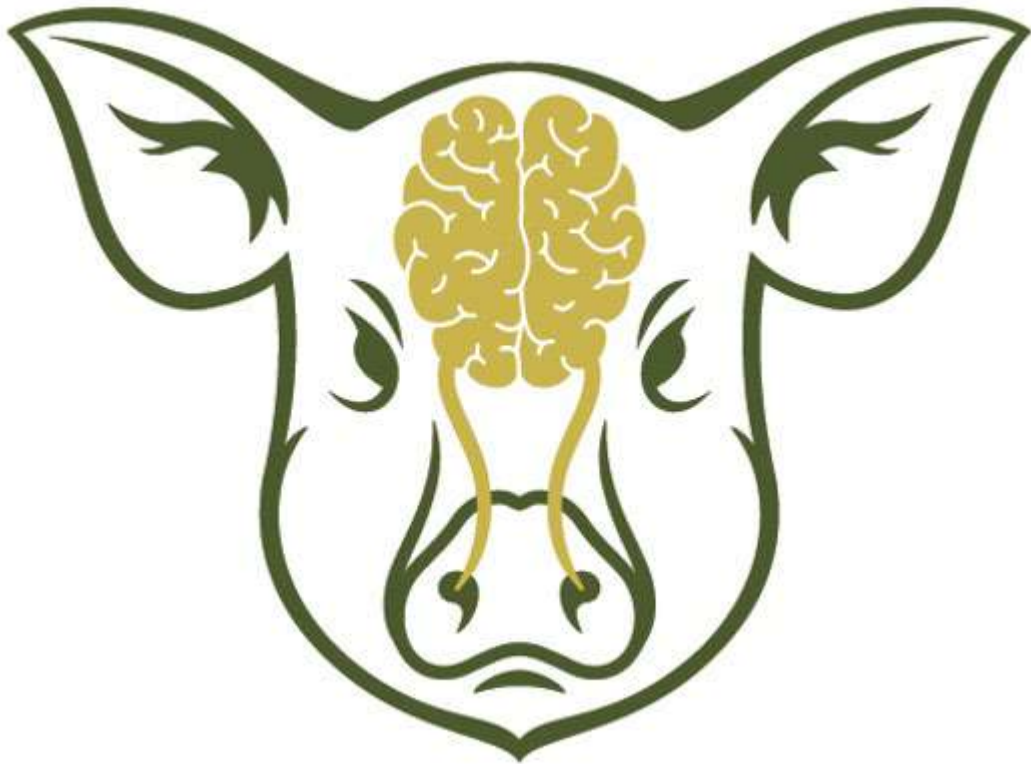




FerAppease[®]

Maternal Swine Appeasing Substance

What is FerAppease®?



- Naturally occurring substance captured in a bottle which reduces stress and its negative consequences in pigs.
- The active ingredient of *FerAppease®* is a synthetic analogue of the Maternal Swine Appeasing substance (MSAS). MSAS is secreted by the sebaceous glands located on the skin of the mammary gland.
- *FerAppease®* has the unique function of reducing fear/stress and its negative effects in swine of all ages.

4,000 ml | Multiple-Dose Vial 35 mg/ml



FerAppease®

Maternal Swine Appeasing Substance

DESCRIPTION: *FerAppease*® contains an analogue of the natural Maternal Swine Appeasing Substance (MSAS). MSAS is secreted by the sebaceous glands located on the skin of the mammary gland with the unique function of inducing an appeasing effect on the nursing offspring.

Studies have demonstrated that the use of MSAS analogue before animals were exposed to stressful events (e. g. weaning, transportation, castration, parturition etc.) reduced the levels of cortisol, inflammatory markers, and body weight loss associated with these stressful but required management practices and life-cycle events.

ACTIVE INGREDIENT (per ML):

MSAS analogue (3,5%) ... 35 mg/ml

DIRECTIONS FOR USE: *FerAppease*® is for use in healthy pigs by topical administration to the skin above the muzzle and forehead.

DOSAGE RATE: For piglets apply 3ml of *FerAppease*® to the skin above the muzzle and forehead. For adult pigs apply 10ml to the skin above the muzzle and forehead

WHEN TO USE: *FerAppease*® should be applied before animals are exposed to stressful management strategies such as processing, weaning, grouping, transportation, farrowing, etc.

REGULATORY: *FerAppease*® is not a drug, medical device, or vaccine. *FerAppease*® is used only in healthy animals.

The FD&C Act defines "new animal drug" as a drug intended for use in animals that is not GRAS (generally recognized as safe). Taken in the reverse, if a product is GRAS, then it's not a drug. (FDA Web Site unapproved animal drugs and 21 USC 321(v)). All ingredients contained in *FerAppease*® are approved for oral consumption by the FDA as GRAS. *FerAppease*® is not subject to PMO Item 15r as it is not a drug, cleanser, or sanitizer.

PLEASE STORE THIS PRODUCT AWAY FROM DRUGS, CLEANERS, AND SANITIZERS.

WITHDRAWAL PERIOD: *FerAppease*® is not a drug, medical device, or vaccine. **A PRE-SLAUGHTER WITHDRAWAL INTERVAL IS NOT REQUIRED WHEN THIS PRODUCT IS USED ACCORDING TO LABEL DIRECTIONS**

STORAGE: Store at controlled room temperature at 10-40° C (50-104° F)

OTHER INFORMATION: For technical assistance please contact Fera Diagnostics and Biologicals Corp. at 979-213-6470, inquiry@feraah.com

- Manufactured in the U.S.A under cGMP and CFR Part 11 requirements
- Manufactured For: Fera Diagnostics and Biologicals Corp. College Station, Texas, United States.

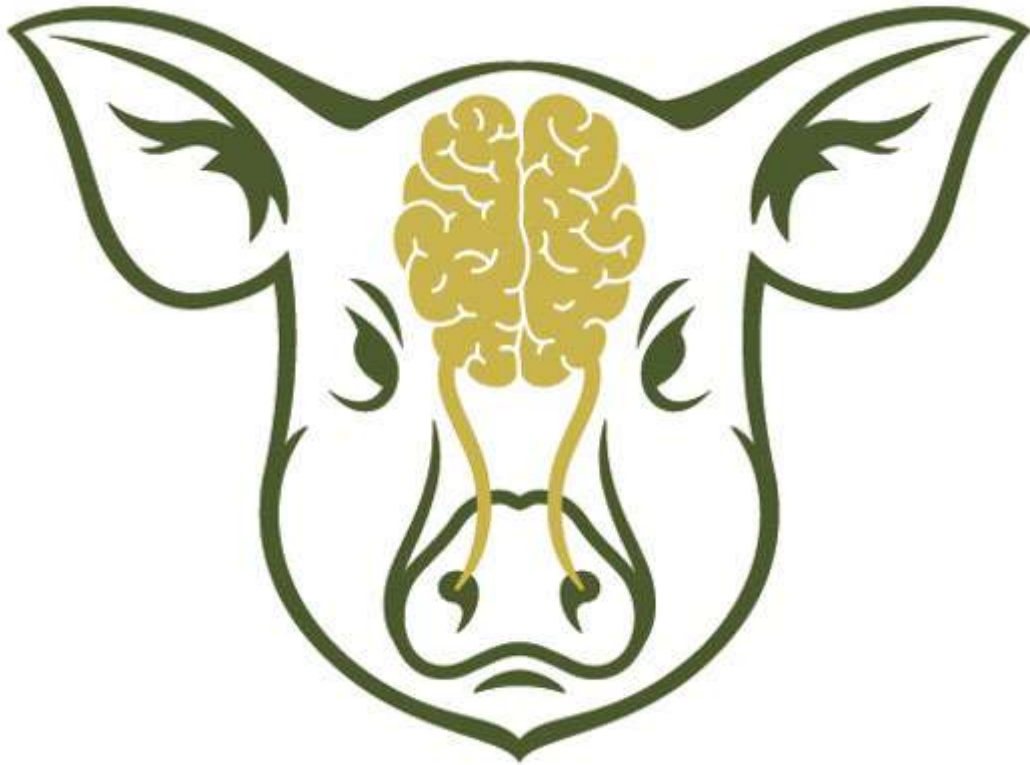


SCAN HERE
FOR MORE
INFORMATION



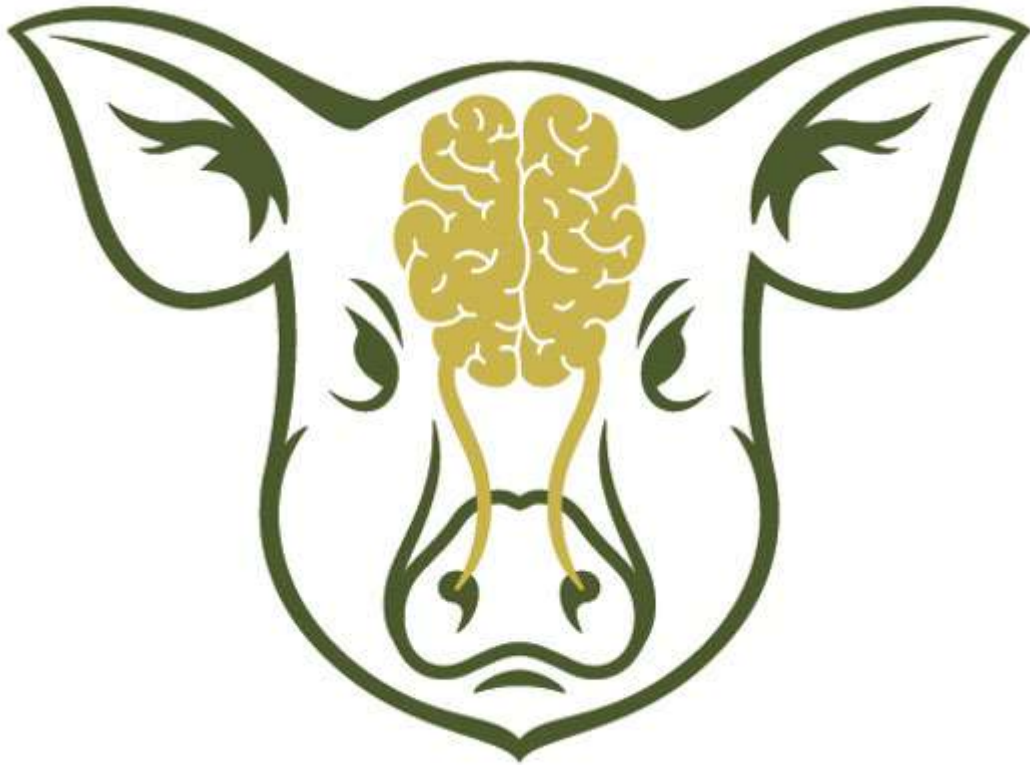
What is FerAppease?

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.
- MSAS 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.

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, processing, transportation, commingling, farrowing, etc.



How is FerAppease[®] applied ?

- *FerAppease[®]* is for use in healthy animals by topical administration to the skin above the muzzle and forehead.
- The dose for piglets is 3ml, for adult pigs the dose is 10ml
- Treatments is active for 14 days after a single application



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*® at nursery arrival on weight gain and mortality

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

Post-weaning trial

CONTROLS

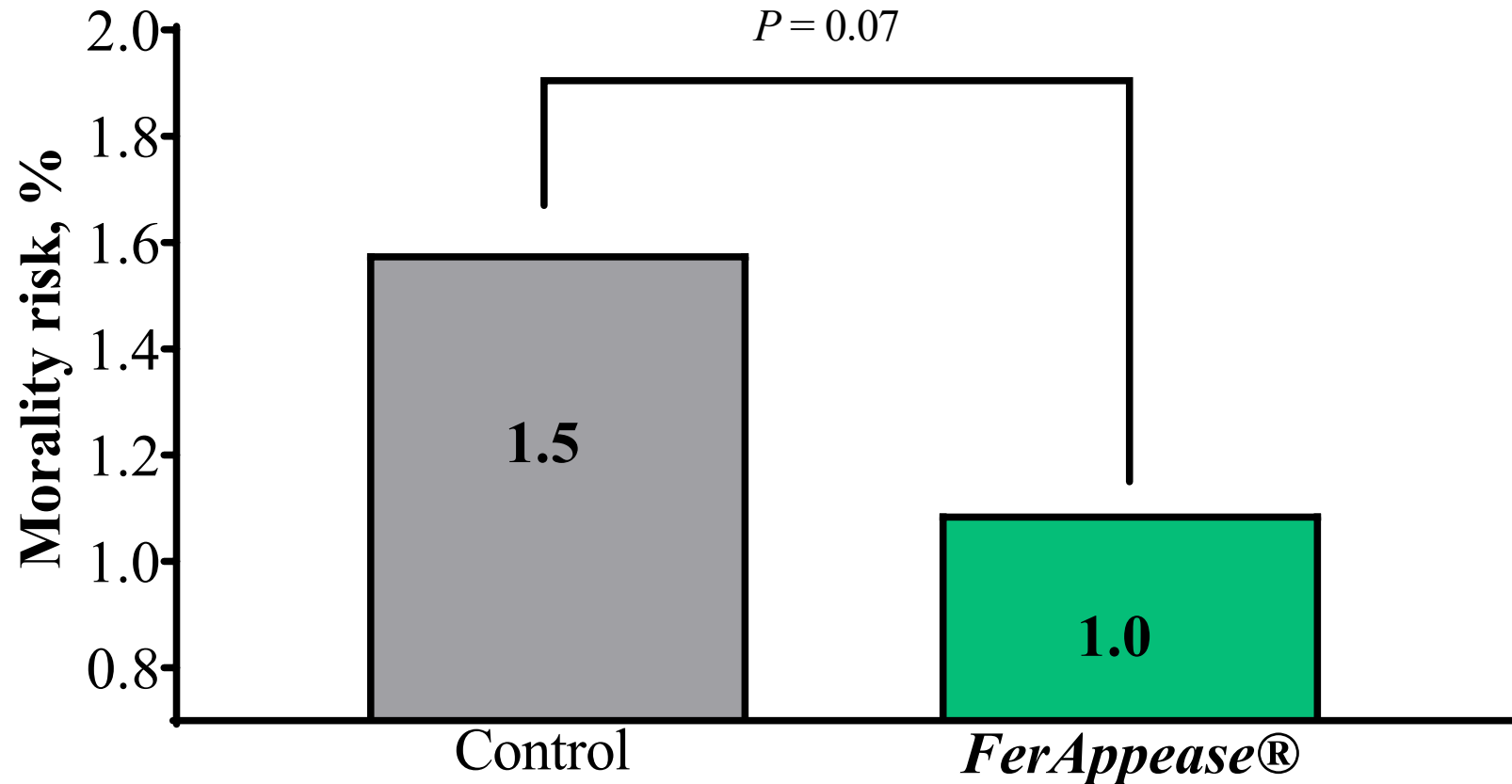


FerAppease[®]



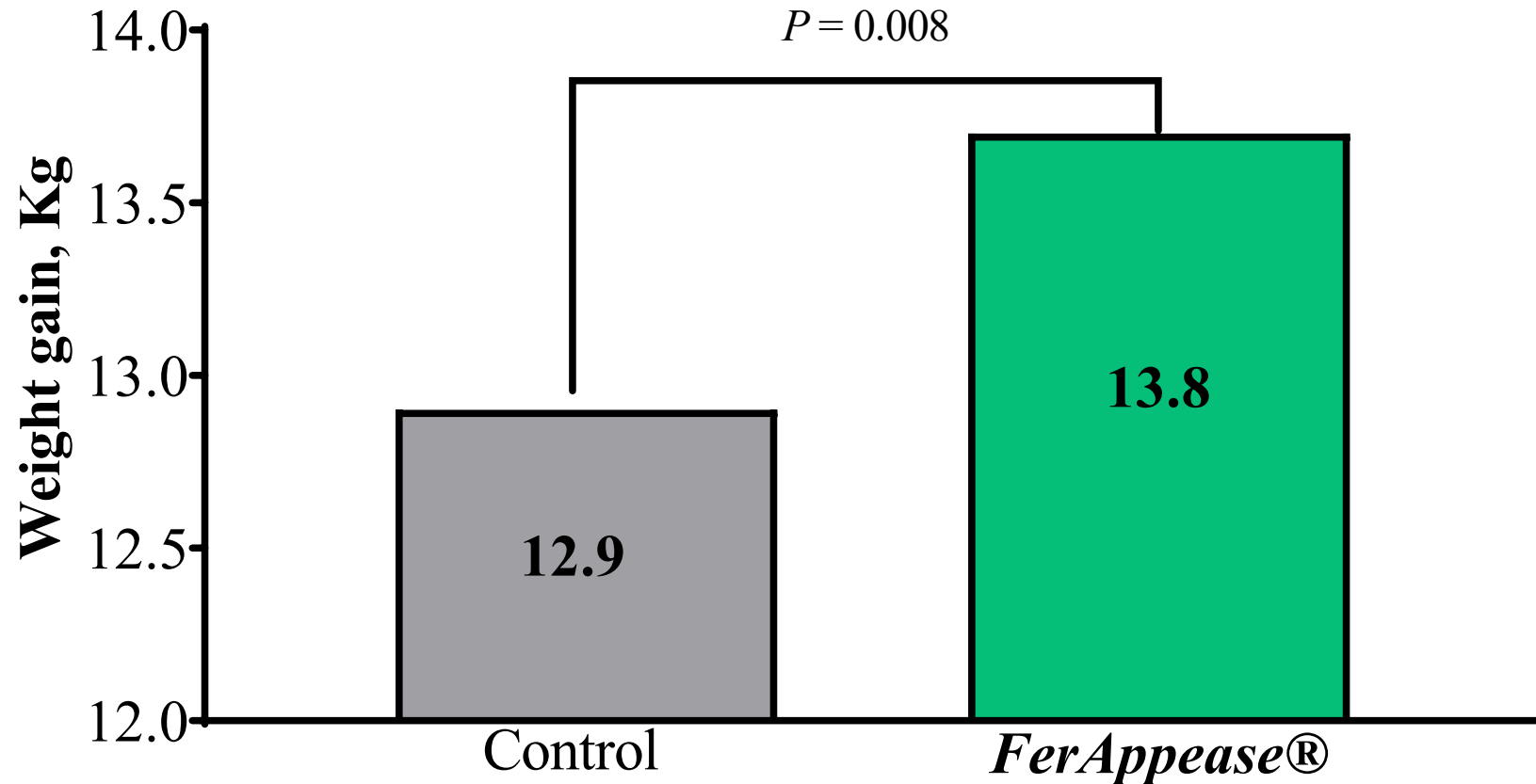
Effect of FerAppease[®] administration at nursery arrival on weight gain

- *3 weeks old pigs received FerAppease[®] at nursery arrival*
- *Mortality rate tended to be decreased in the FerAppease group*



Effect of FerAppease[®] administration at nursery arrival on weight gain

- *Weaned piglets received FerAppease[®] at nursery arrival*
- *Weight gain was significantly improved with FerAppease administration*



Effect of FerAppease[®] 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 pigs¹

J. J. McGlone² 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^a

Measure	Treatments			SE ^b	P-value ^b	P-value contrast ^b
	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 ^y	3.06 ^z	2.54 ^z	0.29	0.0007	0.0003
Drinking (mouth on waterer)	0.67 ^y	0.30 ^z	0.27 ^z	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 ^y	79.1 ^z	81.0 ^{yz}	1.32	0.10	0.06
Stand and walk (active)	12.9 ^y	16.1 ^z	13.0 ^z	0.92	0.03	0.14
Agonistic behaviors	1.52 ^y	0.82 ^z	0.96 ^{yz}	0.24	0.11	0.04

^aTable 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.

^b*P*-value refers to the treatment effect while the *P*-value contrast refers to a linear contrast comparing control with the combined pheromone treatments.

^{y,z}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 ^a
	Control	Pheromone Feeder	Pheromone Snout			
Number pigs	48	48	48	—	—	—
Number replicates	16	16	16	—	—	—
Wean weight, kg	6.07 ^y	5.07 ^z	5.71 ^{yz}	0.13	0.09	0.03
End of nursery, kg	10.6 ^y	11.6 ^z	12.0 ^z	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 ^y	0.32 ^{yz}	0.36 ^z	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 ^y	0.236 ^z	0.253 ^z	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 ^b						
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 ^y	3.25 ^{yz}	2.47 ^z	0.42	0.11	0.09
0 to 28 d	2.65 ^y	2.22 ^z	1.95 ^z	0.13	0.005	0.002

Scientific evidence of the benefits of FerAppease®

Study conducted in comingled sows:

- *Pregnant sows treated in individual Stalls*



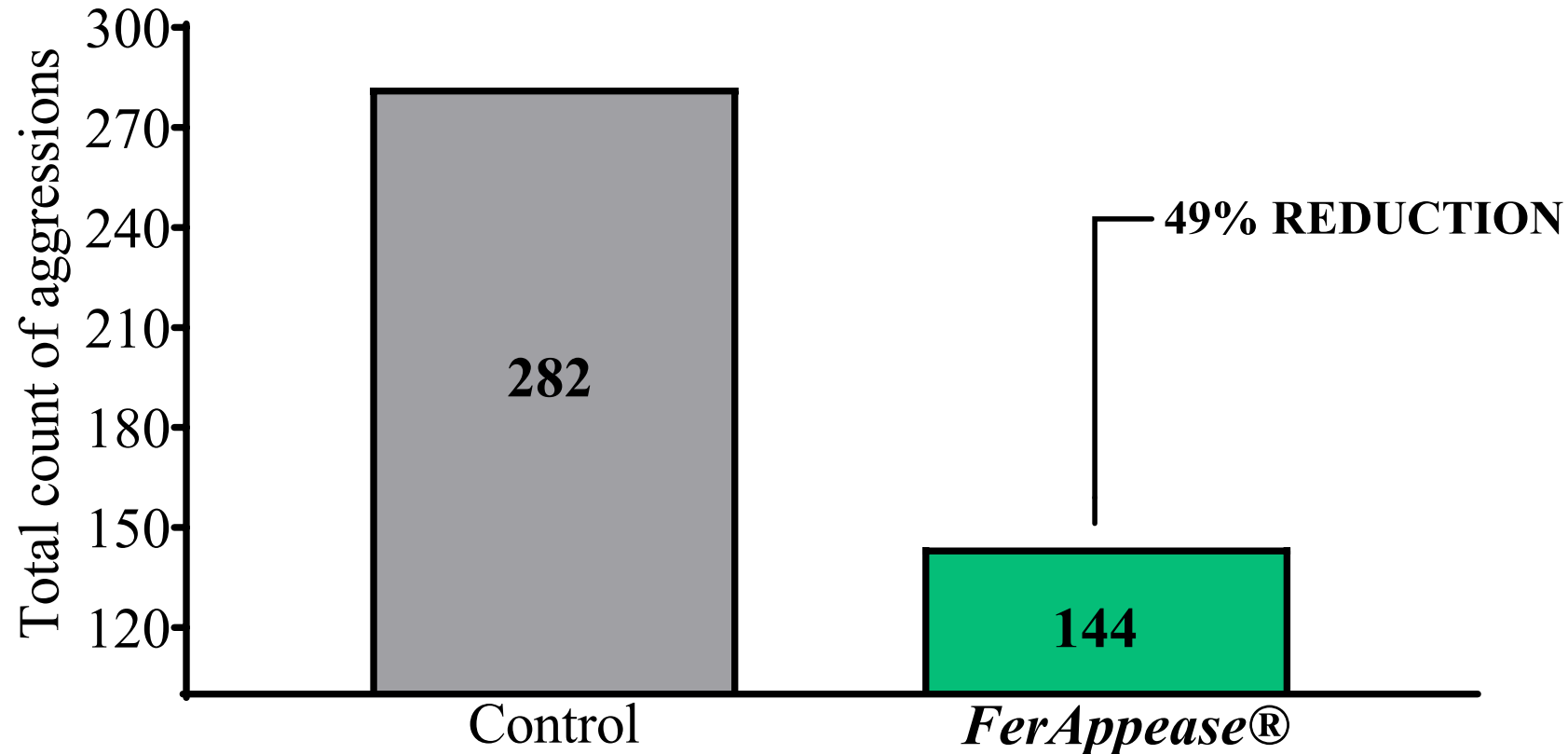
- *Blue = Controls*
- *Orange = FerAppease®*

- *Immediately moved to collective pens*

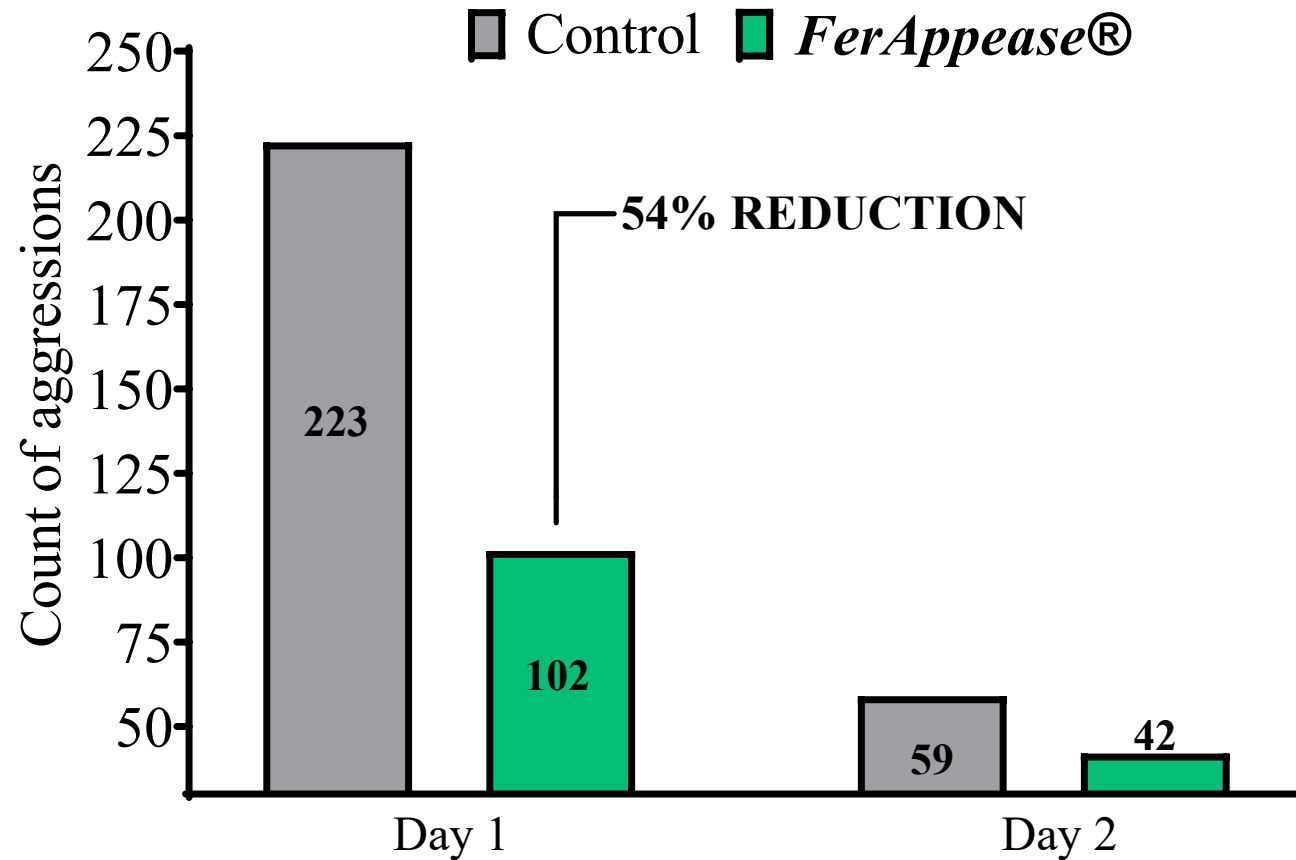


- *Treatments separated by pen*
- *Cameras installed to analyze agonistic behaviors*

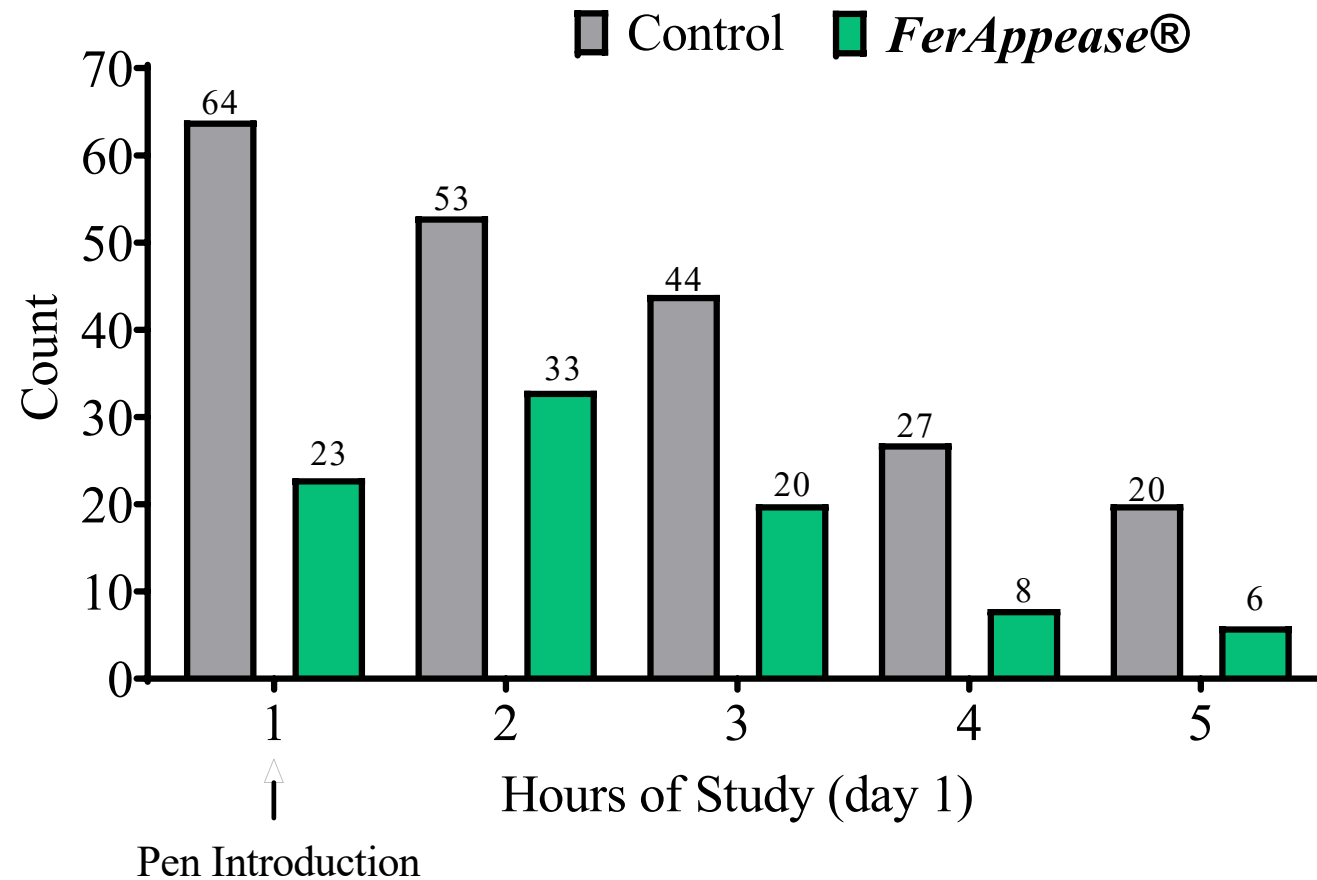
FerAppease® reduced the total count of aggressions in the first 2 days after commingling



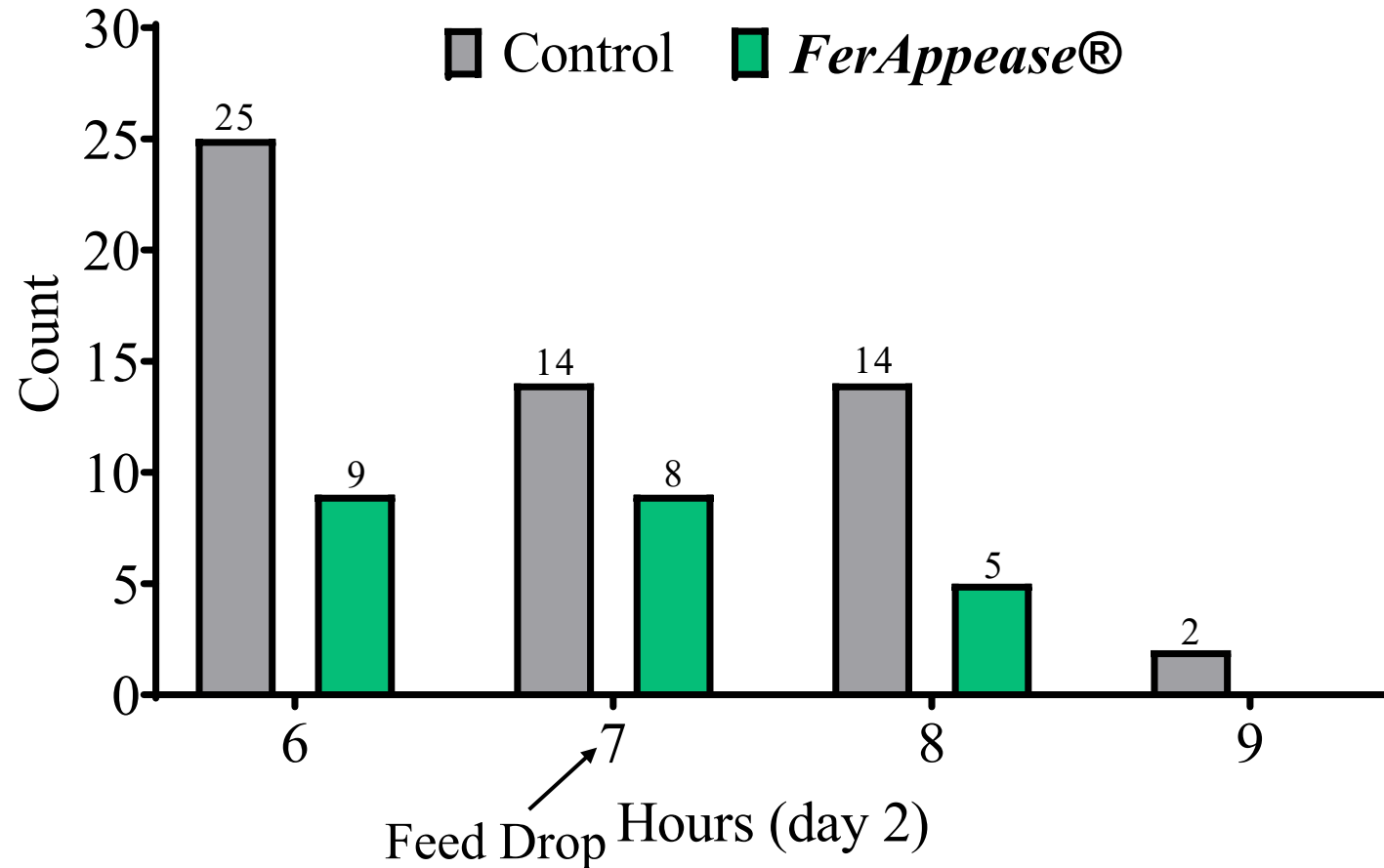
FerAppease® reduced the total count of aggressions in the first 2 days after commingling



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

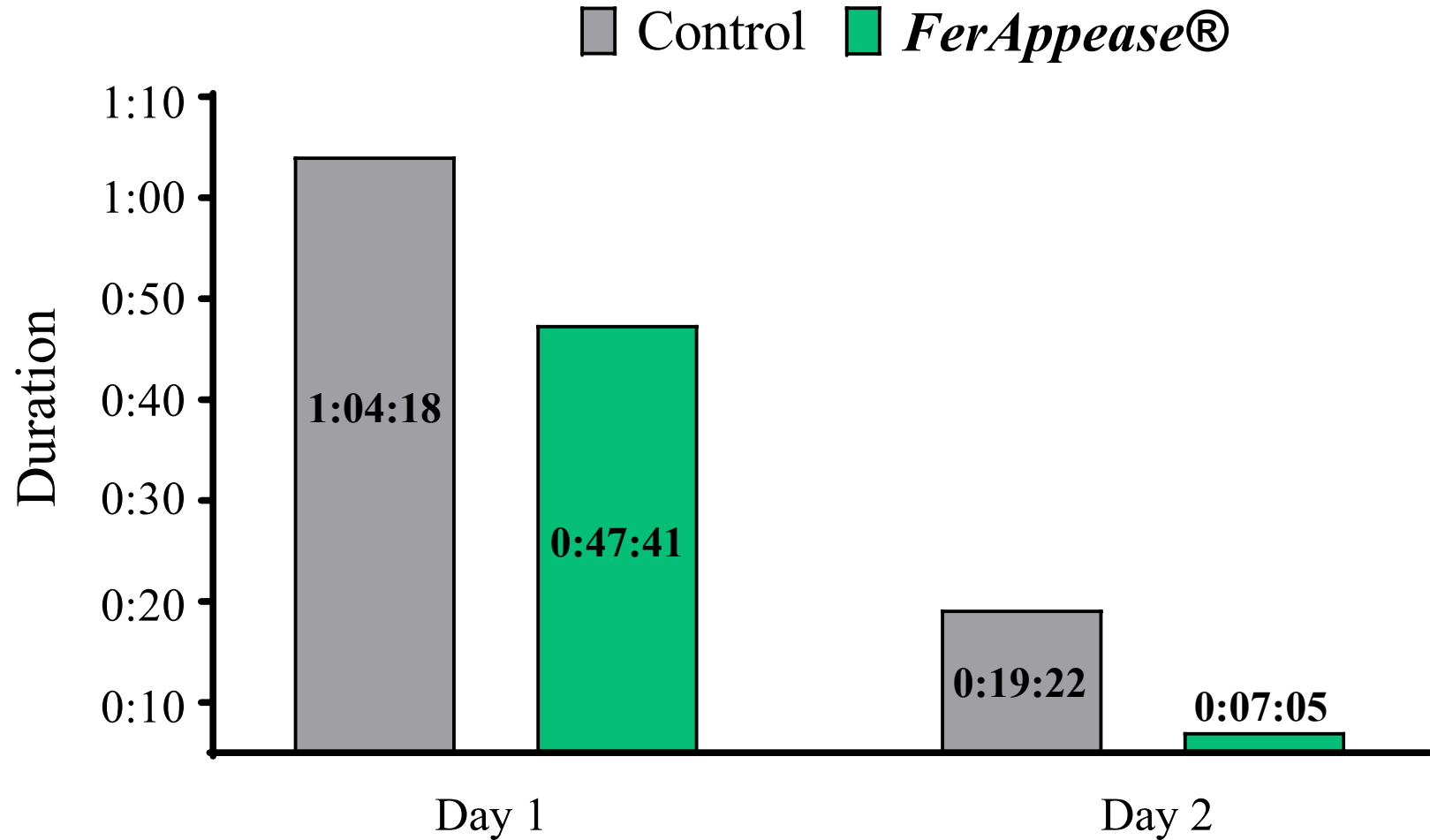


Effect of FerAppease® in reducing aggressiveness in the second day after application

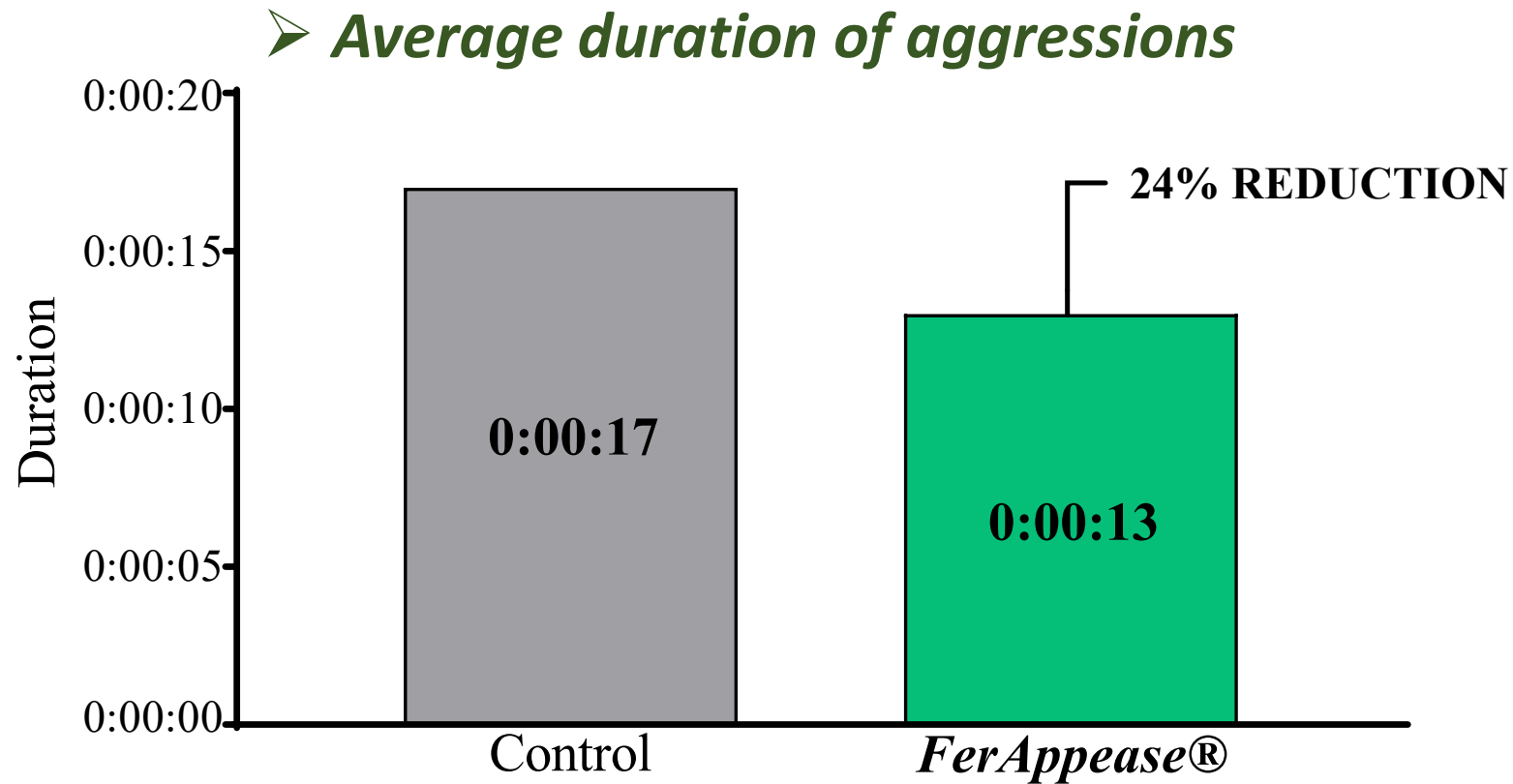


Effect of FerAppease® in reducing aggressiveness in commingled sows

➤ *FerAppease® reduced the total duration of aggressions*



Effect of FerAppease® in reducing aggressiveness in commingled sows



Heat stress mitigation



FerAppease[®]

Maternal Swine Appeasing Substance



FERA

Diagnostics
and Biologicals

Other uses



FerAppease[®]

Maternal Swine Appeasing Substance

- *Newborn piglets*
- *Processing*
- *Pen moves*
- *Pre-shipping to packer*

Final considerations



FerAppease[®]

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***