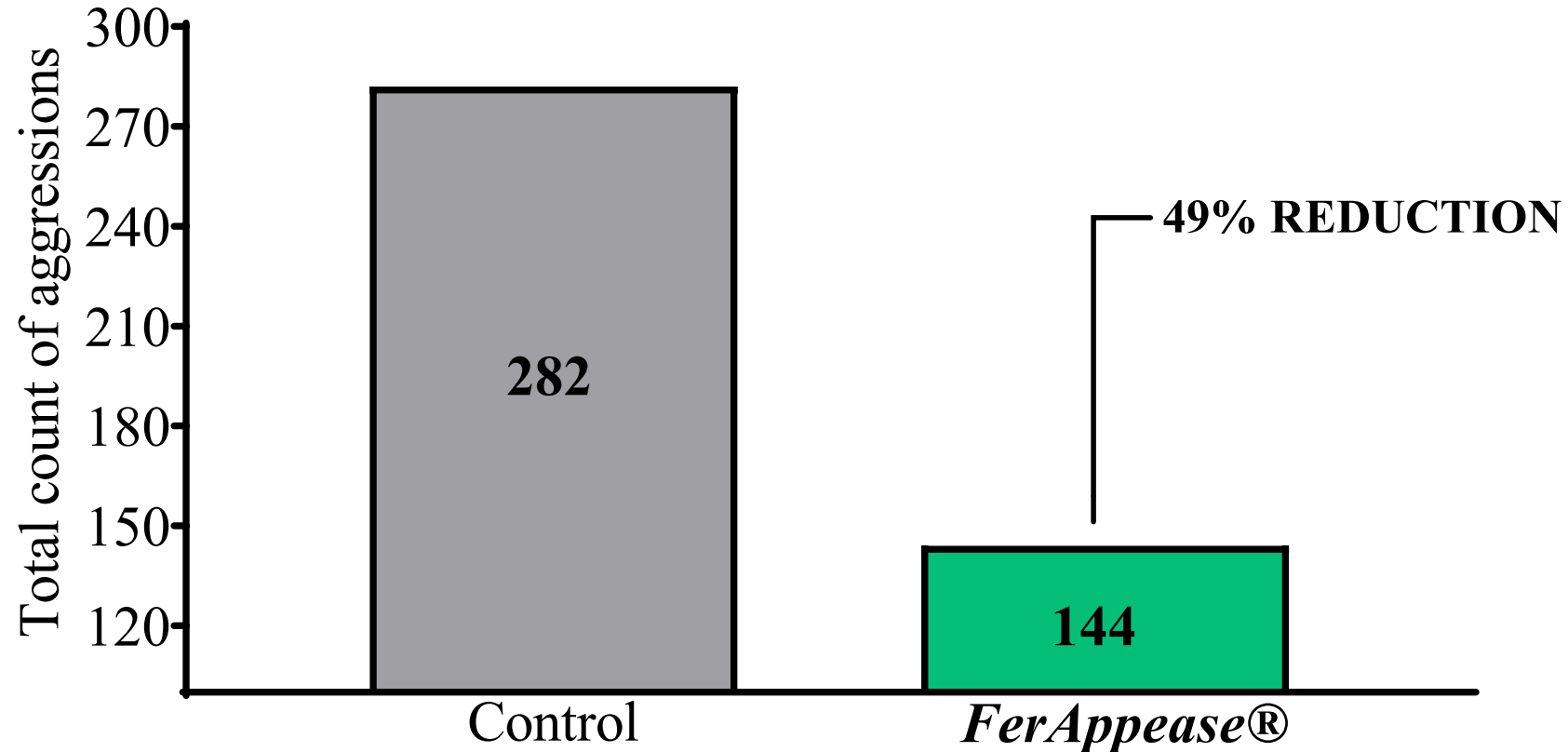
- *Immediately moved to collective pens*



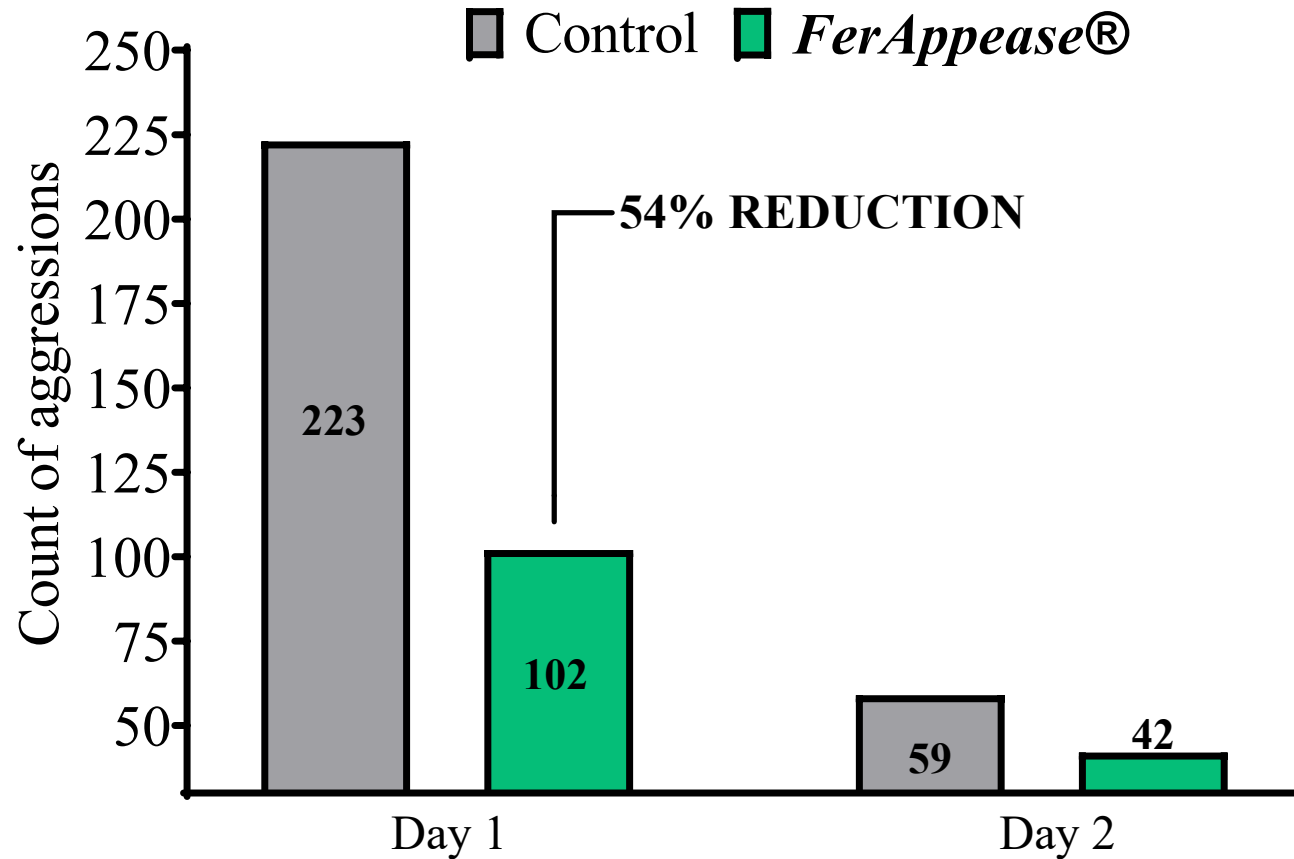
- *Blue = Controls*
- *Orange = FerAppease®*

- *Treatments separated by pen*
- *Cameras installed to analyze agonistic behaviors*

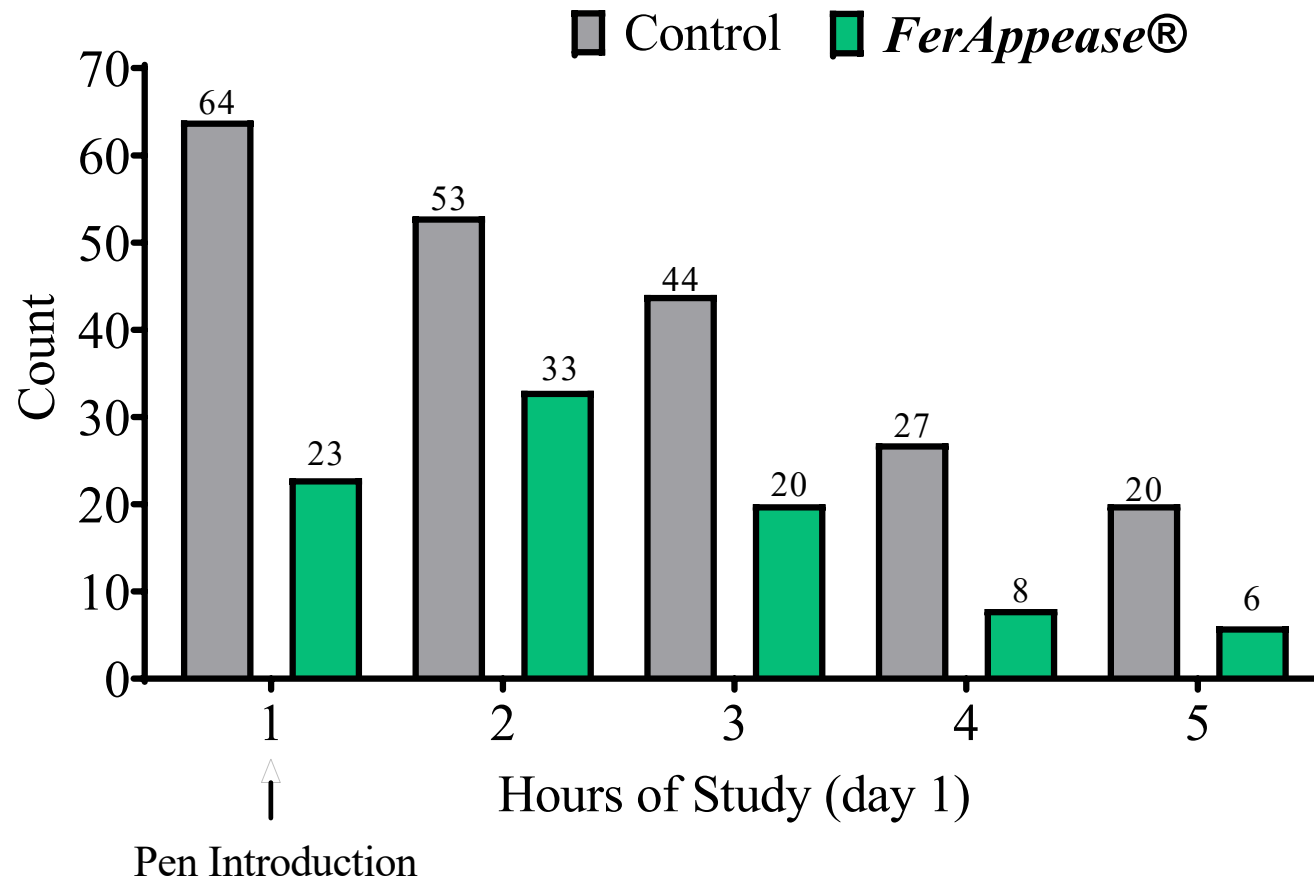
# *FerAppease® reduced the total count of aggressions in the first 2 days after commingling*



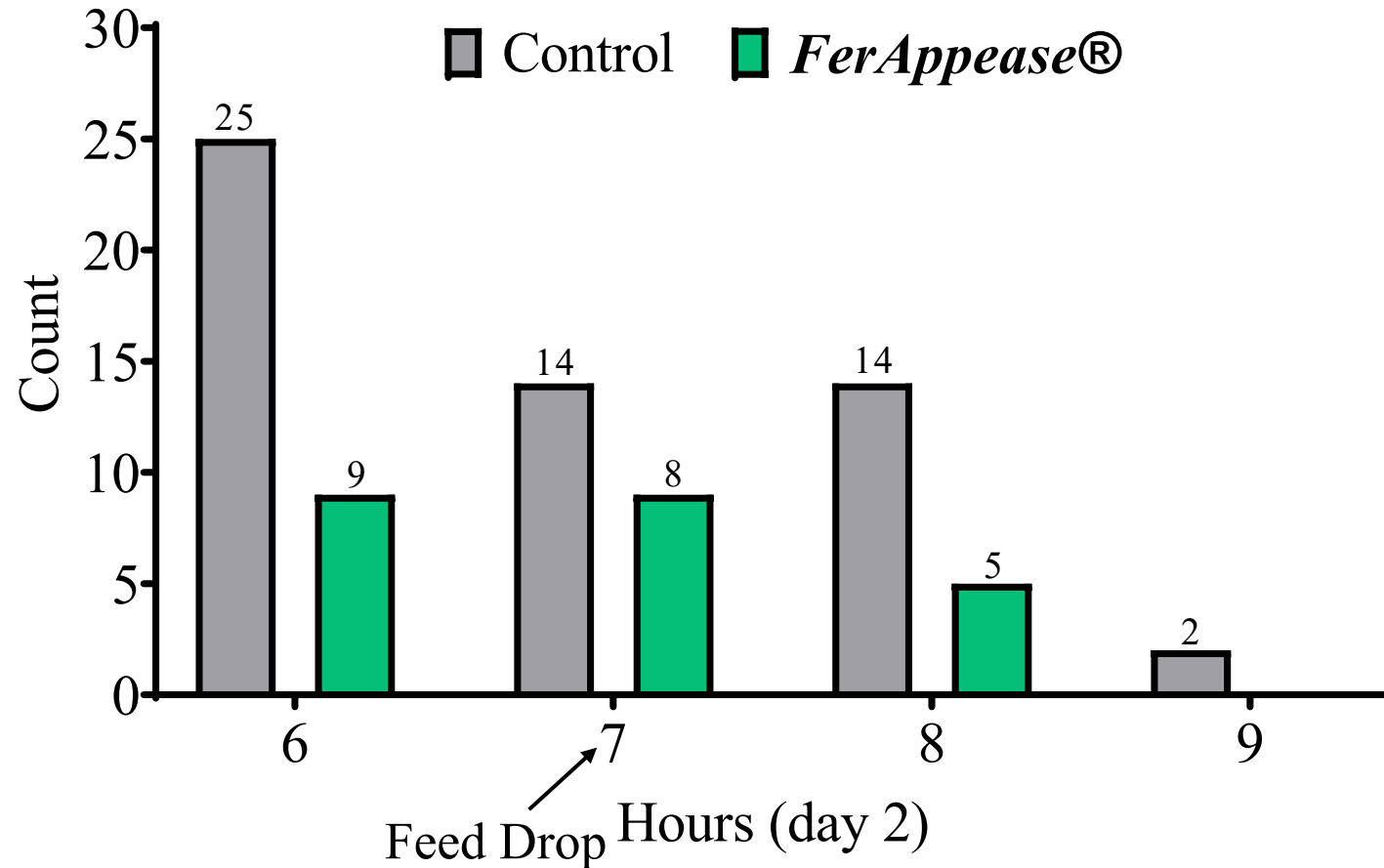
# *FerAppease® reduced the total count of aggressions in the first 2 days after commingling*



# Effect of FerAppease® in reducing aggressiveness within hours after topical application



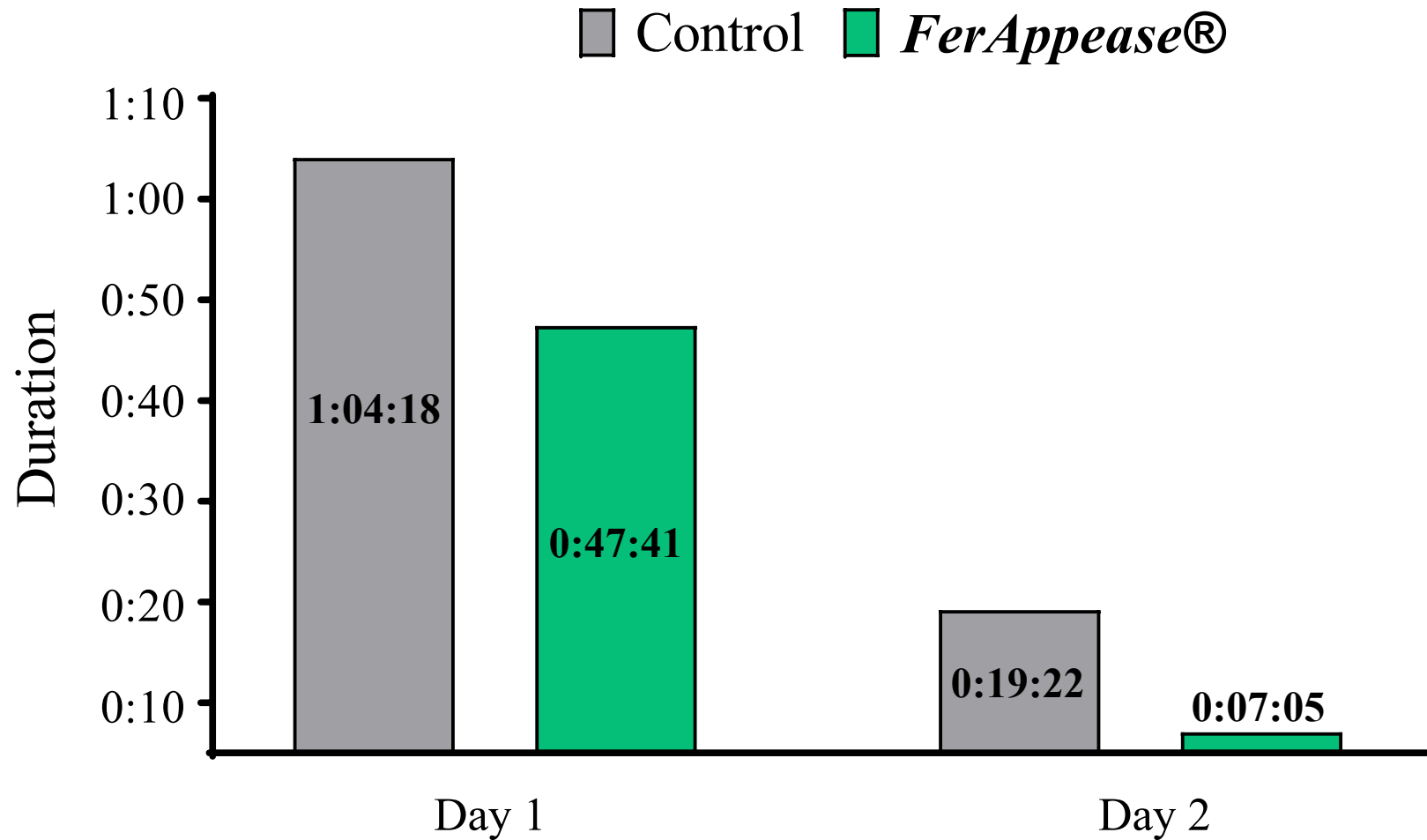
# Effect of *FerAppease*<sup>®</sup> in reducing aggressiveness in the second day after application



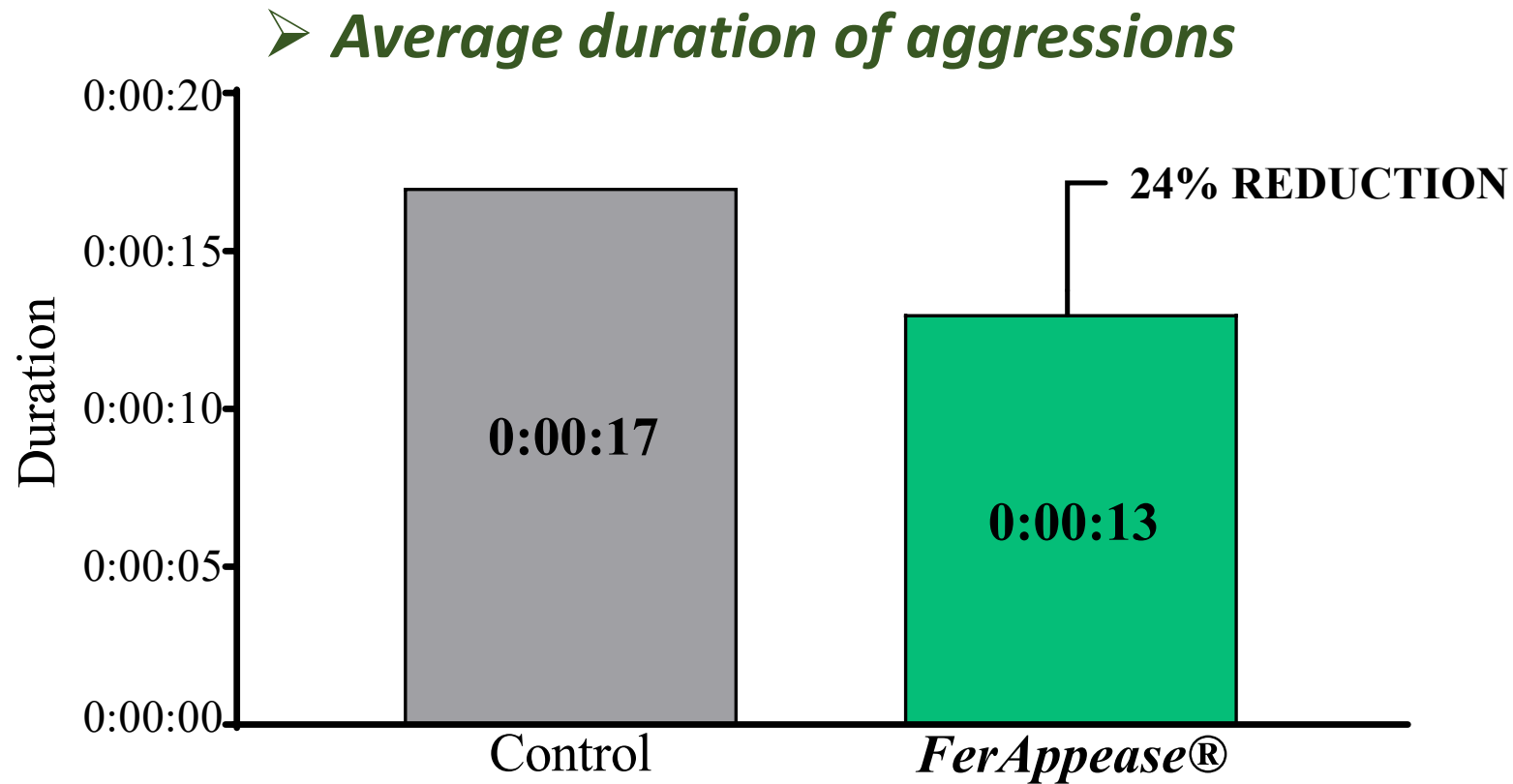


# Effect of FerAppease® in reducing aggressiveness in commingled sows

➤ *FerAppease®* reduced the total duration of aggressions



# Effect of FerAppease® in reducing aggressiveness in commingled sows



# *Final considerations*



***FerAppease***<sup>®</sup>

Maternal Swine Appeasing Substance

- *Stimulation of feeding behaviors*
- *Reduced fighting*
- *Increase in performance*
  - *Higher body weight gains due to improved feed efficiency*
  
- *Aggressiveness drastically reduced*
- *Lower number of aggression events*
- *Total and average duration of aggression is reduced*




# FERA

Diagnostics and Biologicals



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