

Sow group housing: Strategies to mitigate late-gestation aggression

Katelyn Gaffield¹, Cooper McAuley¹, Carley Hopkins², Jacob Knoy¹, Jason C. Woodworth¹, Robert Goodband¹, Jordan Gebhardt¹, Mike Tokach¹, Joel DeRouchey¹, Jay Johnson², Clayton Chastain³, Eric Parr³, and Matt Frizzo³

Kansas State University, Manhattan¹

University of Missouri, Columbia²

Carthage Innovative Swine Solutions, Carthage, IL³

Why Late Gestation Aggression?

- Kansas State University
 - Noticed incidences of vulva biting and aggression in late gestation
- Elucidated by conversations with producers
 - Talked with different industry partners
- Identified strong collaborators for proposal development

Why Late Gestation Aggression?



Treatments

1. Control (no intervention)
2. 0.03% Mg supplemented from MgO
3. 0.35% Trp
 - increased from 0.11% SID Trp
4. 2.5 lb increase in feed allocation
 - increased to 7.7 lb from 5.2 lb
5. 100 g/d soluble fiber from soybean hulls
6. Suspension of environmental enrichment blocks
 - AllBite swine enrichment block; Hubbard Feeds



Materials and Methods

- Pens of sows were video recorded continuously with video analyzed on d 3 and d 5 post exposure to treatment at 6, 2-hour time frames:

Early	Late
0100 to 0300 h	1300 to 1500 h
0500 to 0700 h	1700 to 1900 h
0900 to 1100 h	2100 to 2300 h

- Aggressive interactions were defined as:
 1. Sows knocking or pushing pen mates with their head.
 2. Sows mounting pen mates.
 3. Sow forcefully biting ear, face, body, or vulva of pen mates.

Behavior Video Recording



Behavior Analysis

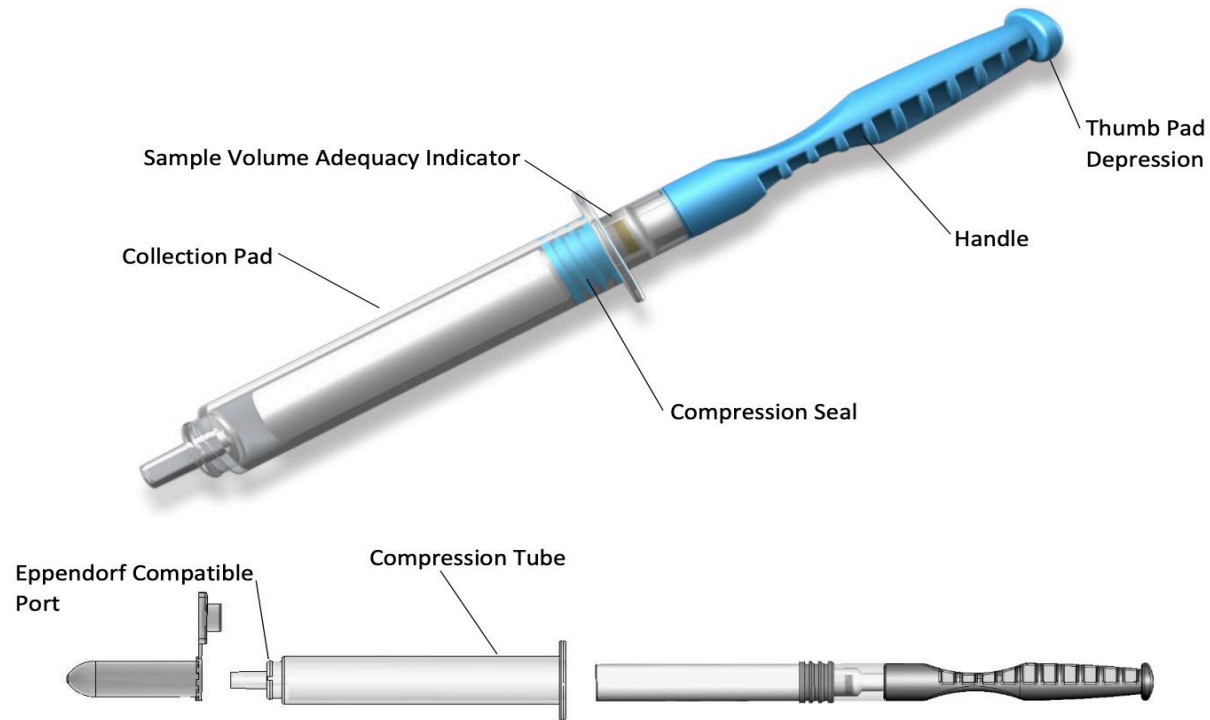


Non-Feeder Aggression



Feeder Aggression

On-Farm Procedures



Increased fiber and feed allocation

Treatments

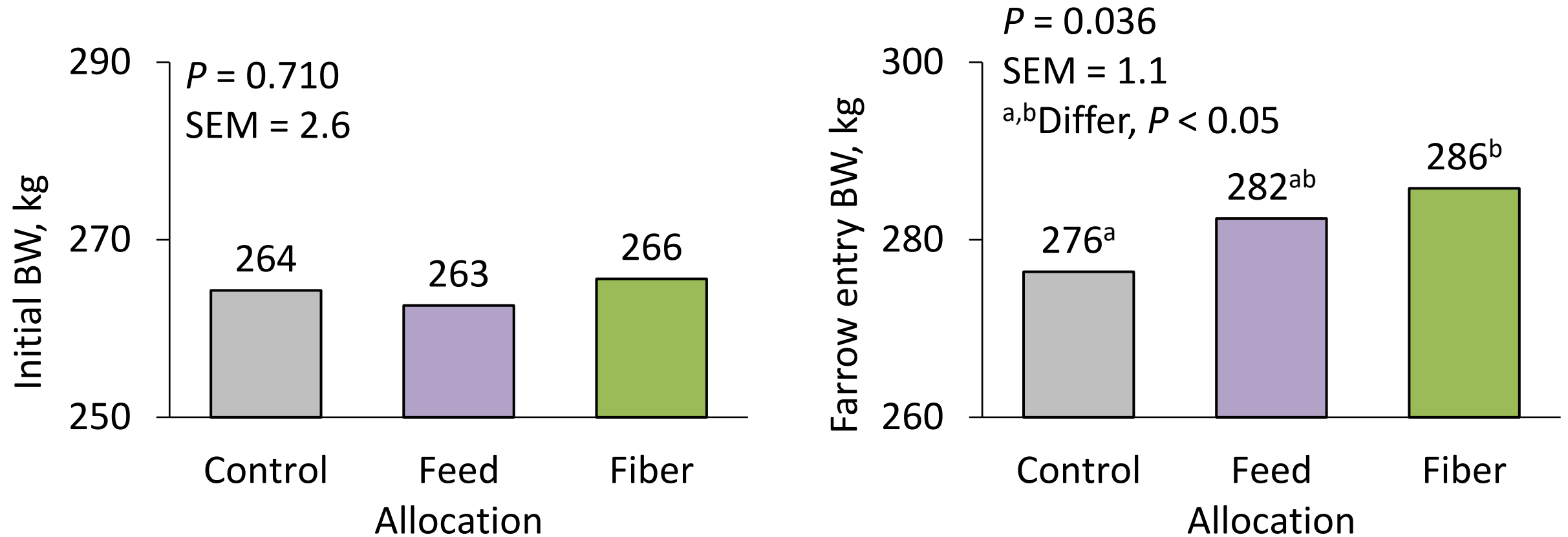
1. Control diet (corn-SBM-DDGS based)
 - 2.49 kg/sow/day
2. Increased feed allocation by 1.13 kg
 - 3.62 kg/sow/day
3. Control diet plus 1.21 kg/d of soybean hulls to provide 100 g/d soluble fiber
 - 3.70 kg/sow/day

Gestation Diet Composition		
Ingredient, %	Control	Increased fiber
Corn	62.59	42.15
Soybean hulls	--	32.50
Soybean meal	4.75	3.20
DDGS	29.00	19.55
Calcium carbonate	1.89	1.28
Monocalcium P	0.22	0.15
Sodium chloride	0.47	0.32
L-Lys-HCL	0.28	0.19
L-Thr	0.05	0.03
L-Trp	0.02	0.01
Choline chloride, 60%	0.12	0.08
VTM with phytase	0.25	0.17
Engage	0.05	0.05
Sal-curb	0.33	0.33

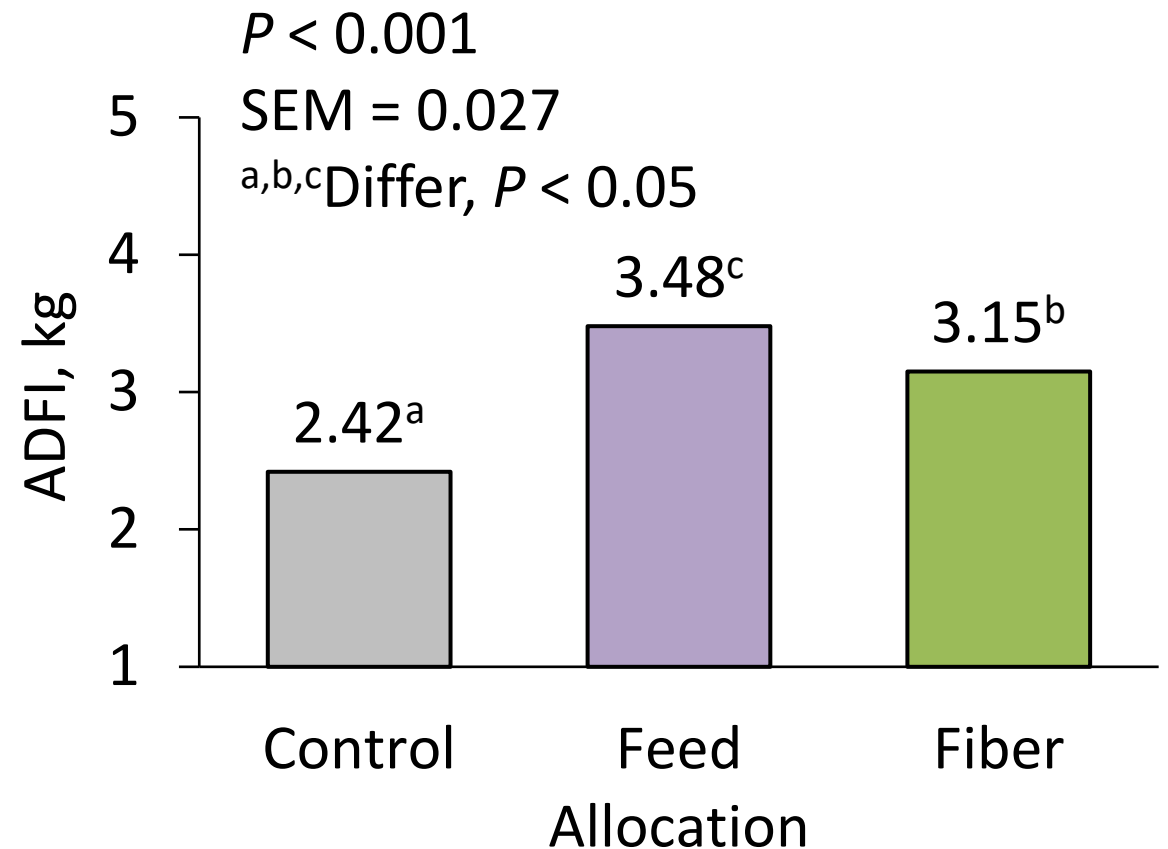
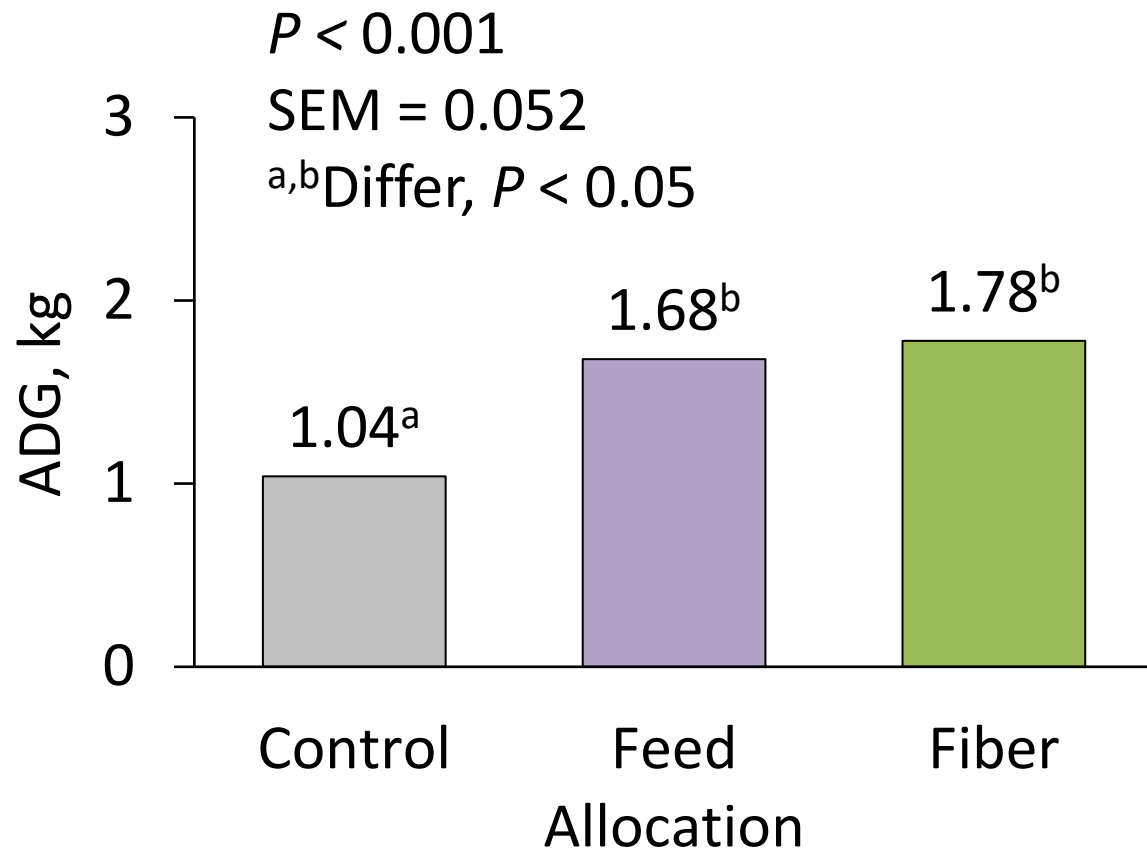
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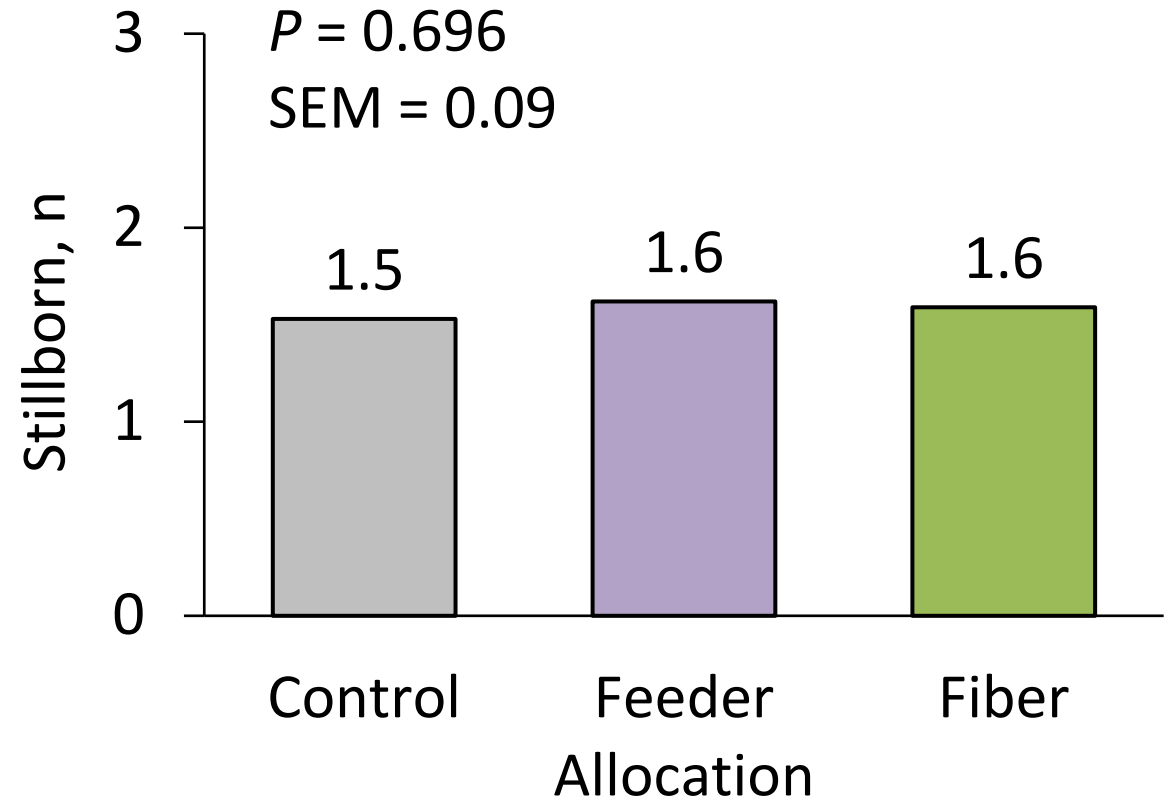
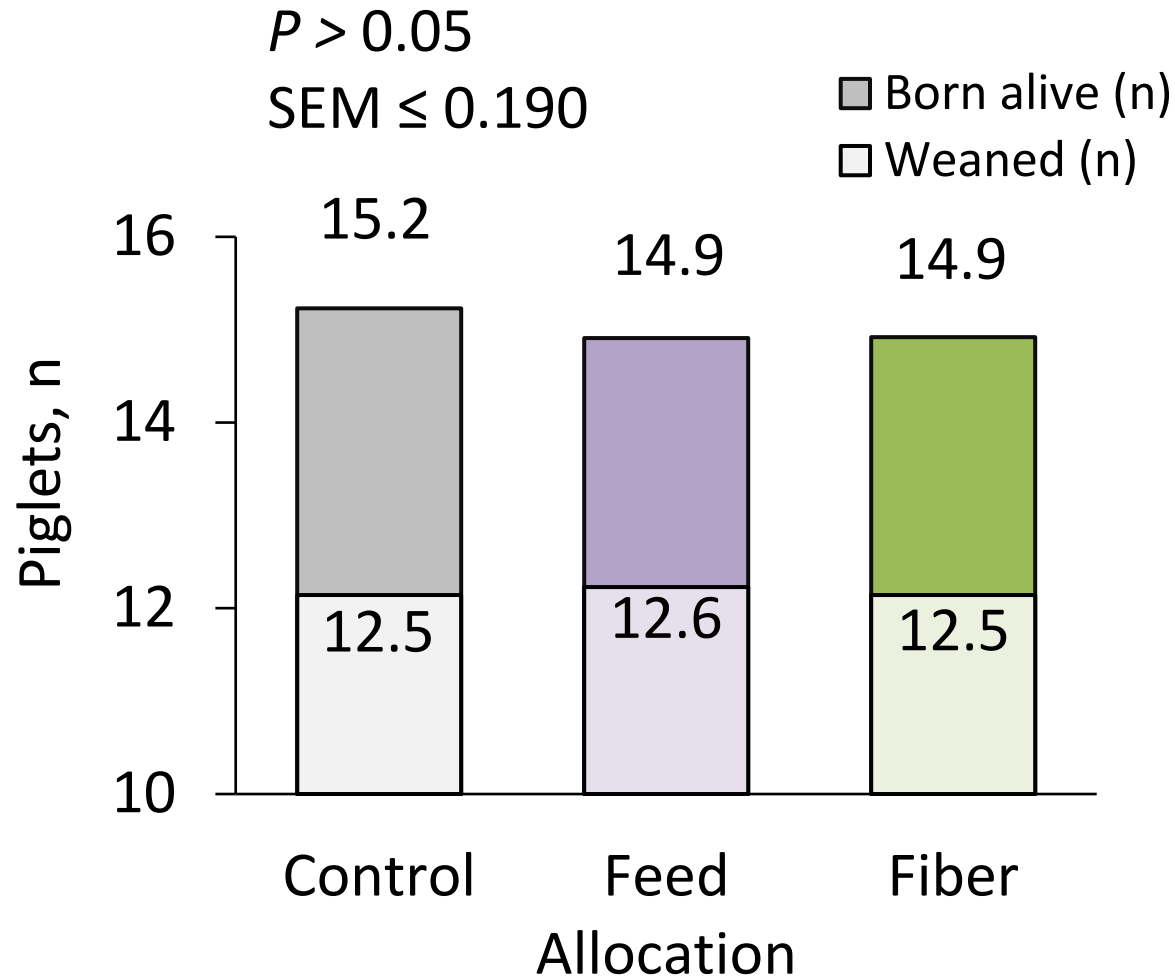
Increased feed allocation or fiber on sow body weight



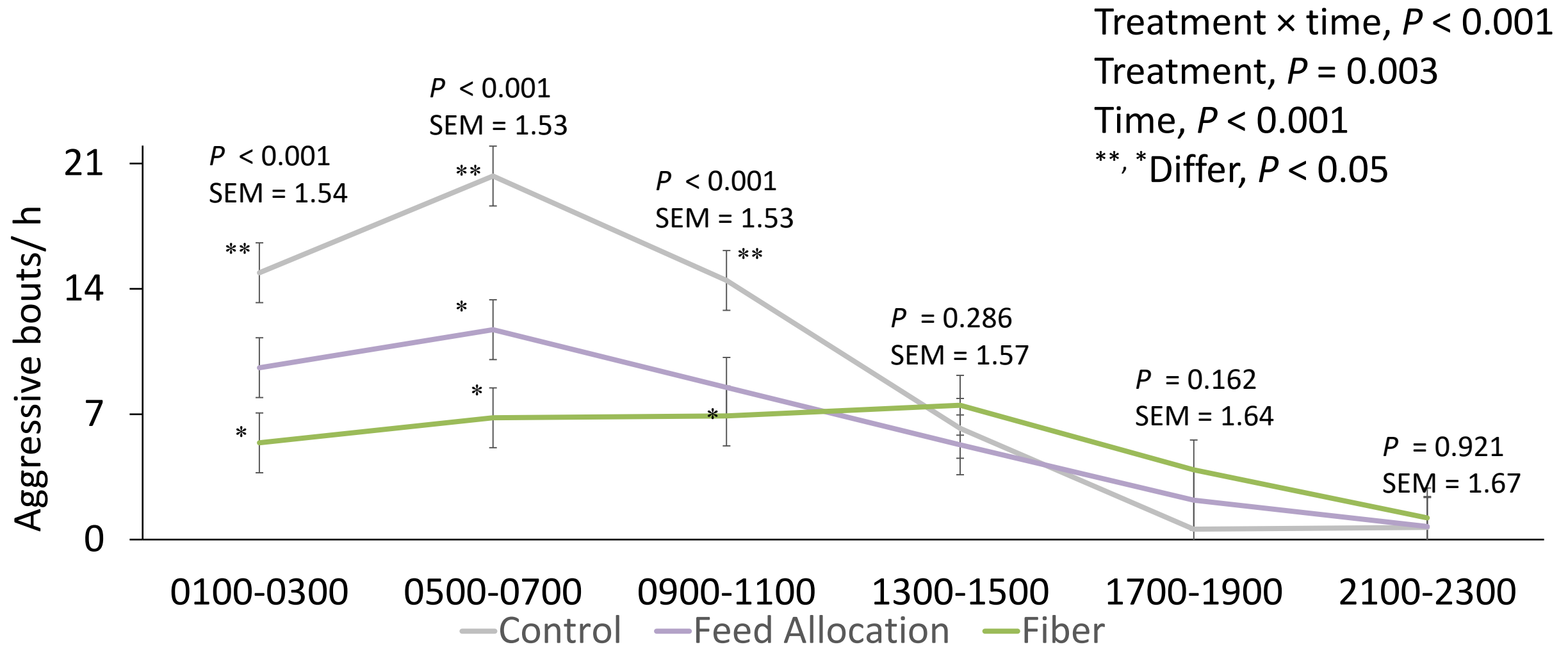
Increased feed allocation or fiber on sow gain and feed intake



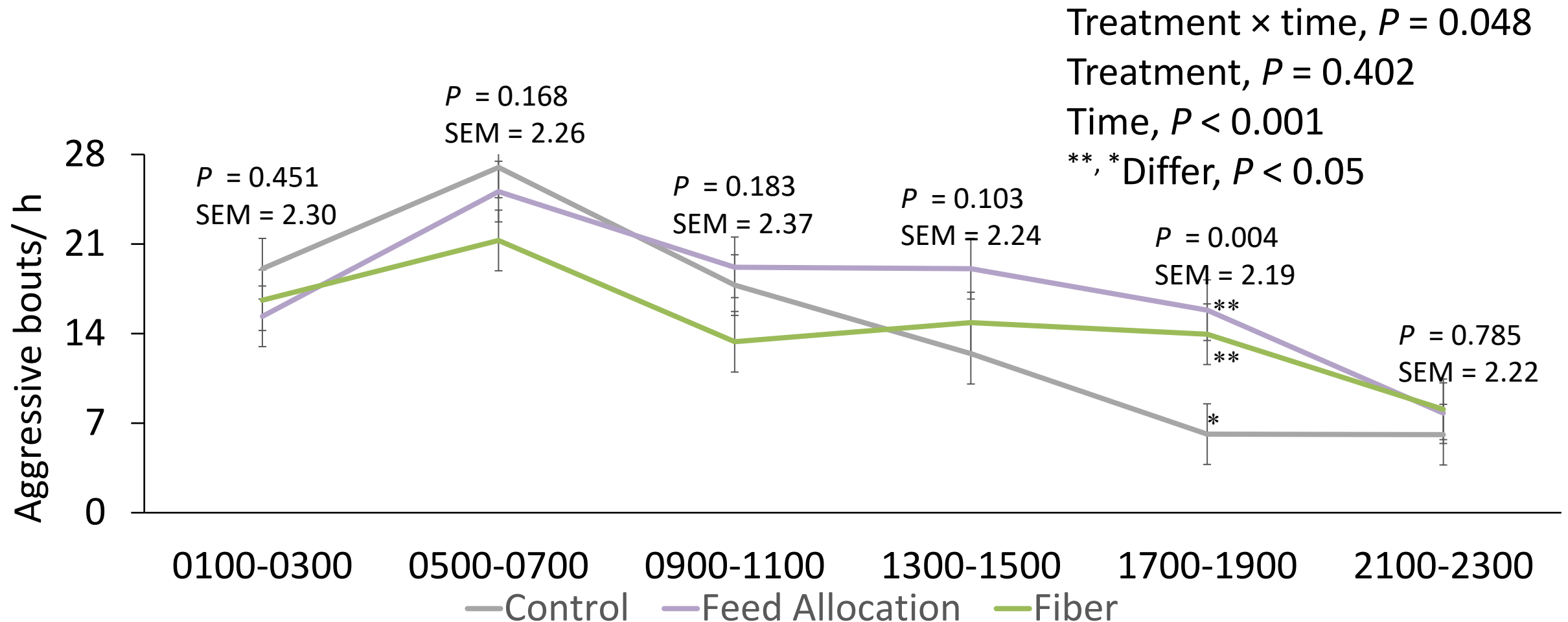
Increased feed allocation or fiber on litter performance



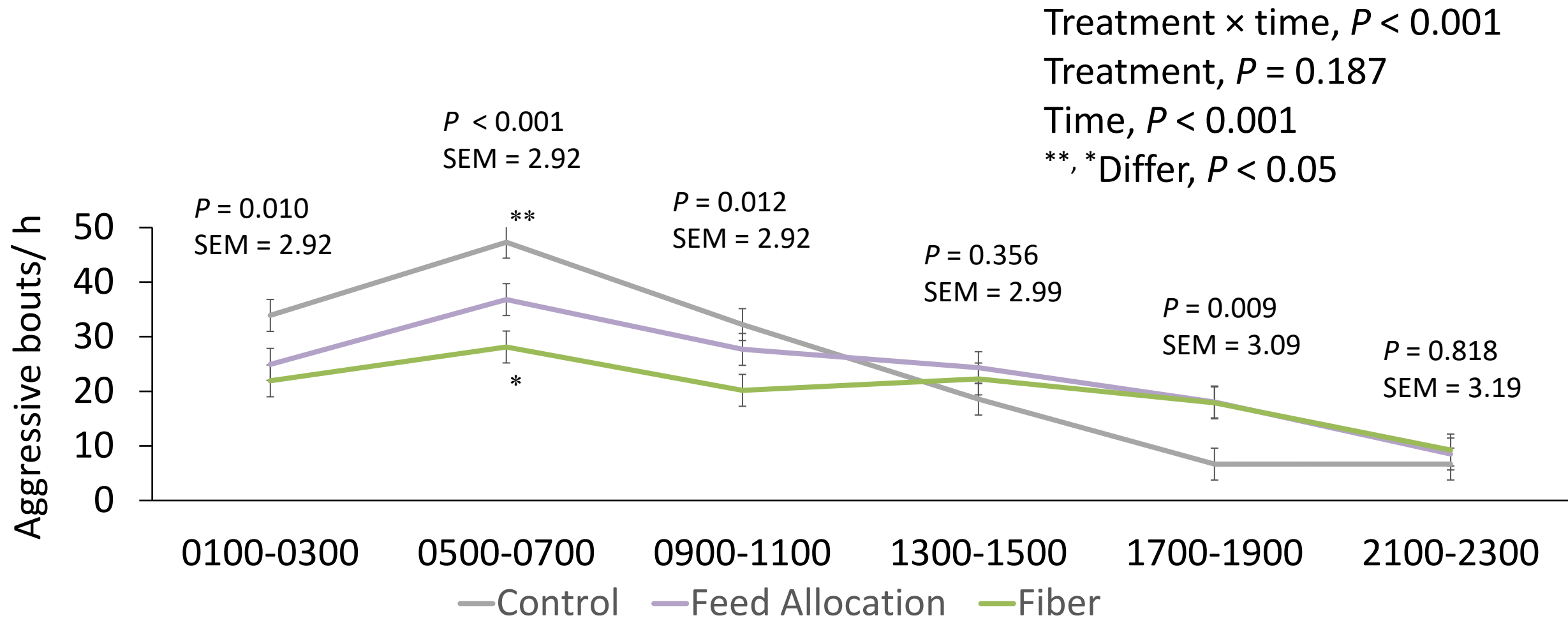
Increased feed allocation or fiber on aggressive bouts at the feeder



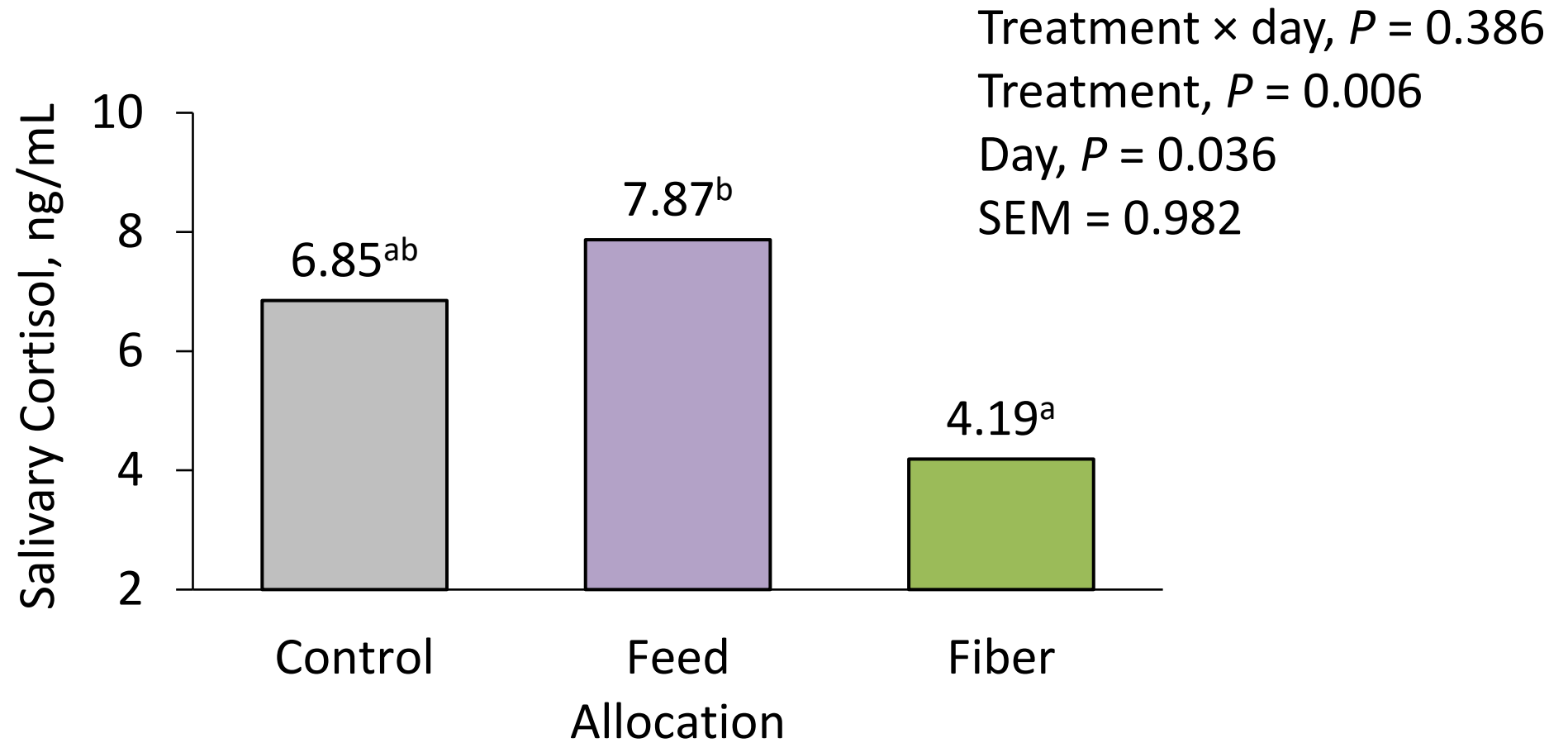
Increased feed allocation or fiber on non-feeder aggressive bouts



Increased feed allocation or fiber on total aggressive bouts

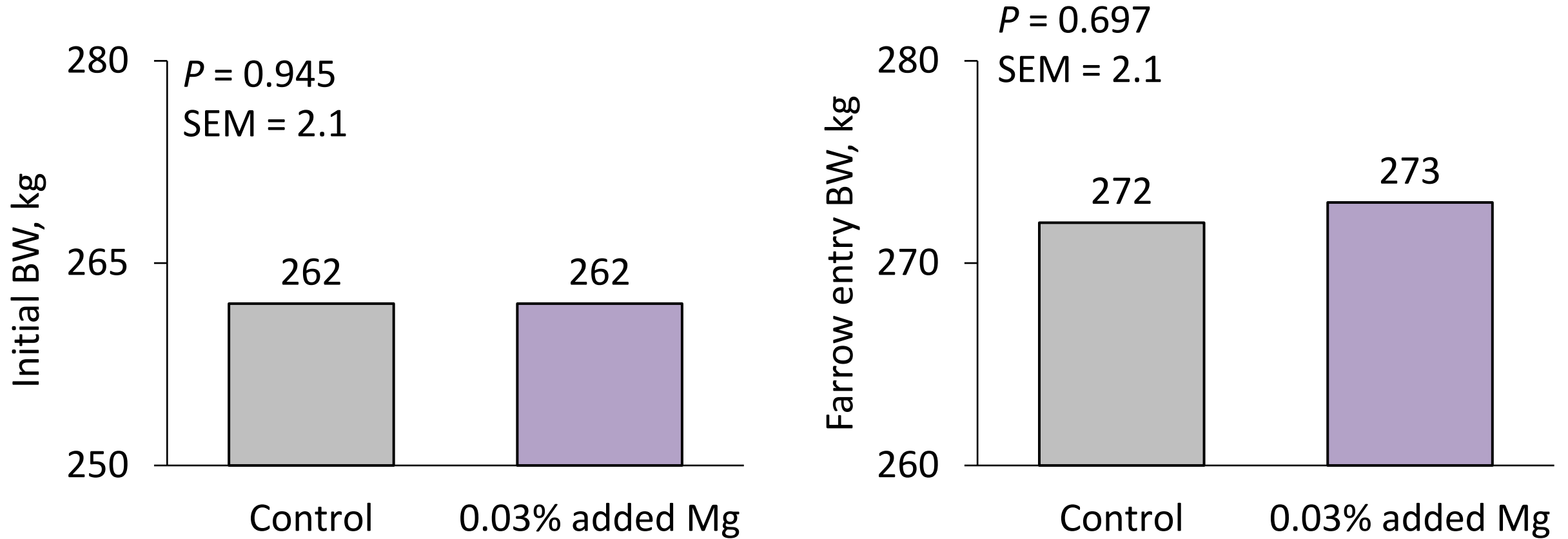


Increased feed allocation or fiber on sow salivary cortisol between 0700 and 0900 h

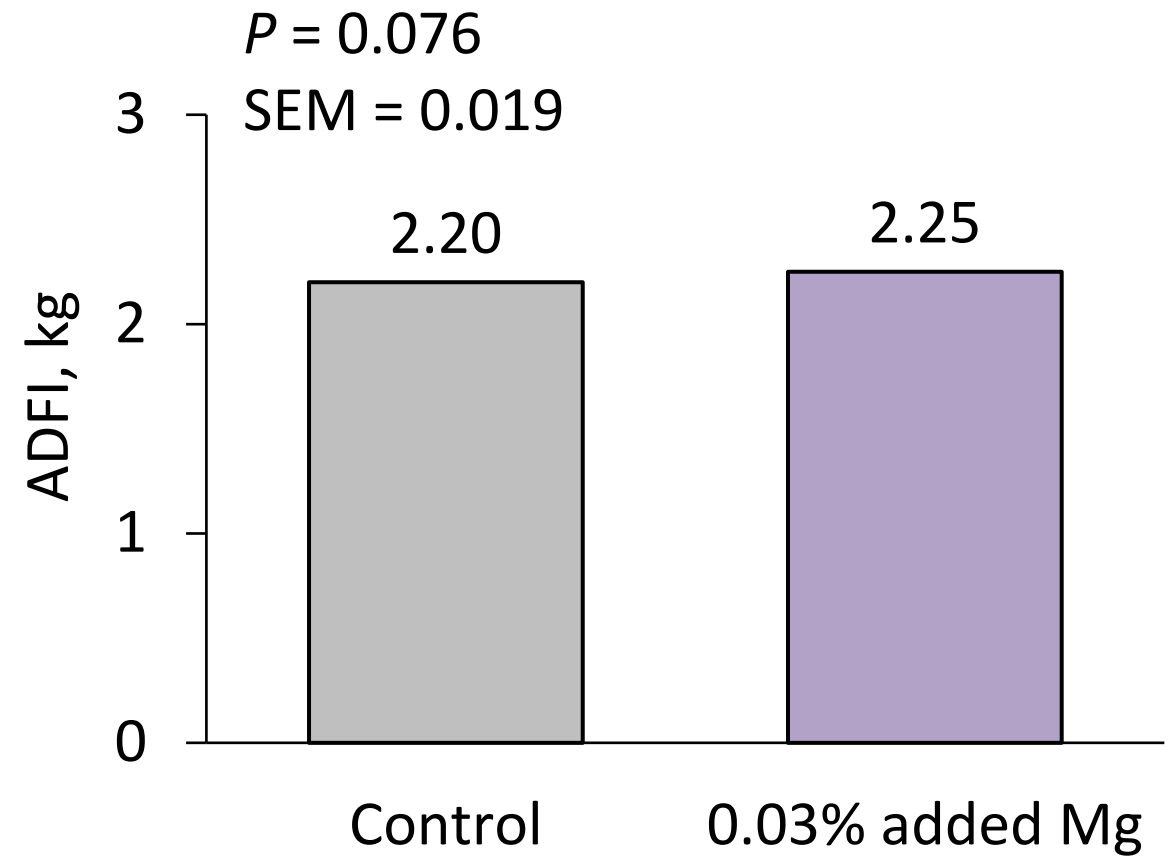
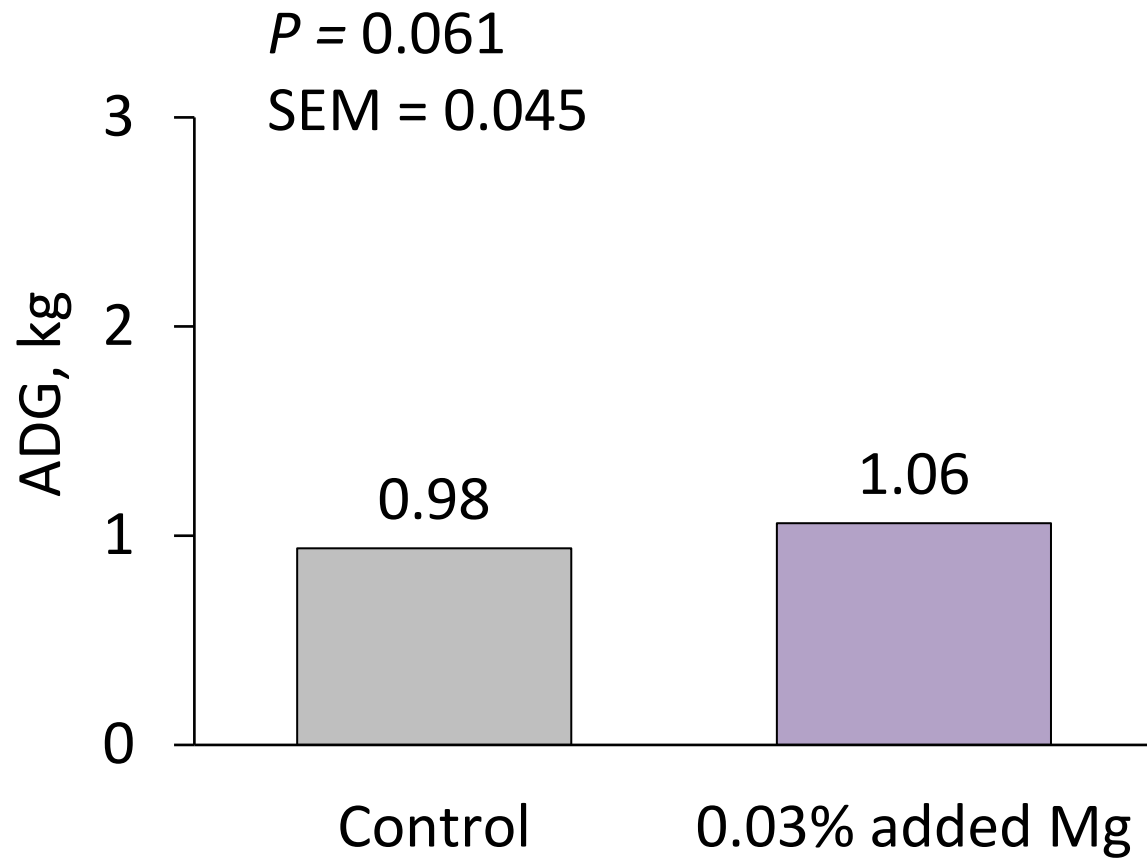


Supplemental Magnesium

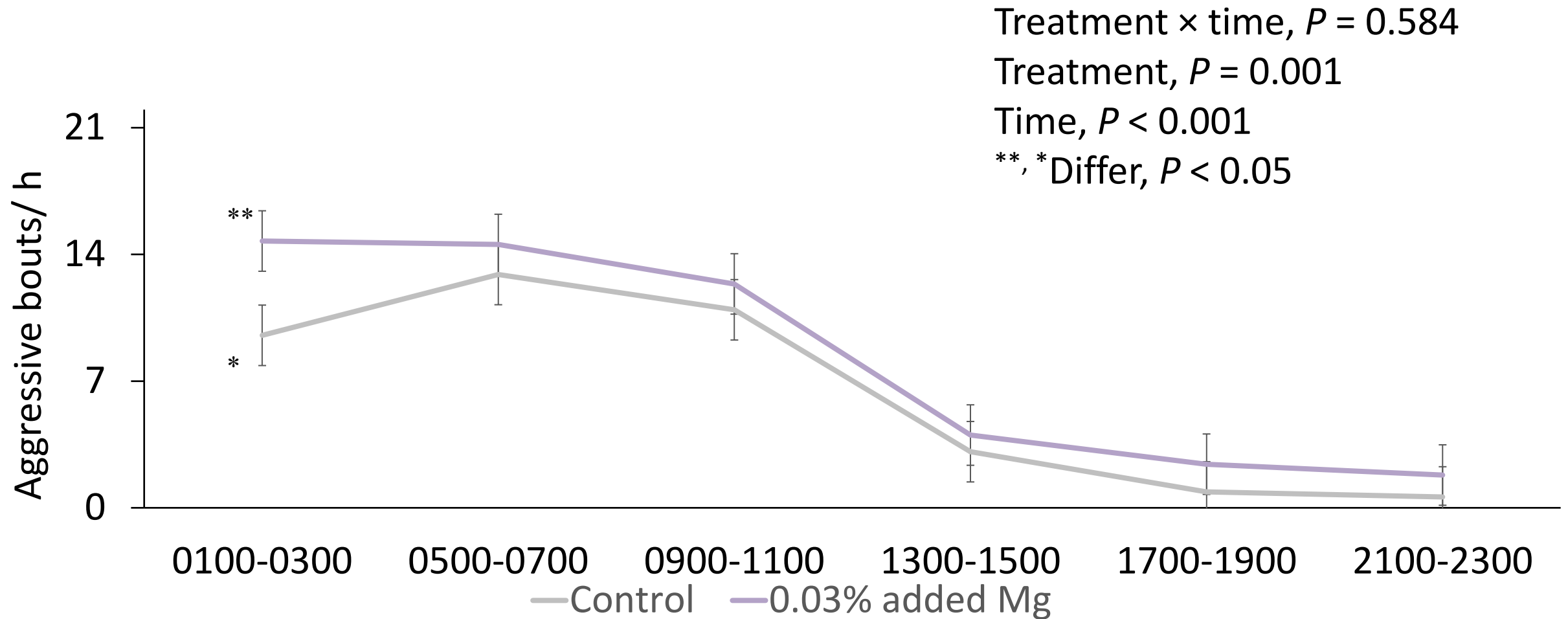
Increased Mg on sow body weight



Increased Mg on sow gain and feed intake



Increased Mg on aggressive bouts at the feeder

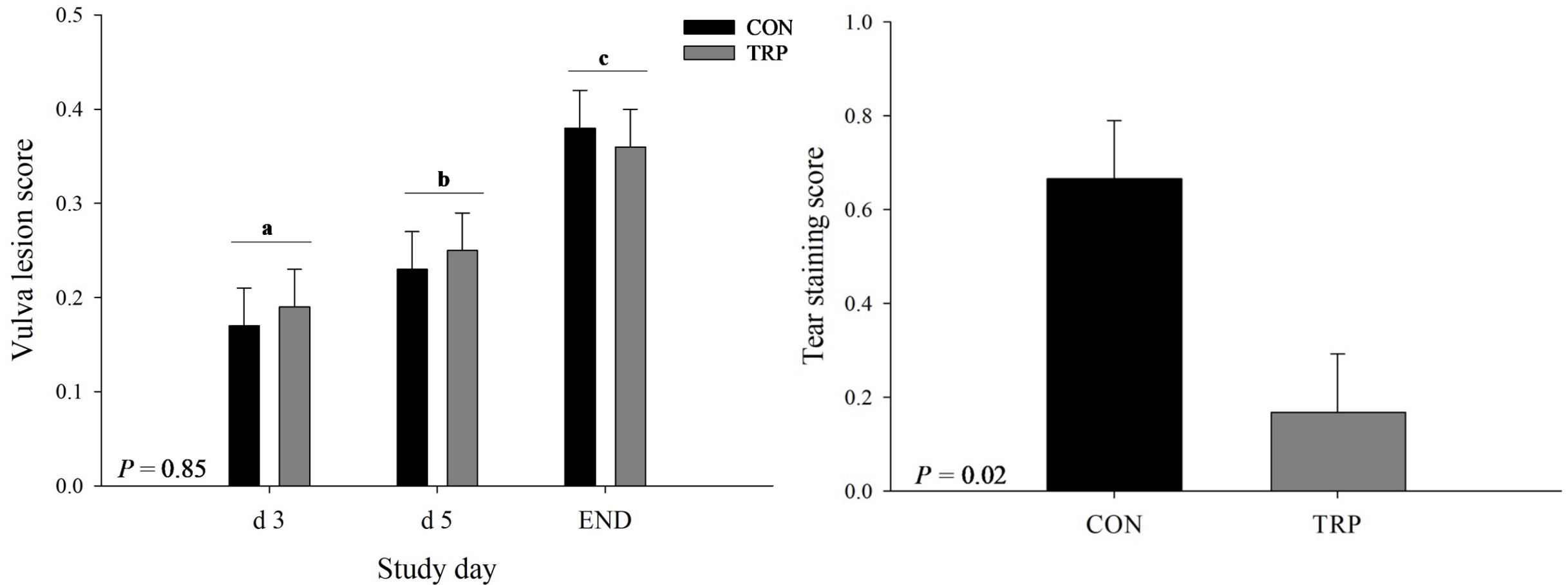


Increased Tryptophan

Increased Trp on sow performance

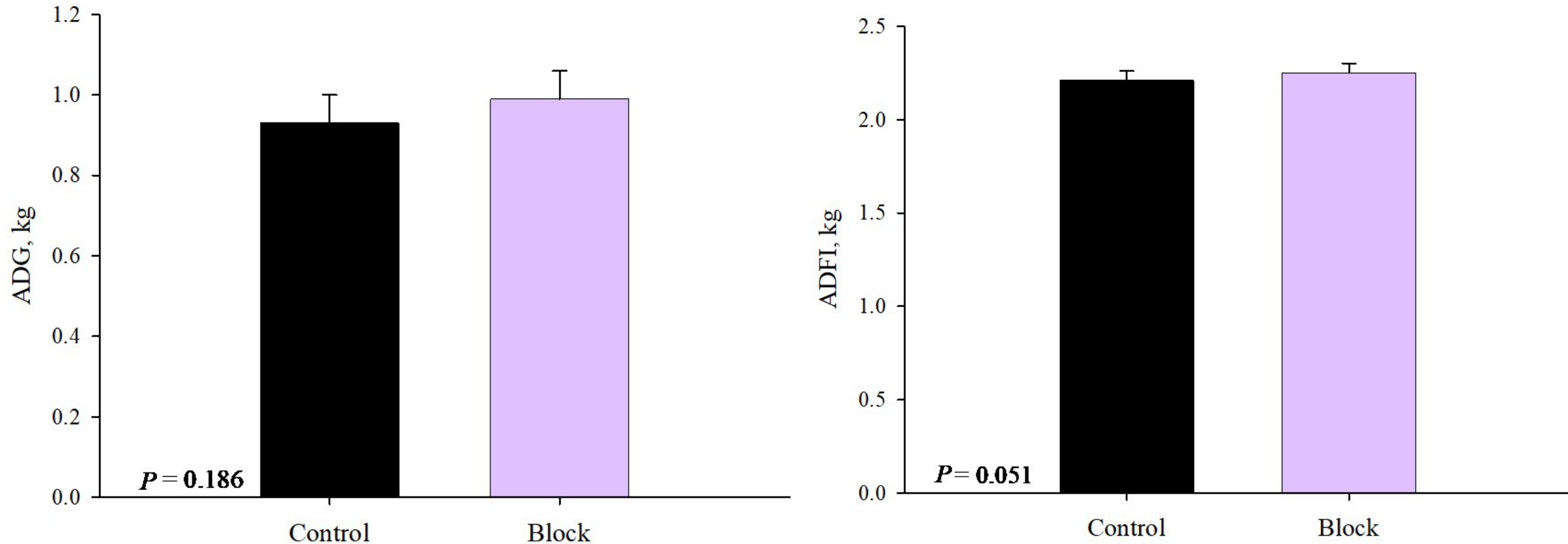
Characteristic	CON	TRP	SE	P-value
Initial BW, kg	256.9	252.3	2.53	0.22
Final BW, kg	268.2	264.4	2.77	0.35
ADG, kg/d	1.10	1.17	0.04	0.23
ADFI, kg/d	2.44	2.40	0.07	0.43
Return to estrus interval, d	5.02	4.74	0.20	0.30

Increased Trp on vulva lesion score and tear staining

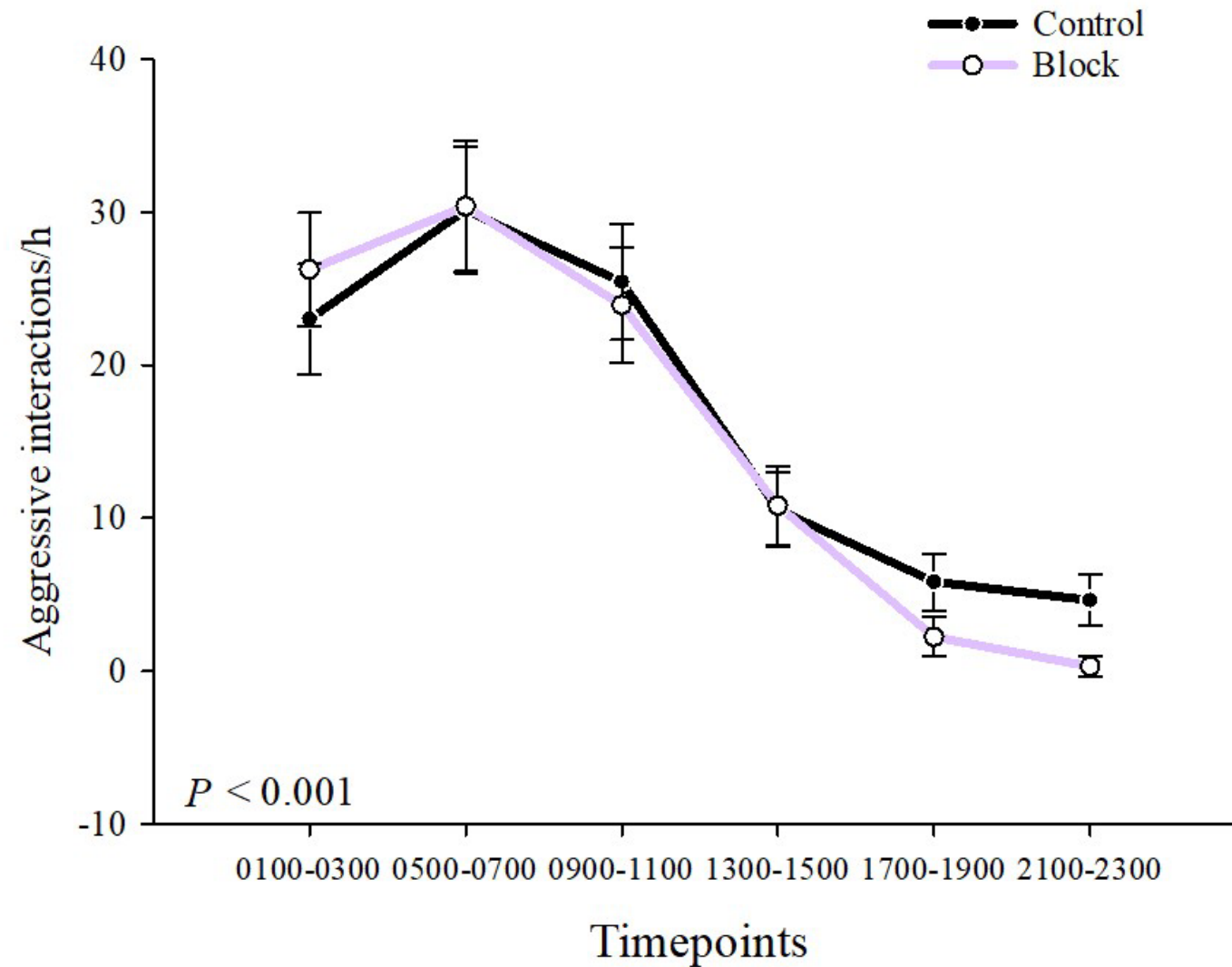


Environmental Enrichment

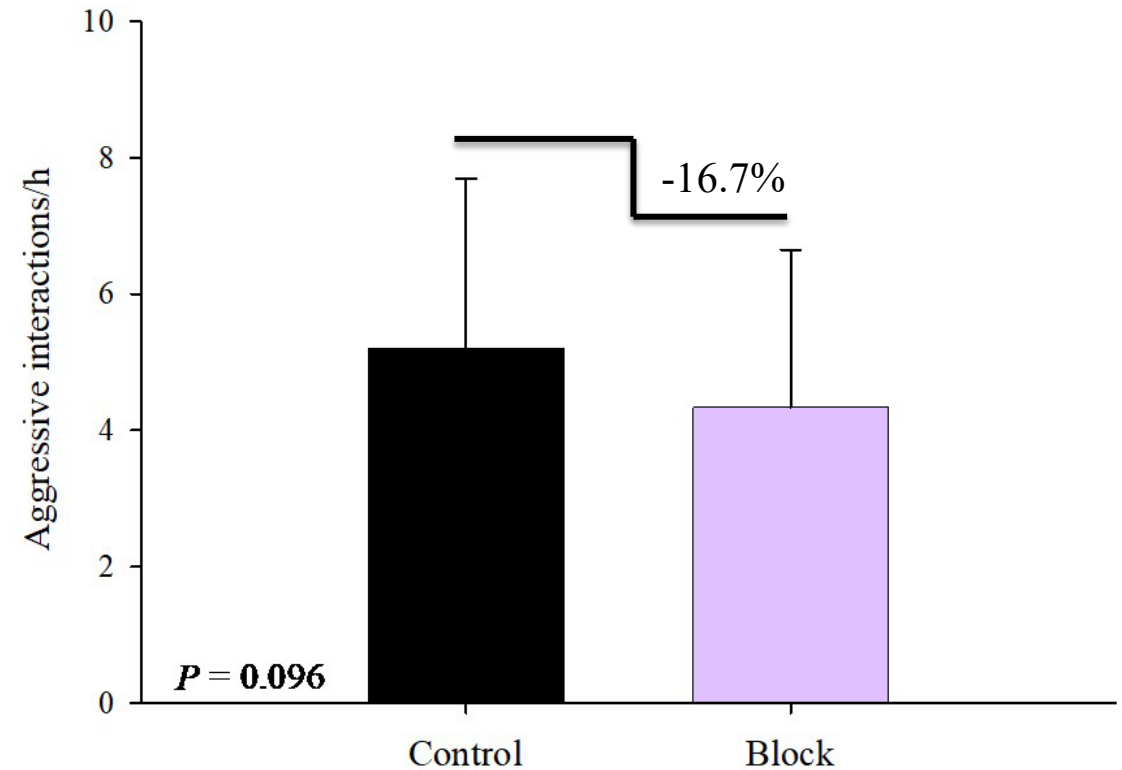
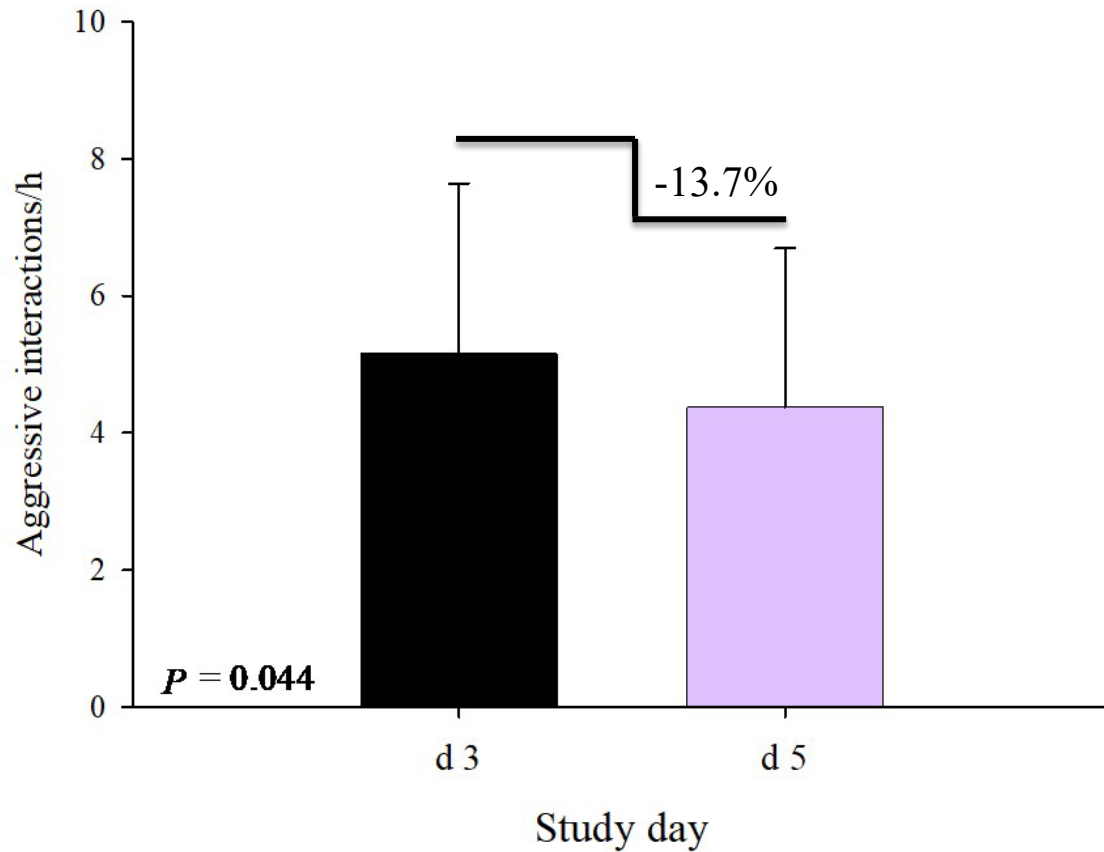
Enrichment block on sow performance



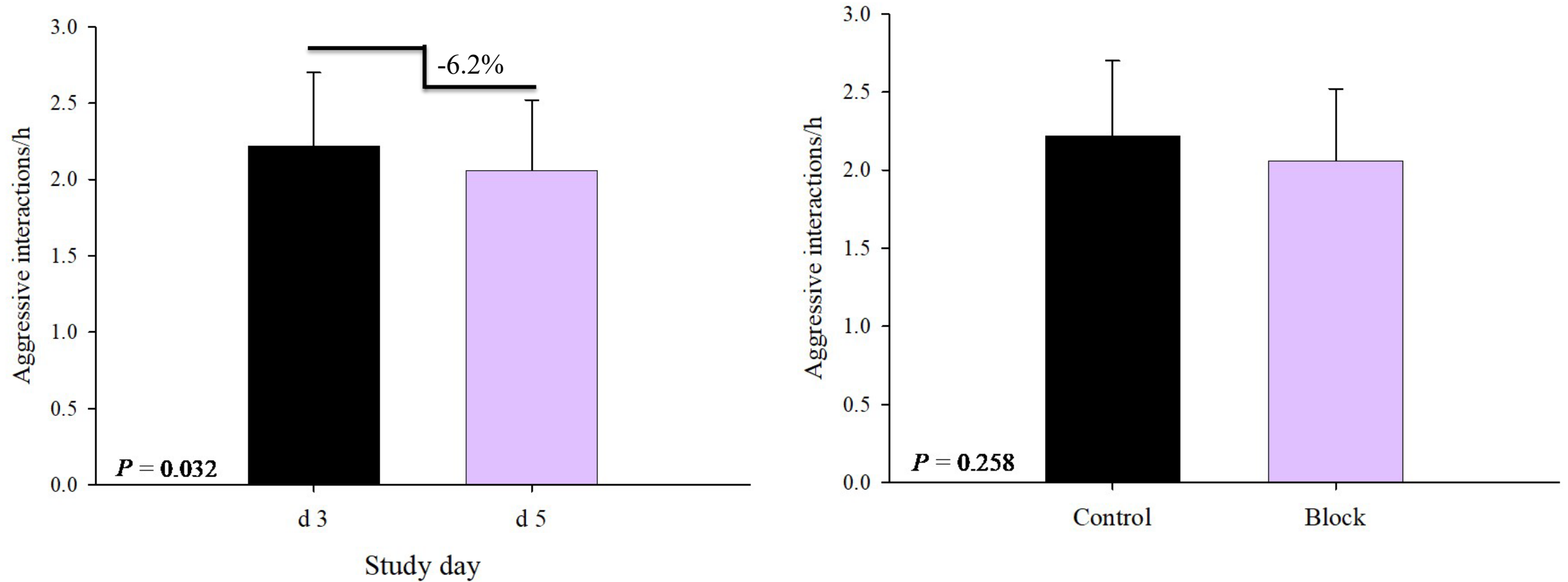
Enrichment block on total aggressive bouts



Enrichment block on aggressive bouts at the feeder



Enrichment block on non-feeder aggressive bouts



Conclusions

Sow Performance

- Increased fiber
- Increased feed allocation
- Supplementation of MgO

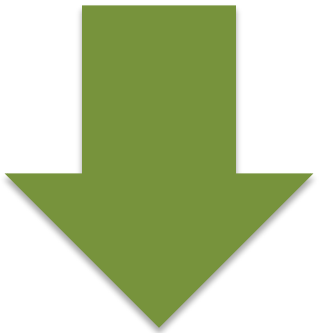
Sow Behavior

- Increased fiber
- Increased feed allocation
- Enrichment block

Conclusions

Sow Performance

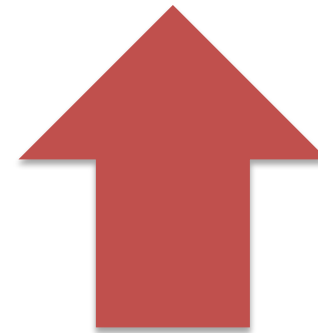
- Increased fiber
- Increased feed allocation
- Supplementation of MgO



Aggression reduced
throughout the day

Sow Behavior

- Increased fiber
- Increased feed allocation
- Enrichment block



Lesion scoring
increased closer to
farrowing

Thank you!



University of Missouri

