

THE ROLE OF YEAR AND ANIMAL ORIGIN ON KEY DETERMINANTS OF EWE LONGEVITY

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ABSTRACT

The MSU sheep flock is an Innovation Flock in the Sheep GEMS project through the University of Nebraska-Lincoln. The Sheep GEMS project is a national, multi-breed project that is focused on evaluating different sheep breeds and their longevity in different climates. As a participant, we collect/send raw data that is compiled. Our preliminary data from the 2022 (Year 1) and 2023 (Year 2) lambing season has been included. We collected measurements from Katahdin ewes (n = 38; 1-4.5 years old). We measured fecal egg counts (FEC), FAMACHA scores, body condition scores (BCS), teat and udder scores. Using the MIXED procedures of SAS, we evaluated these measurements for differences between year and origin. As the ewe flock was established in the summer of 2021, our ewes were sourced from 5 outside flocks. Main effects of treatment are reported if no interaction was observed. An interaction of year and origin (P = 0.02) was observed in FEC. A year effect was observed on FAMACHA, as ewes in Year 1 had lower and more desirable FAMACHA scores in comparison to Year 2 (2.18 vs. 1.97, respectively). Teat scores were different by year, (P < 0.01) as Year 1 was higher compared to Year 2 (5.58 and 4.46, respectively). Udder scores were not different by year or origin (P > 0.148). Ewe BCS differed by year (P = 0.06) and origin (P = 0.02). Effects of year were widely seen and speak to the impact of year-to-year changes in environment. IACUC #22-11-02

INTRODUCTION

Longevity is considered the length of time during which an animal is producing at a satisfactory level in the herd to maintain offspring and survival for production standards (Jamrozik et al., 2013). A ewe's longevity value is increased with consideration of Body Condition Scoring (BCS), FAMACHA, Fecal Egg Counts (FEC), and teat scoring (Mekkawy et al., 2009). BCS is ranged from 1-5, 1 which is very thin and 5 with extra fat covering. A score of 3 is ideal. FAMACHA ranks a ewes parasite load based on membrane colors; 1, a brighter red is more preferable over a 5 which is light and anemic. Teat placement is scored on a 9-point scale; 1 ranks the teat straight down and close to middle of the udder whereas, 9 ranks the teat on the outside of the udder at a horizontal plane (Lewis, 2022). A ewe with satisfactory scores can increase its value and ability to maintain current and future offspring. The origin of the ewes at the Derrickson Agricultural Complex created an influences on the first year of FEC and BCS. The year comparison allows for reflection on outside origins from year one bred with MSU origins to improve desirable traits considered for longevity.

MATERIALS AND METHODS

- 38 Katahdin ewes (ages 1-4.5 years)
- Ewes penned separately with lambs for 48 hours post-lambing
- All measurements collected within 72 hours of lambing
- Collected BCS, FEC, FAMACHA scores, and teat scores
- Fecal samples run using the Modified McMaster test
- FAMACHA and teat scoring rubric used
- Data compiled from 2022 & 2023 lambing seasons
- Data analyzed using the MIXED procedure of SAS

RESULTS

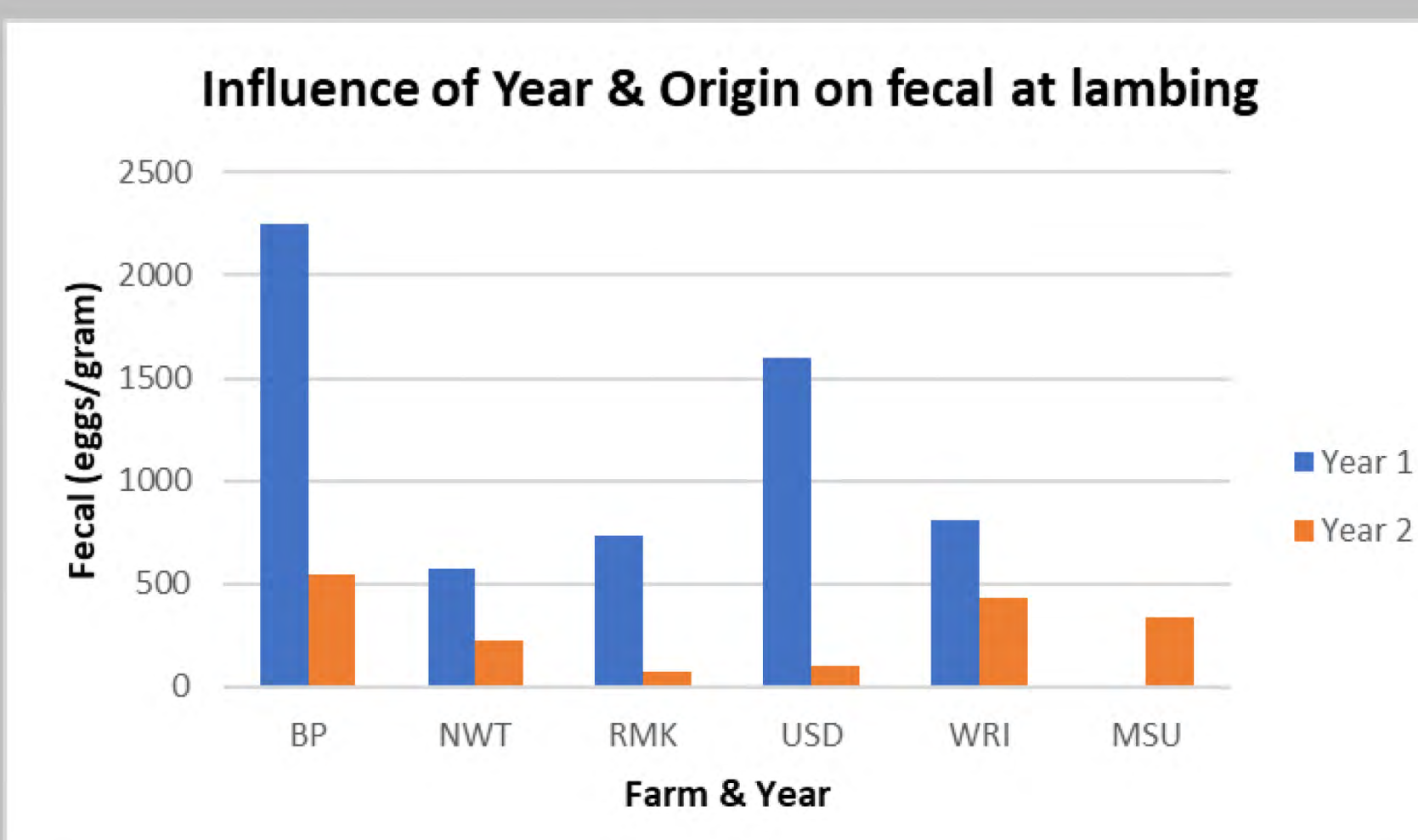


Figure 1. Influence of Year & Origin on Fecal at Lambing

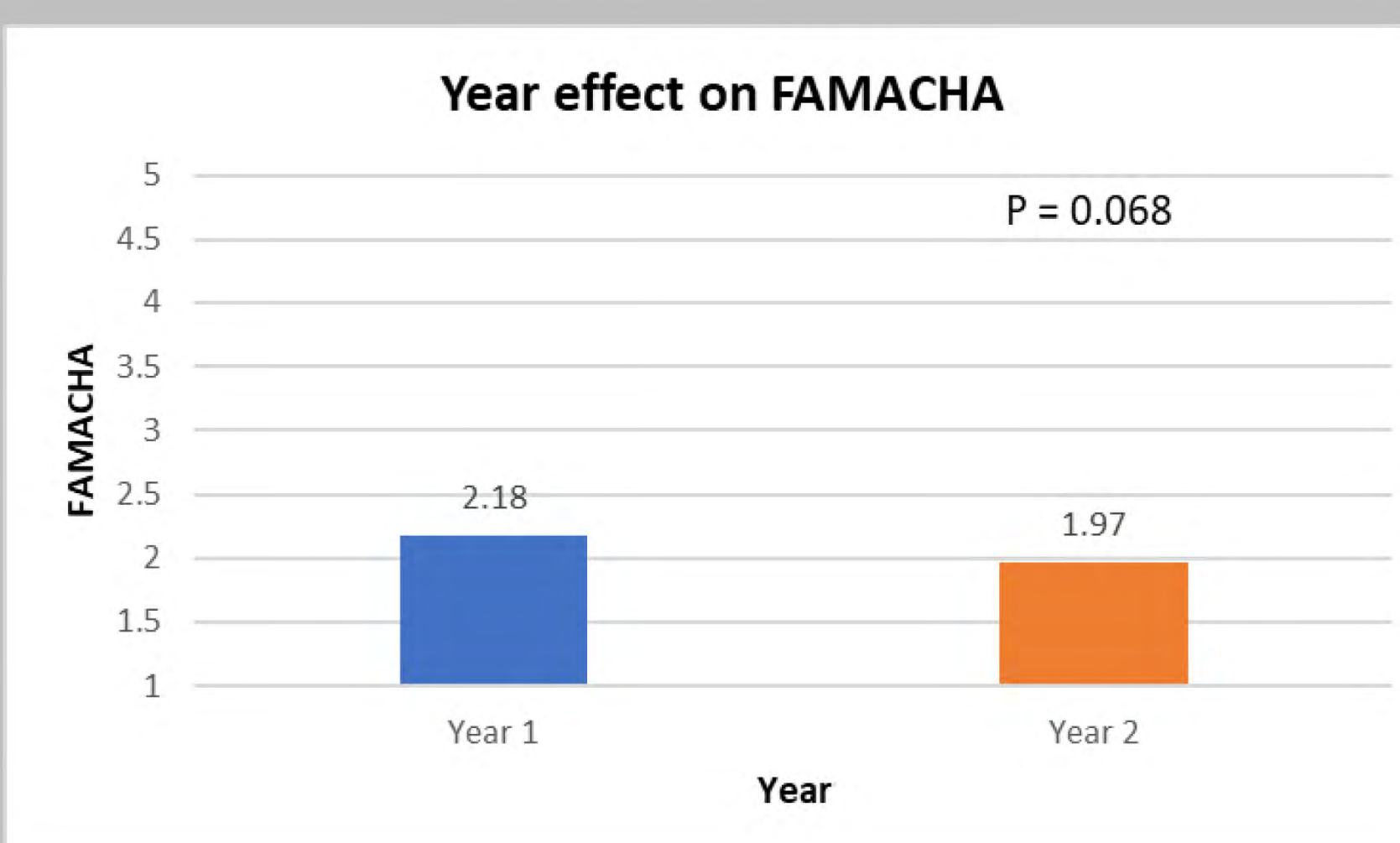
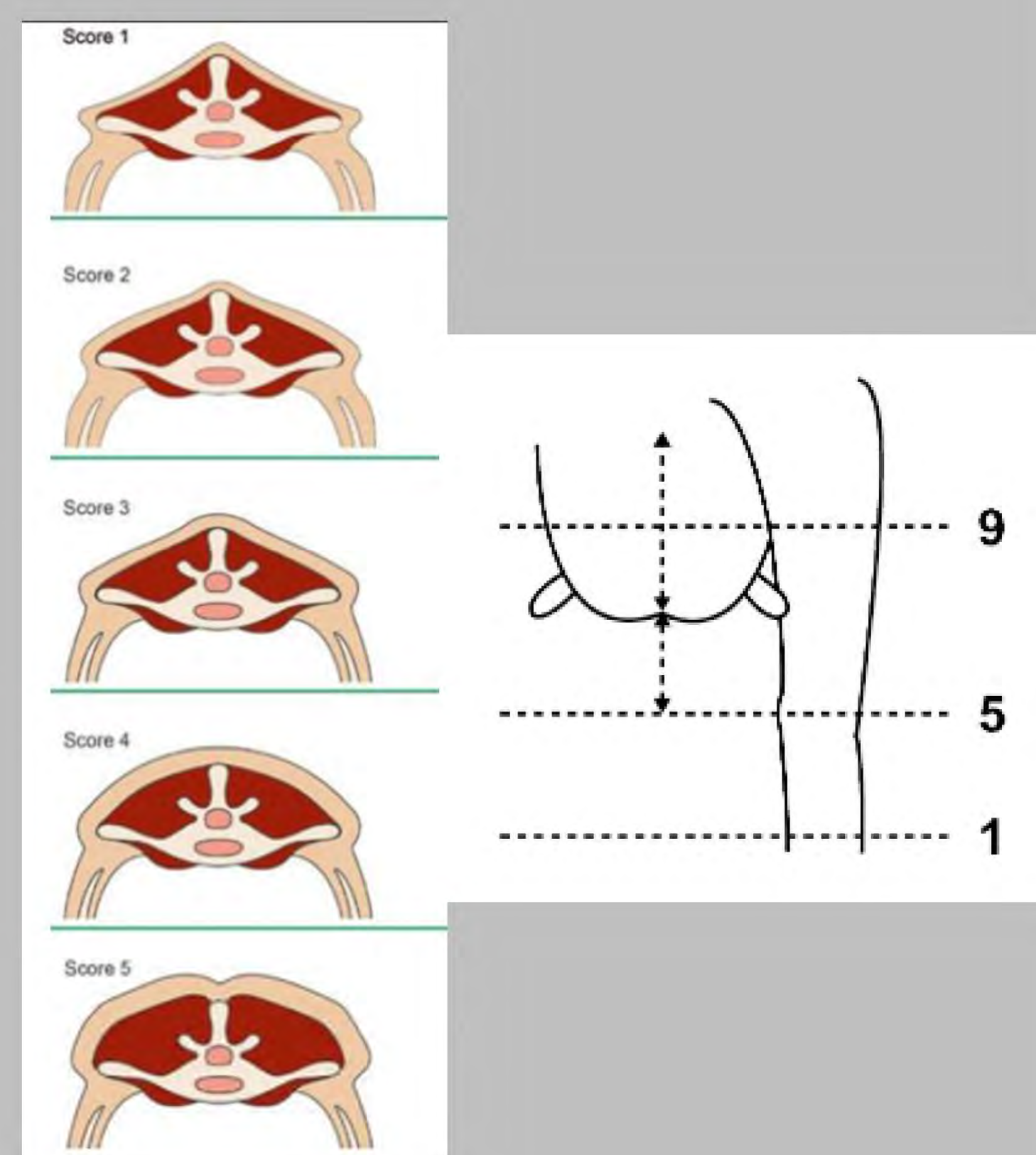


Figure 2. Year Effect of FAMACHA



Figures 5, 6, & 7. Depict scoring standards for BCS, udder and teat scores. Lewis (2022)

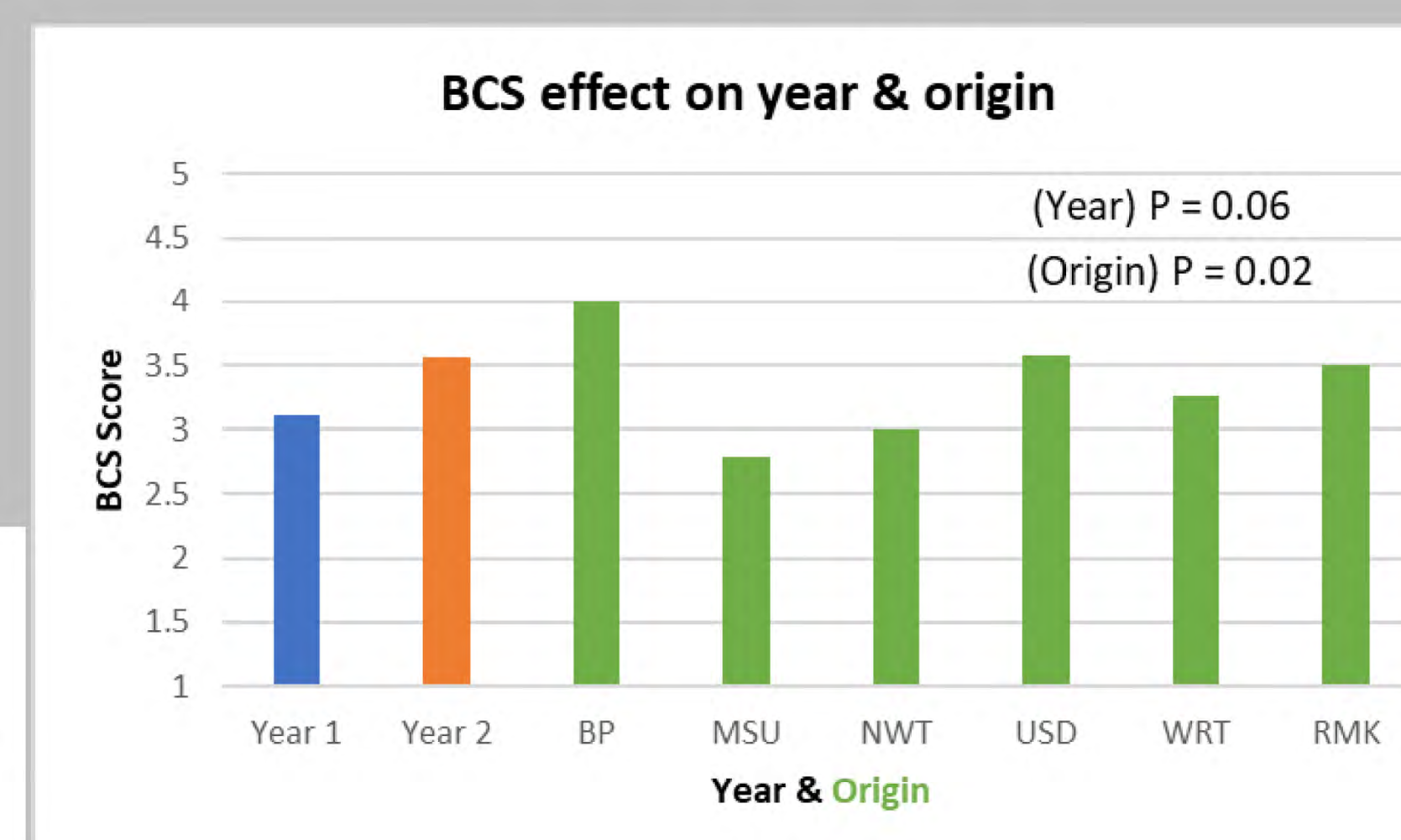
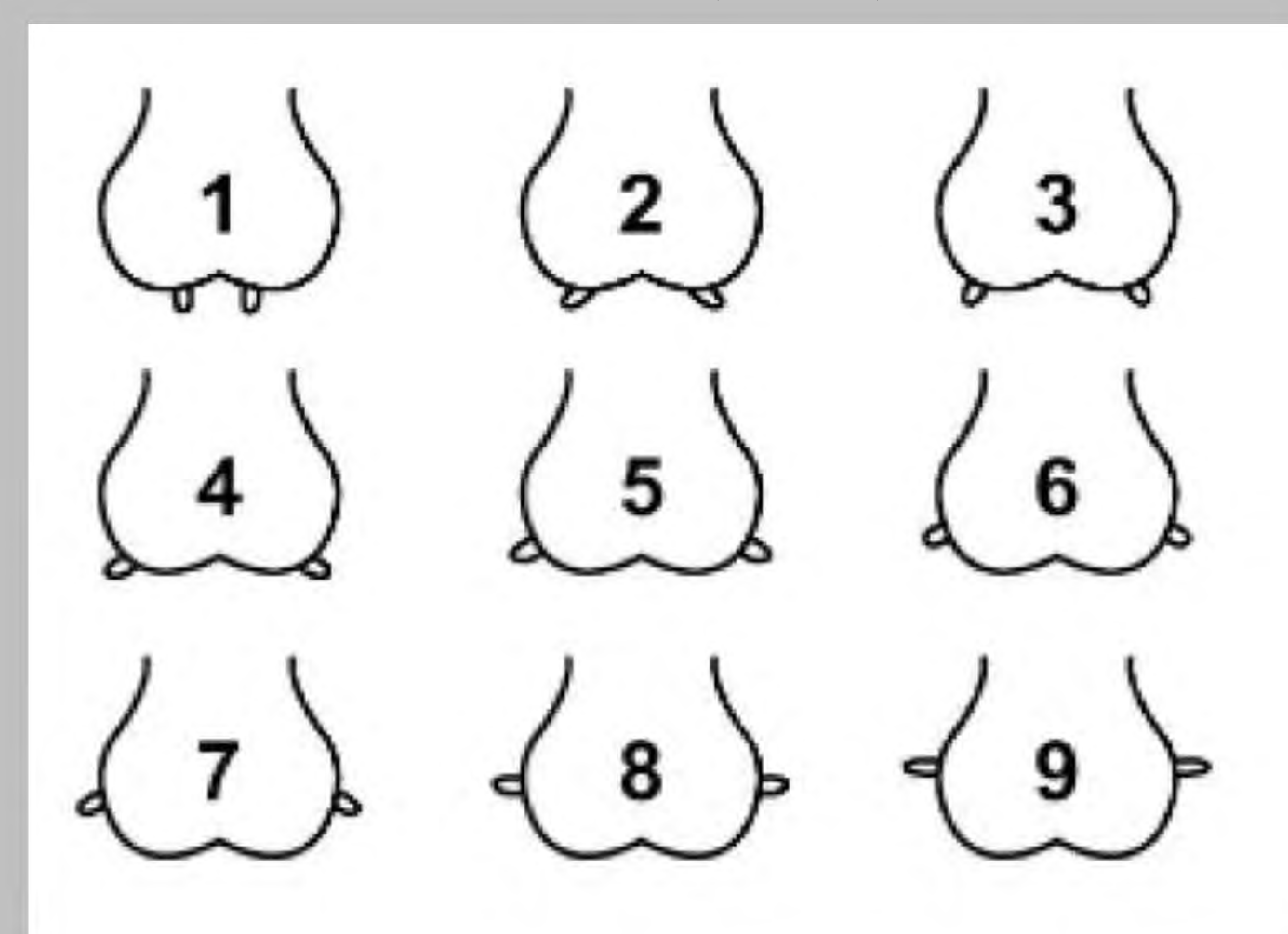


Figure 3. BCS Effect on Year & Origin

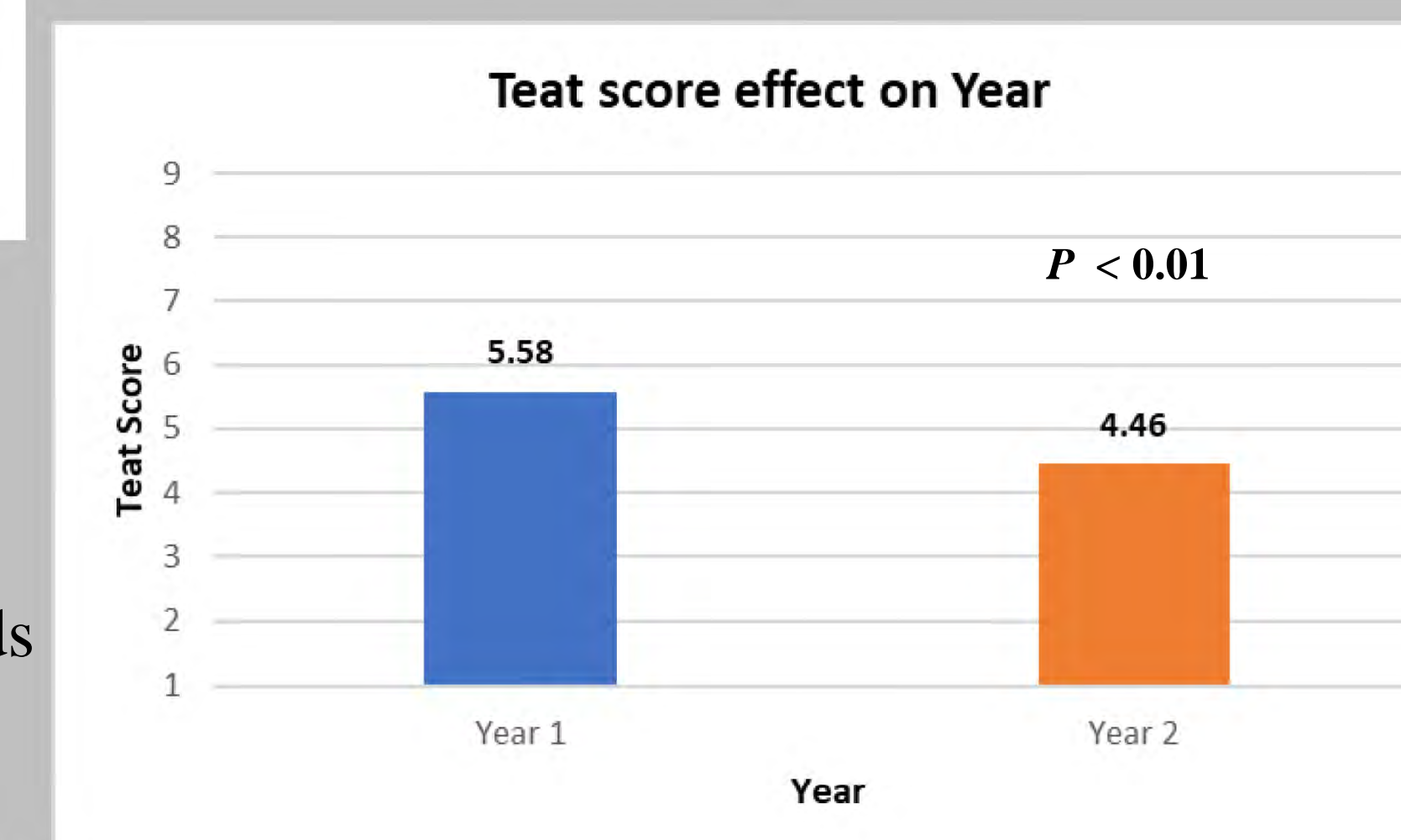


Figure 4. Teat Score Effect on Year

DISCUSSION

The prevalent influence of year and origin upon fecal egg count per gram implies a reduction of parasite load in all origins of the ewes from year 1 to year 2. Correlated with figure 1 is a p value of 0.02 between the year and origins impact upon the ewes' FEC. The effect of year upon FAMACHA scores illustrated a slight reduction from year 1 to year 2 for all ewes. In year 1, the ewe flock overall scaled at 2.18 whereas in year 2 all ewes scaled an average of 1.97 and derived a p value of 0.068. Teat scores relevance to effect on year demonstrated a moderate decrease from year 1 to year 2 at a p value of 0.01. The body condition score from year 1 to year 2 averaged closely but had a higher scoring for BCS in year 2 at a p value of 0.06. Origin greatly fluctuated the resulting body condition scores for the ewes with a p value of 0.02.

CONCLUSION

The content addressed in this research project is only a portion of the criteria that is analyzed into the ewe's value of longevity. The reduction from year 1 to year 2 within figure 1 is an important analysis for their susceptibility to parasitic infections, passive immunity of the ewe to internal parasites (ascarid) and shrink the parasitic resistance towards dewormer that is an arising issue for present day sheep flock's. Figure 2's representative decrease from year 1 to year 2 is purposeful in the longevity of ewes. The compiled data in figure 2, demonstrates the ewe's resistance to internal parasitic infections that can present potential fatality for the ewe. Teat scoring is necessary for the longevity of ewe's because it is an aid of measurement that allows the producer to predetermine the ease of access of milk to the ewe's future offspring. The BCS scoring can severely impact the ewe's susceptibility to obtaining or maintain a pregnancy and survival rate of the lamb through weaning.

LITERATURE CITED

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