EVALUATING THE IMPACT OF HOUSING ON PORK QUALITY

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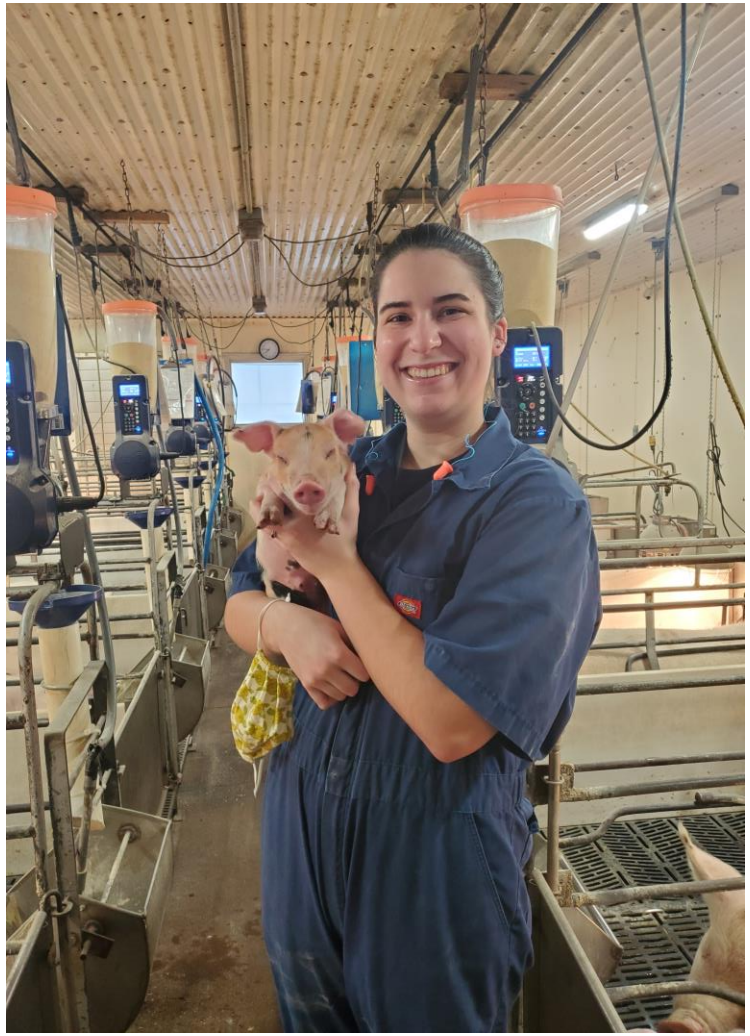
PASA Conference

A Little About Me



Pork Quality Studies

Key Questions:

Does housing impact growth performance?

Does housing impact pork quality?

Pilot Study

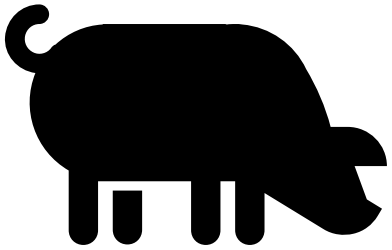
Treatment Groups

Indoor

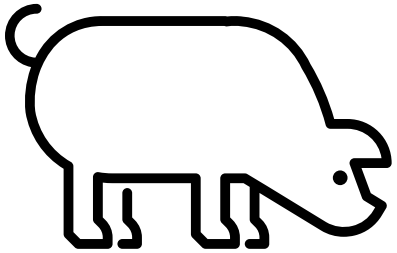
Outdoor

Treatment Groups

Indoor



Five Females

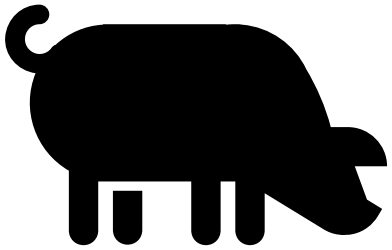


Five Males

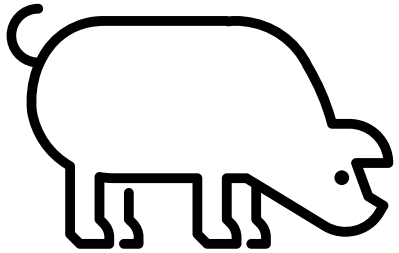
- *Ad libitum* grow-finish ration via flap top feeders
- Free access to clean water via a nipple drinker system
- Housed on concrete flooring solely indoors (76 ft^2)

Treatment Groups

Outdoor



Five Females



Five Males

- *Ad libitum* grow-finish ration via flap top feeders
- Free access to clean water via a nipple drinker system
- Housed on 1/3 of an acre
- Rotated ~ every four weeks

Data Collection

Growth

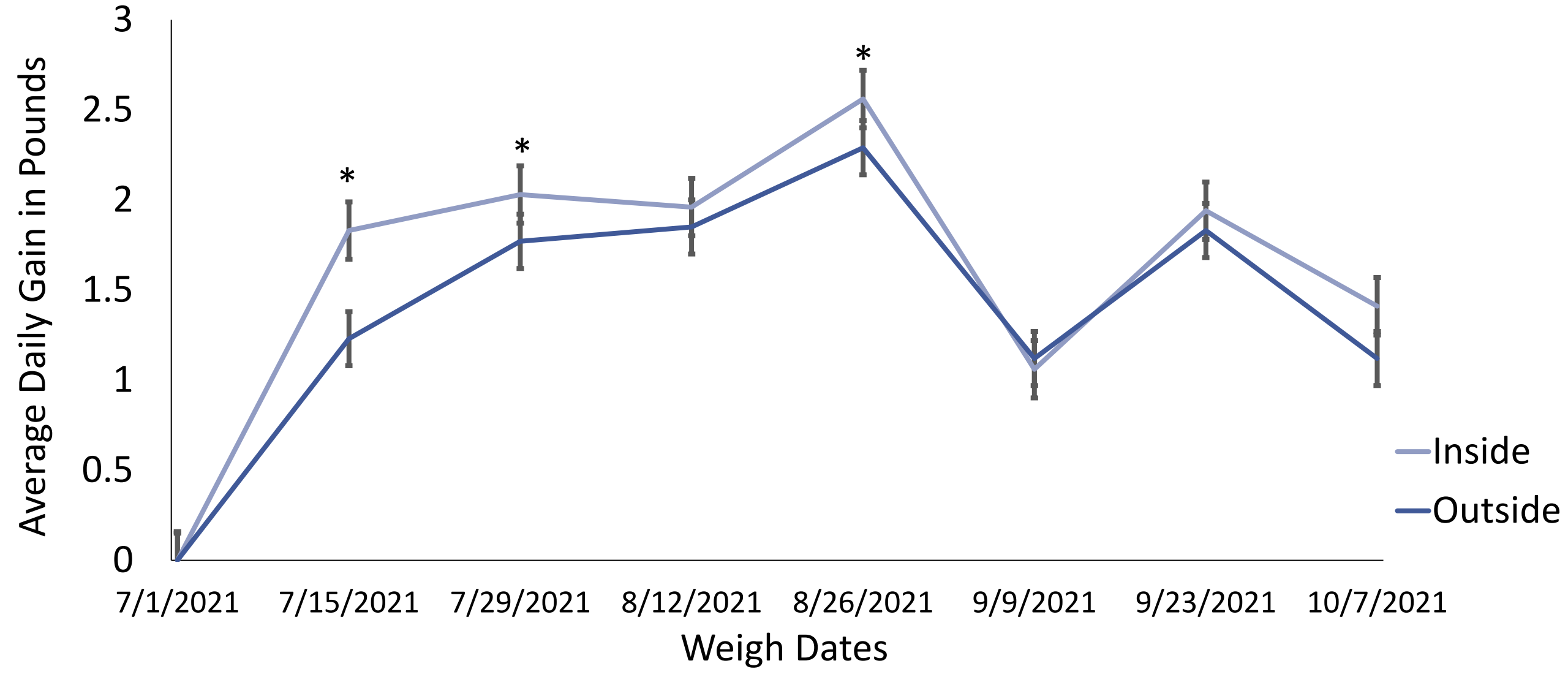
Pork Quality/ Carcass Characteristics

Growth

Main Conclusions

- Starting weight averages were similar at 101.85 for the Indoor and 101.52 for the Outdoor
- Both groups had a similar average daily gain with the Outdoor group going through an ‘adjustment period’
- Growth curves were similar for both groups
- Slaughter weight averages were similar at 270.10 for the Indoor and 268.90 for the Outdoor

Adjustment Period: ADG



Carcass and Pork Quality

Main Conclusions

- Hot carcass weights were similar at 207.60 for the Indoor and 206.90 for the Outdoor
- Subjective and Objective color scores and marbling scores were similar for both groups
- Backfat was higher for the Indoor group (P = 0.06)
- Loin eye area was similar for both groups
- Loin pH measurements showed a similar curve

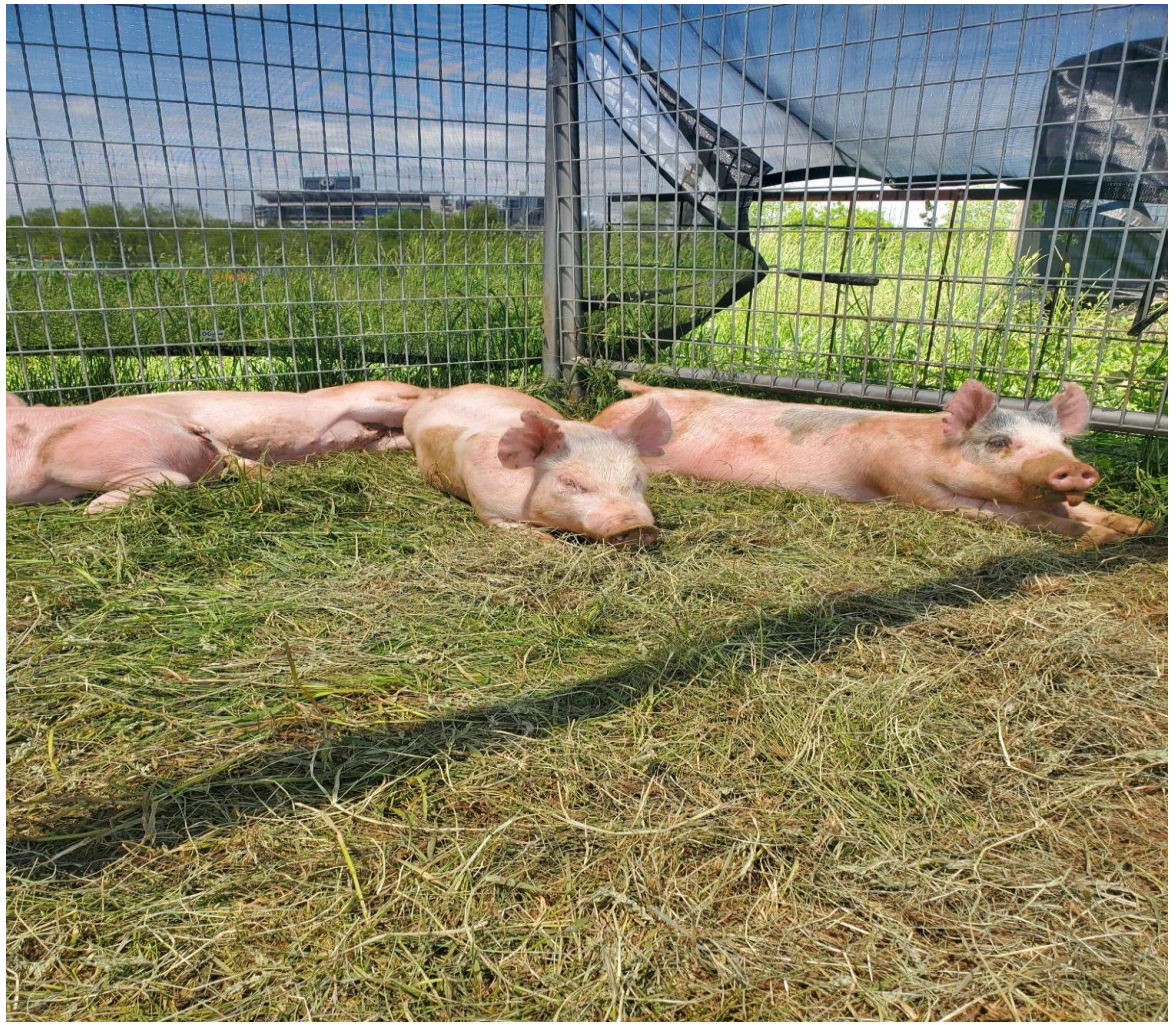
Backfat

Measurement taken at 10th rib	Indoor	Outdoor	P Value	Maximum Standard Error
Backfat Thickness	0.89	0.75	0.05	0.06

Pilot Study Summary

- Both treatment groups show similar growth curves and weight gain
  - Outdoor group had more variation
- Backfat was higher for the Indoor group, but other pork quality attributes were not impacted
- Further research is needed to explore more pork quality attributes and feed consumption

2022 Study



Treatment Groups

Indoor

5 5 5 5 5

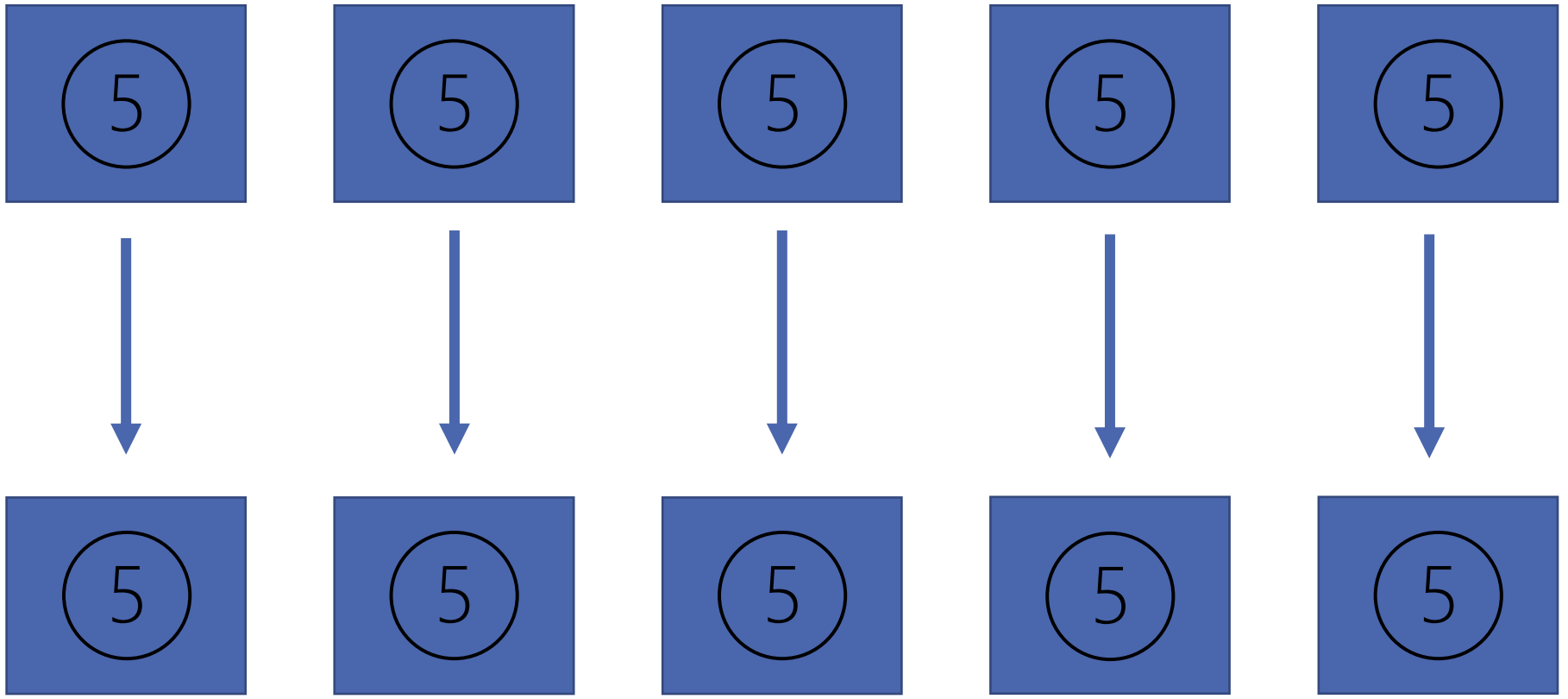
Outdoor

5 5 5 5 5

Outdoor Rotation

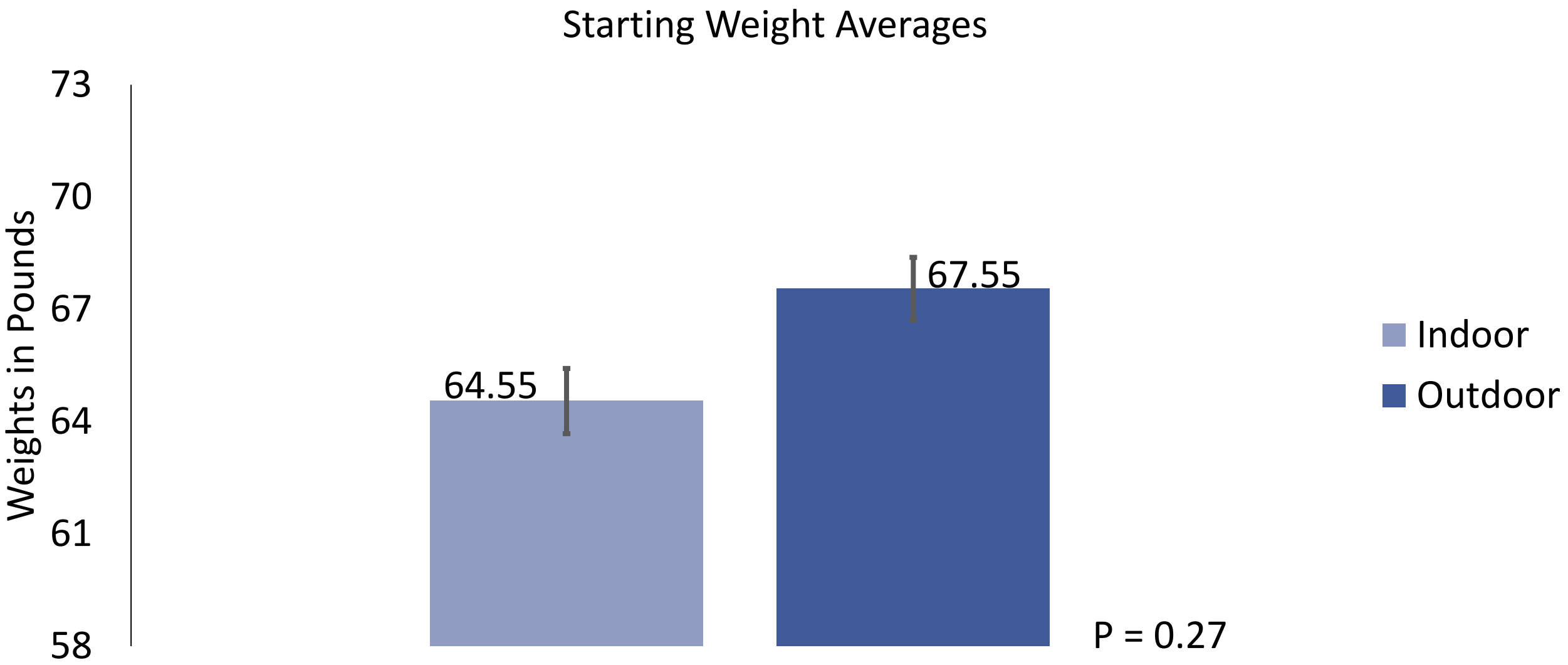
Outdoor

Two Weeks

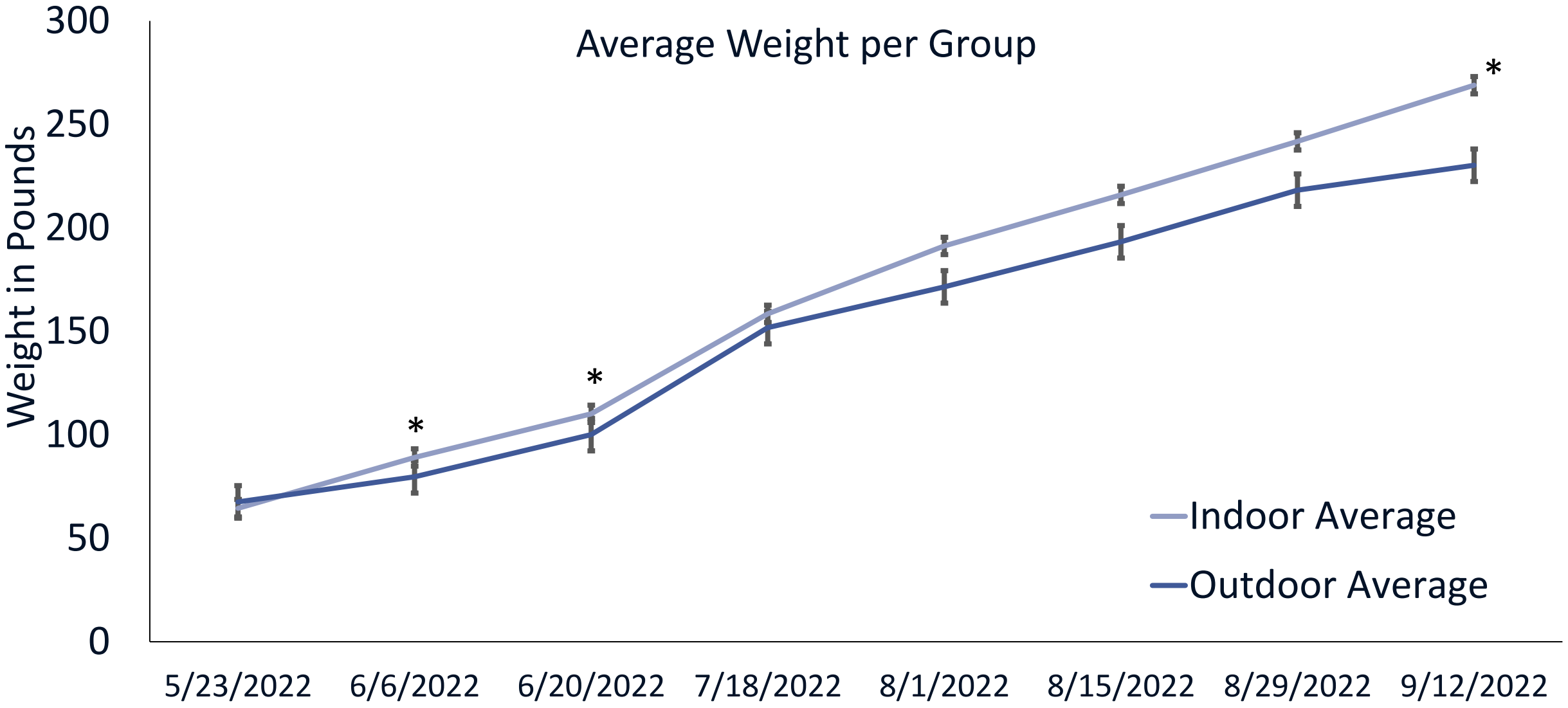


Growth Evaluation

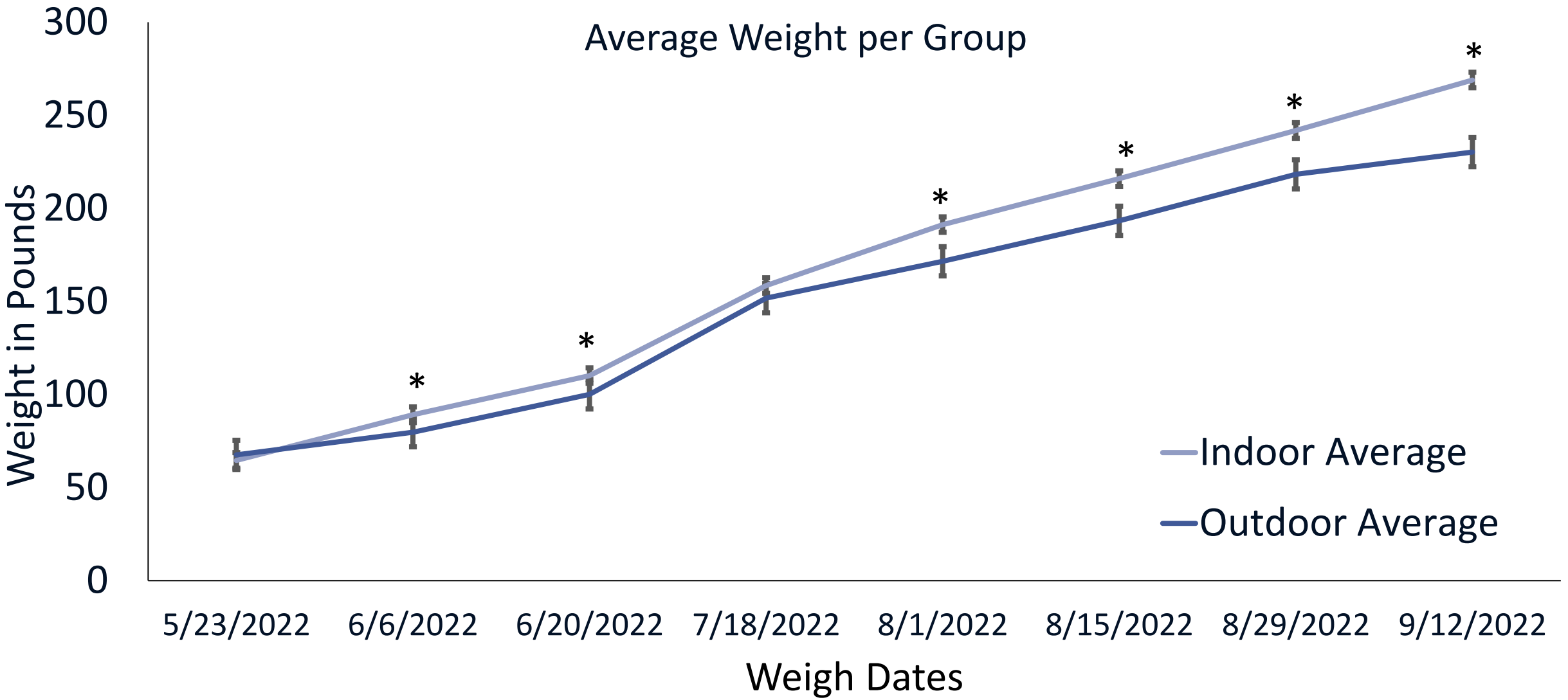
Starting Weight Averages



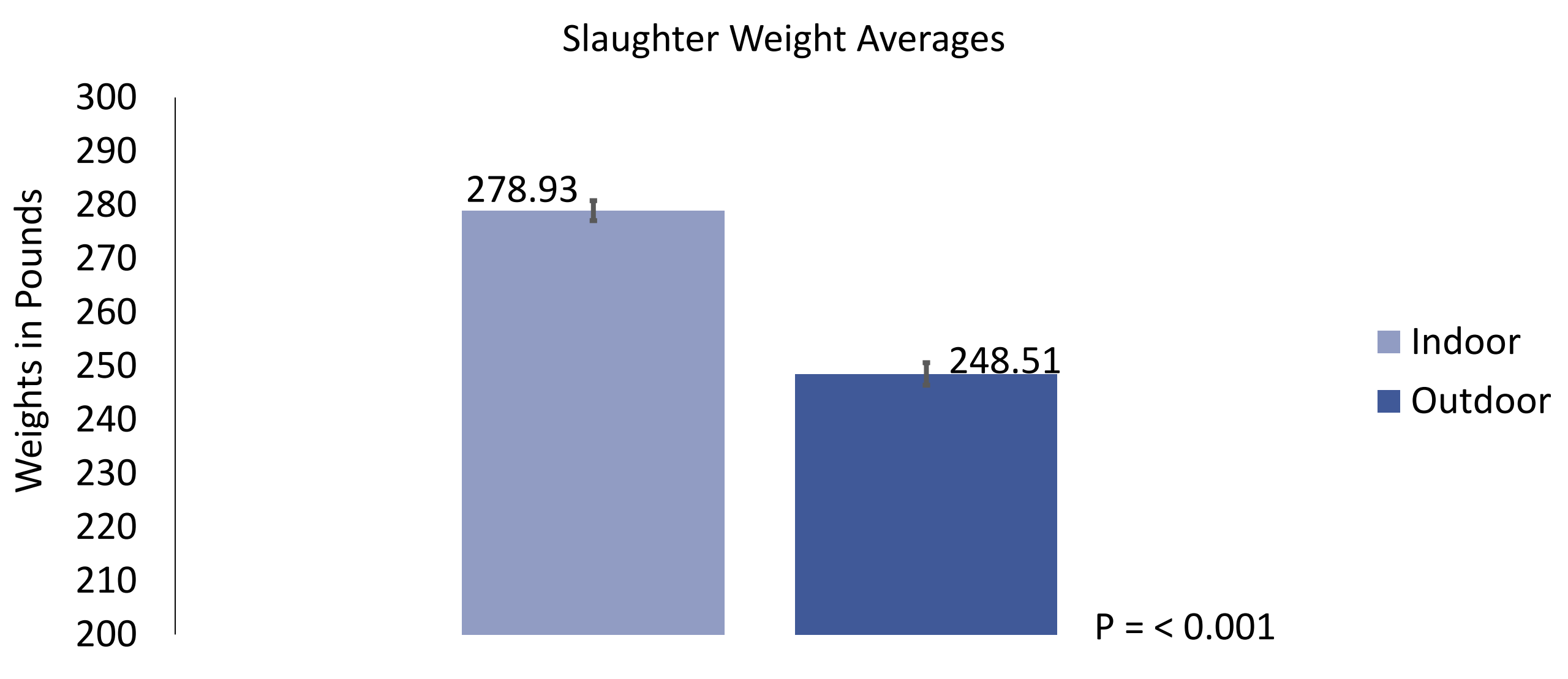
Average Daily Gain



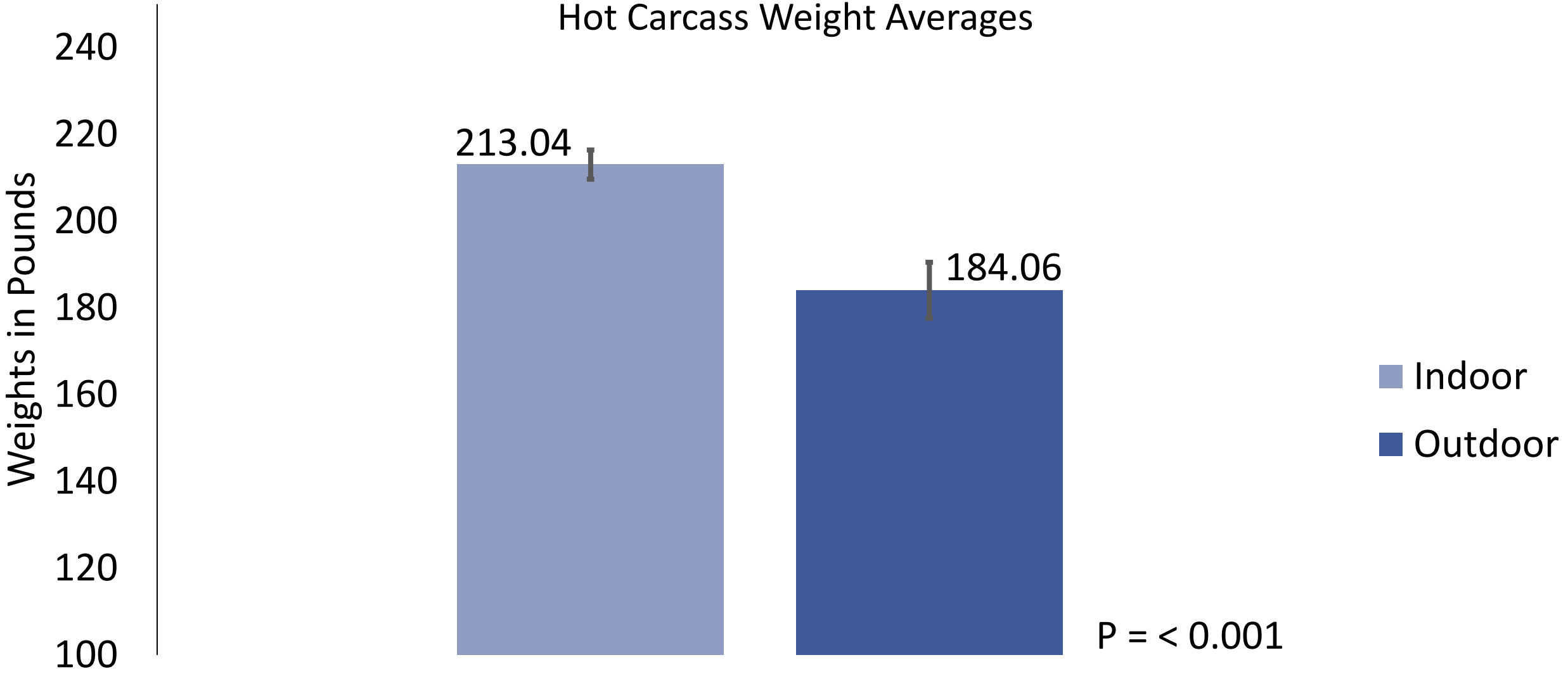
Growth Curves



Slaughter Weight Averages

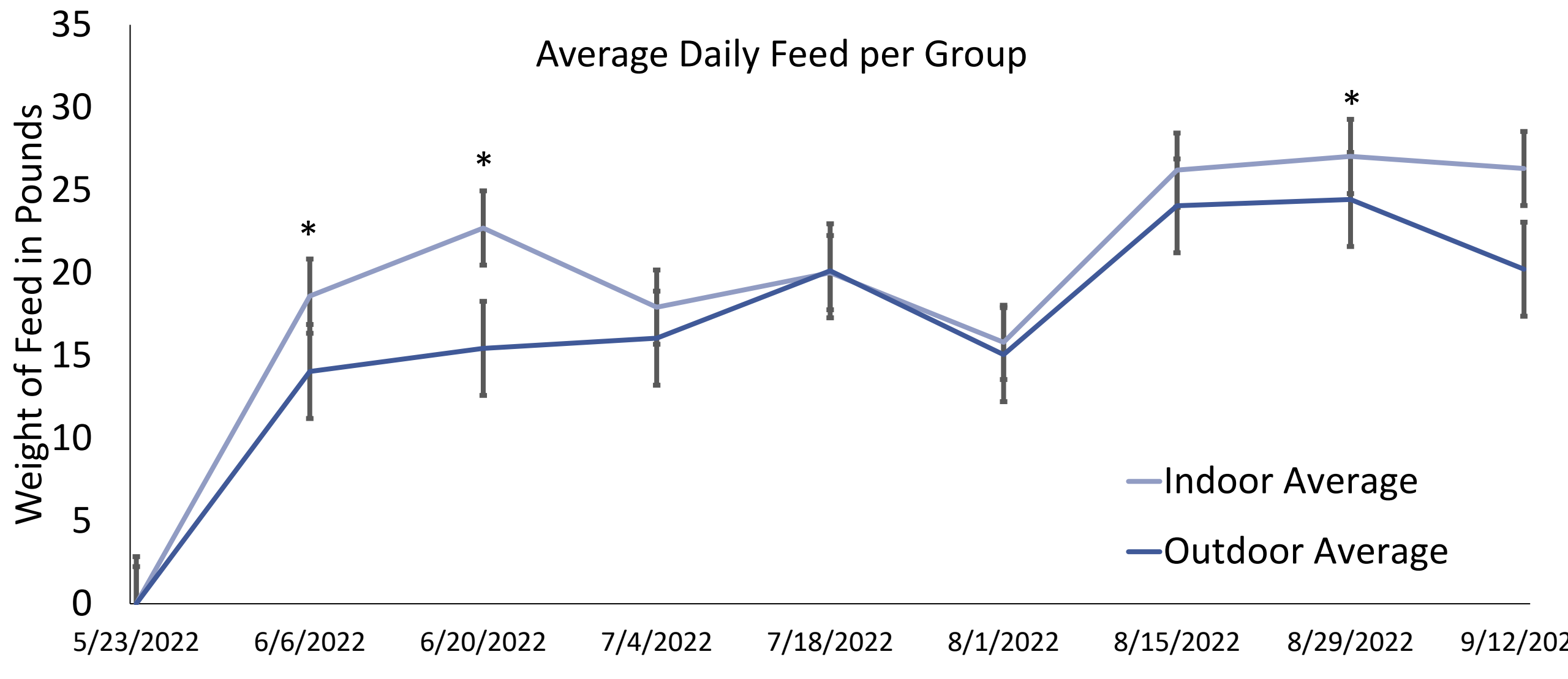


Hot Carcass Weight Averages



Feed Usage

Feed Usage


Average Daily Feed per Group
Weight of Feed in Pounds
35
30
25
20
15
10
5
0
*
*
*
5/23/2022
6/6/2022
6/20/2022
7/4/2022
7/18/2022
8/1/2022
8/15/2022
8/29/2022
9/12/202
Indoor Average
Outdoor Average

Carcass and Pork Quality

Subjective Color and Marbling

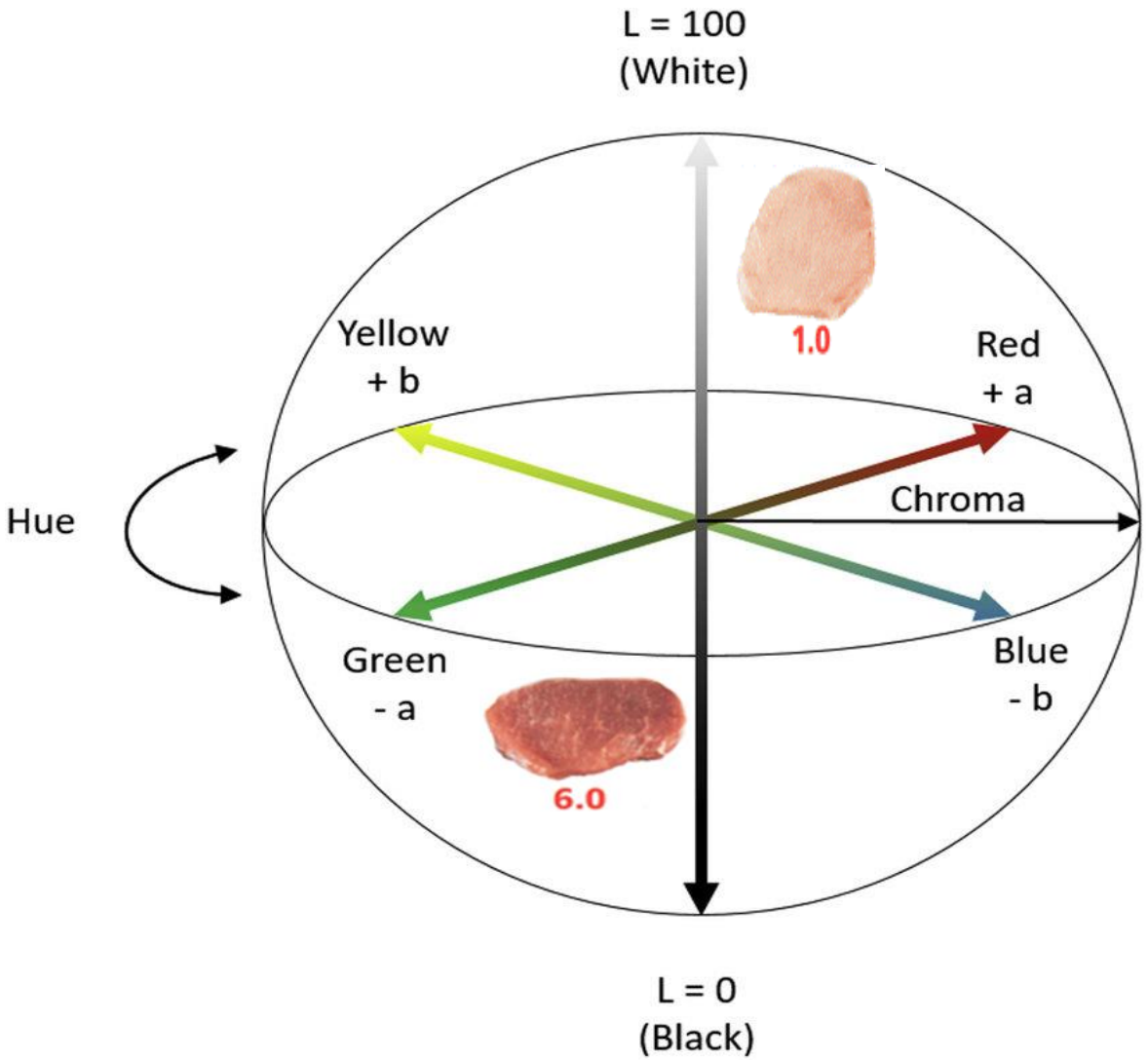
American Pork Club

Subjective Color/Marbling Averages

Measurement taken at 10th rib	Indoor	Outdoor	P Value	Maximum Standard Error
Color Score	3.04	2.73	0.18	0.19
Marbling Score	1.44	1.58	0.53	0.14

Objective Color and Marbling

Objective Color and Marbling

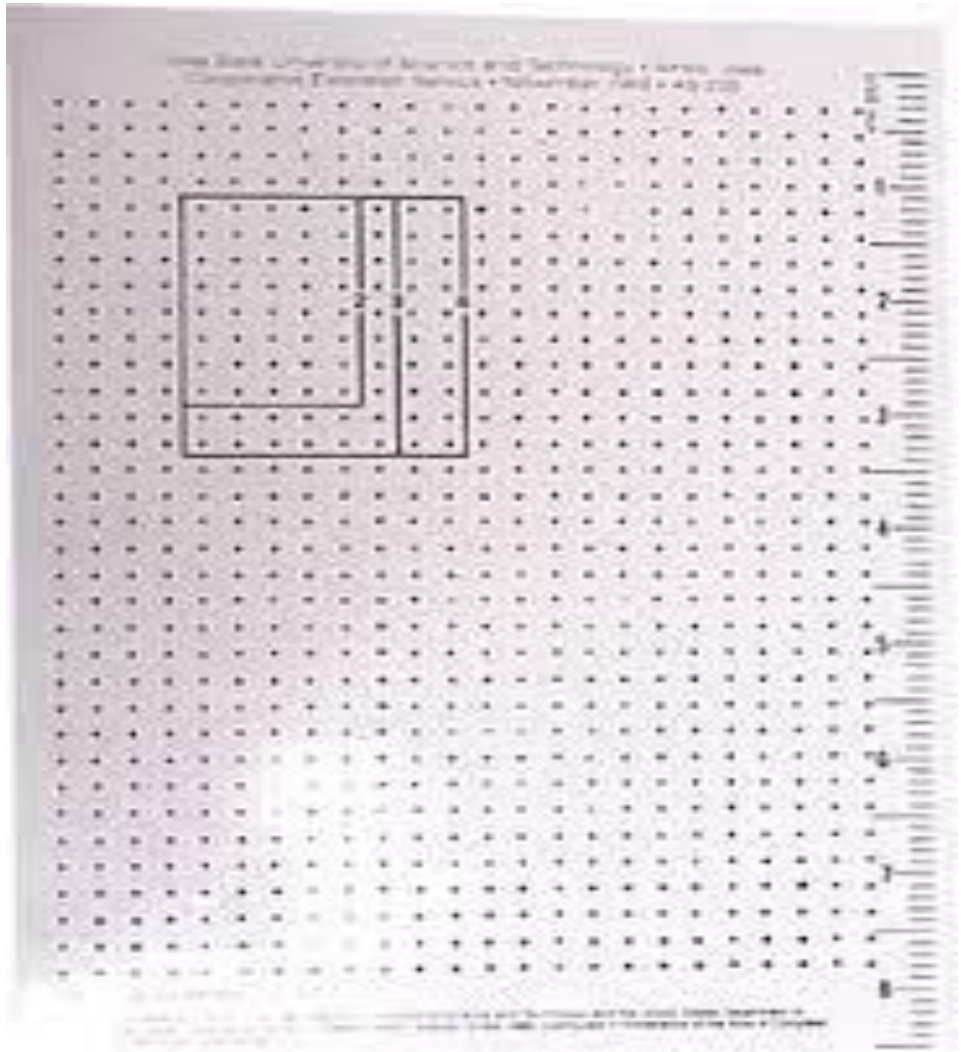


ResearchGate

Objective Color/Marbling Averages

Measurement taken at 10th rib	Indoor	Outdoor	P Value	Maximum Standard Error
Lightness “L”	51.33	51.55	0.78	0.58
Redness “a”	6.04	6.02	0.96	0.20
Yellowness “b”	3.12	2.94	0.41	0.18

Loin Eye Area



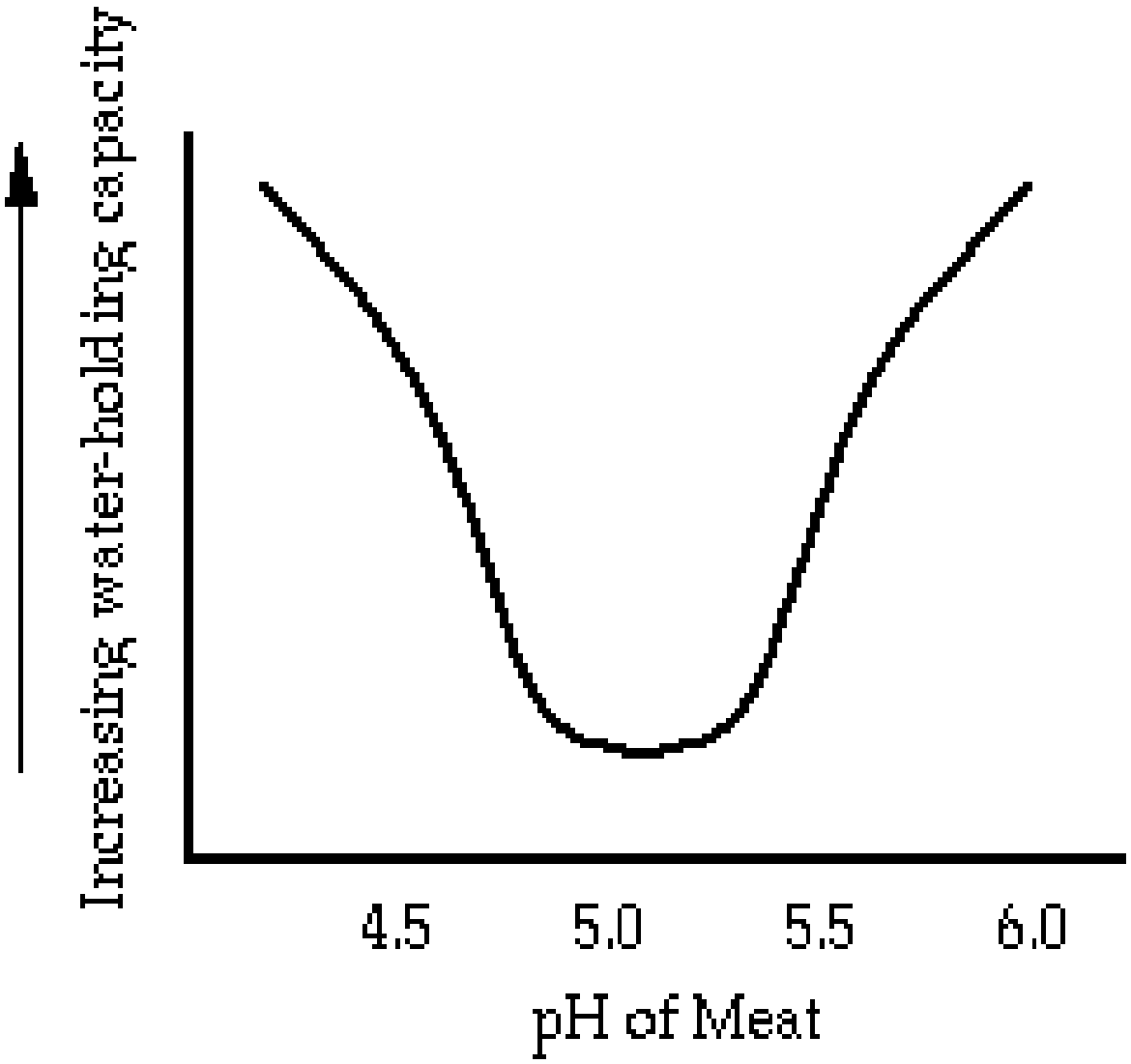
Loin Eye Area Measurement Averages

Measurement taken at 10th rib	Indoor	Outdoor	P Value	Maximum Standard Error
Loin Eye Area	9.66	8.80	0.07	0.42

pH

Clarkson Lab

pH and Drip Loss

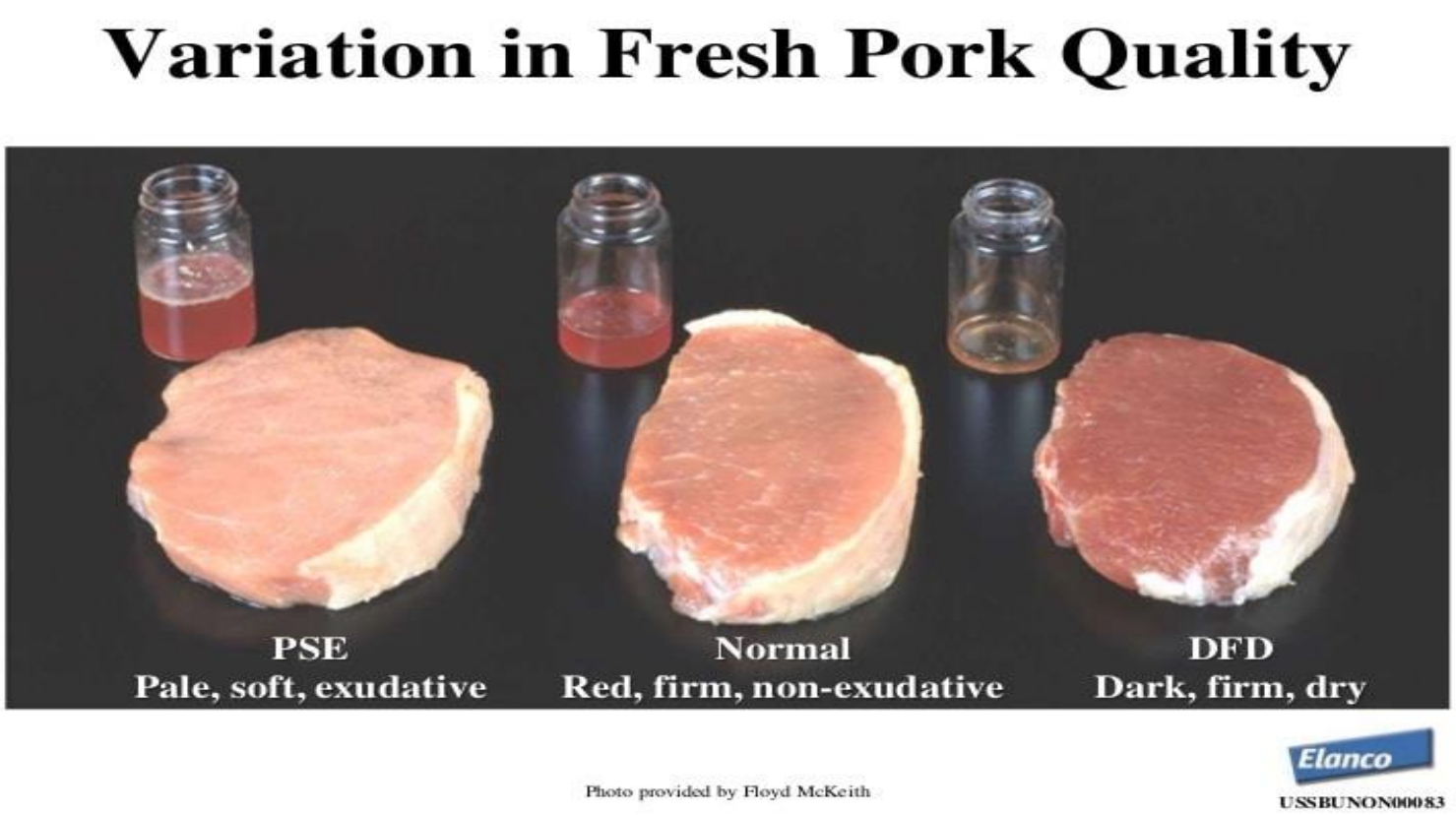


Influenced by several factors including:

- Presence of the halothane gene
- Slaughter day stress
- Concentration of metabolites
- Postmortem glycolysis

(Schäfer et al., 2002)

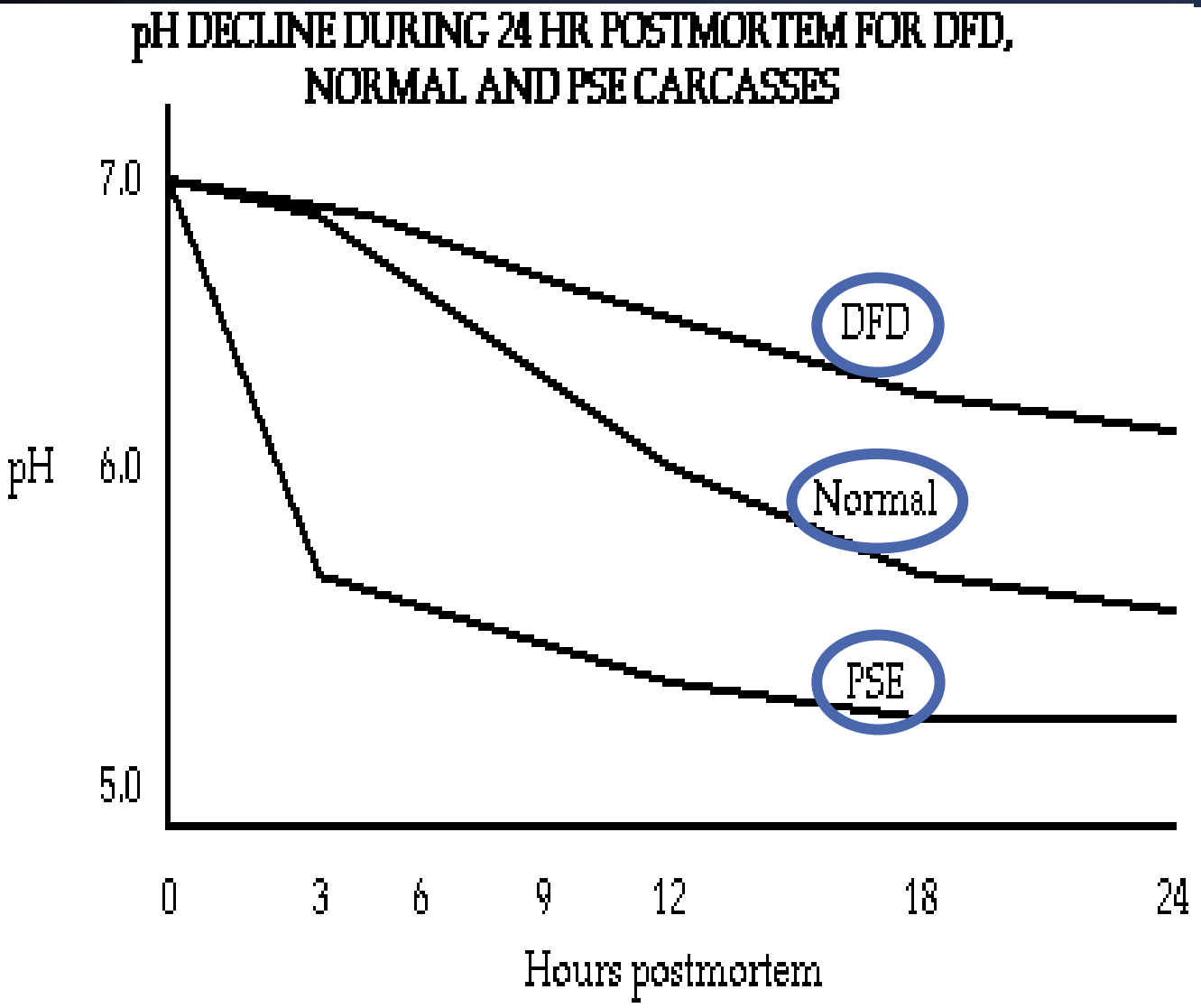
pH and Drip Loss

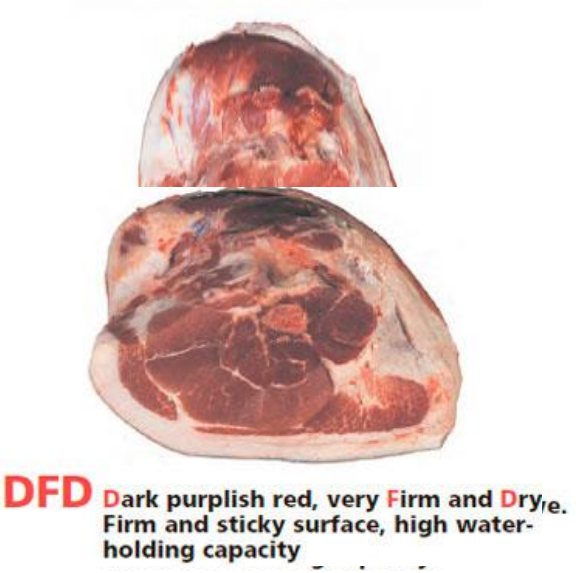


High drip loss leads to a less tenderful, tasteful, juicy, and smaller pork product. Some cases reported weight losses of 1-10% from initial cutting.

(Huff-Lonergan and Lonergan, 2007)

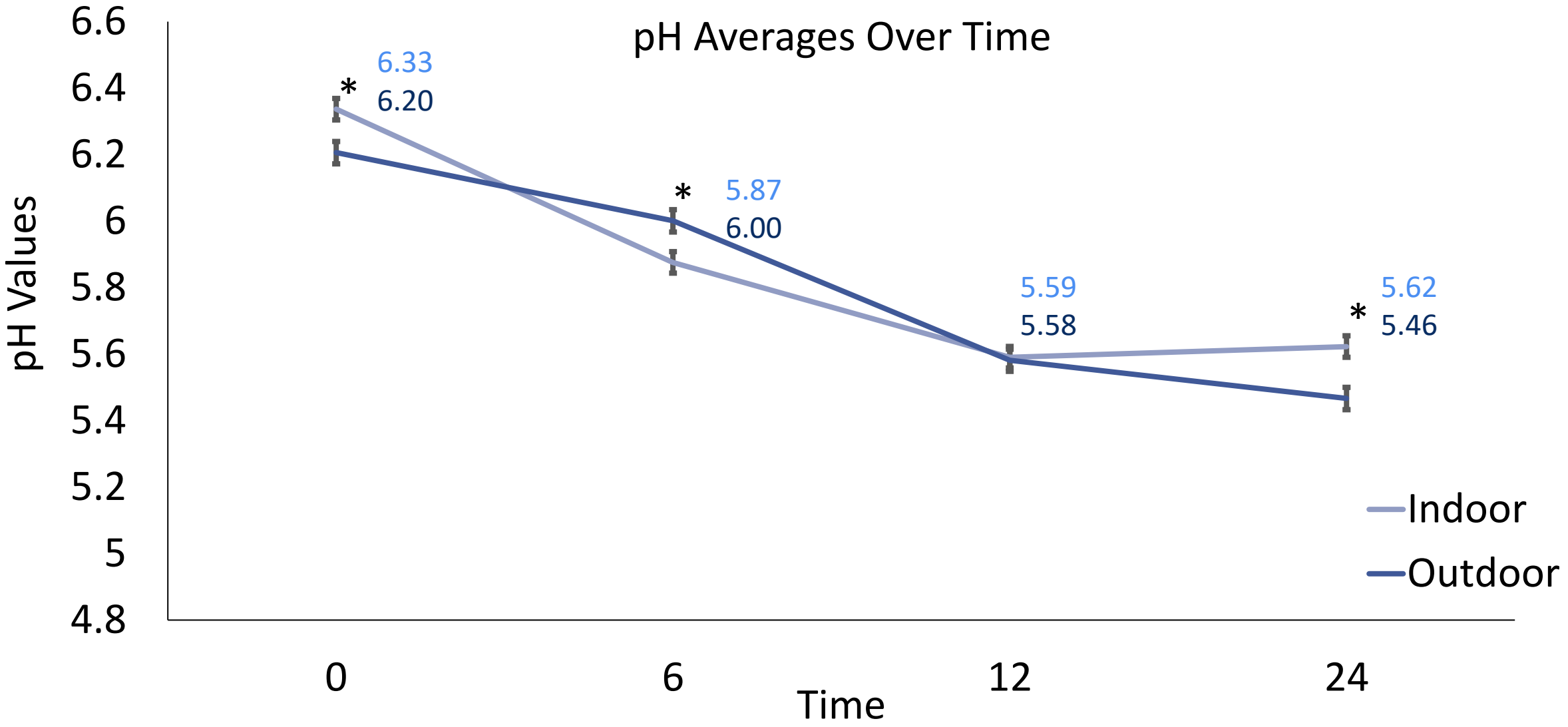
pH and Color





DFD Dark purplish red, very Firm and Dry/e. Firm and sticky surface, high water-holding capacity

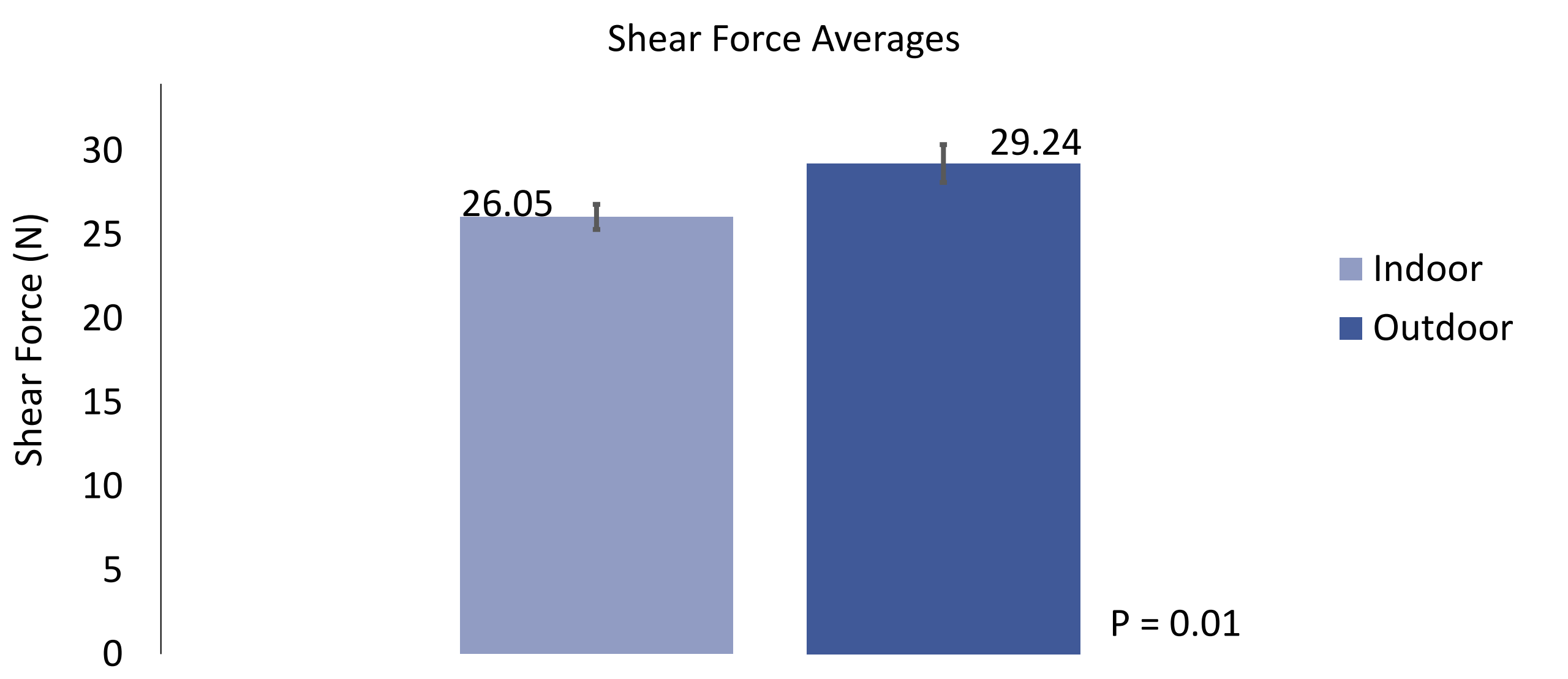
pH Measurement Averages



Shear Force

Spectronic

Shear Force Averages



Main Study Summary

- Indoor group had a higher ADG and growth curve throughout the majority of the study
- Color, marbling, and loin eye areas were similar between both groups; however, shear force was higher for the Outdoor group
- pH showed a normal decline in both groups

Concluding Thoughts

- Pork quality is not impacted by housing when pigs are sent to slaughter at the same age
- Outdoor pigs require more time to reach ideal slaughter weight – This could cause issues with production costs and resources/land management
- Further research should be completed to determine cost differences, feed efficiency, impact of longer days to slaughter on pork quality

Thank you!

Any questions?