

# Reliability Of Weaning Weight Or Age At Weaning As A Post Growth Predictor<sup>1</sup>

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## ABSTRACT

Seventy one Dorper lambs weaned at either 75 (n=39) or 105 (n=32) days of age (DOA) were placed on a growing diet and weighed every 7 days to determine body weight and growth rate. The objective of the project was to determine if weaning weight can be used to predict finishing weight. Average daily gain and percentage of body weight growth was calculated for each week as well as the full feeding period as a means of developing a growth curve to characterize the growth pattern of early weaning Dorper lambs. Lambs weaned at 105 DOA were born during the Fall 2016 and the growth period was during the Spring 2017 while the lambs weaned at 75 DOA were born during the Fall 2017 and the growth period was during the Spring 2018. Lambs weaned at 75 DOA averaged 30.4 kg at weaning while those weaned at 105 DOA were 32.1 kg. Following 42 days on feed, the 75 DOA lambs weighed 39.5 kg and the 105 DOA lambs weighed 40.0 kg. As a percentage of weaning weight the 105 DOA lambs were 142% of weaning weights while the 75 DOA lambs 131% of their weaning weights. This is a minimal difference in both percentage of weaning weights and actual weights, it appears that age at weaning might be as important or more than weaning weight in predicting post weaning growth. However, variation between two years suggests that more years of data are required to develop a reliable prediction equation.

## INTRODUCTION

In recent years the advances in technology have been a major factor for the current progressive turn in the livestock industry, and more importantly, the field of carcass marketability. However, the sheep industry is become impacted by social and cultural differences that create challenges for marketing lambs for the meat industry. Traditional lamb markets had an established weight that fit the preformed market channels but with outside influences we are marketing lambs at a variety of stages of development. Therefore, identifying a method for determining the most efficient time to market would improve the profitability of any livestock operator.

Thus, the ability to use computational technology to allow the individual lamb's weight and age to determine the best time to harvest would take the guesswork out of the lamb feeding and marketing. It would also allow a producers to determine at what point they growth has slowed to the point that profits are declining and suggesting it is time to market animals. Additionally, the traditional marketing strategy is to market animals with excess fat cover because they are heavier. Thus, if animals are harvest when their growth slows, they will naturally become less fat and have less waste making the entire process more efficient.

Therefore, the long range objective of this study is to collect baseline data to ultimately be included in a large multi-year and multi-observation data set to establish a growth prediction curve to better estimate when a Dorper lamb should be harvested. More pressing, the immediate objective is to map the growth rates of Dorper lambs post weaning and compare their growth to last year's growth and determine if they are similar. Additionally, this year the study began one month earlier to help determine if age at weaning had impacts on growth efficiency.

## MATERIALS AND METHODS

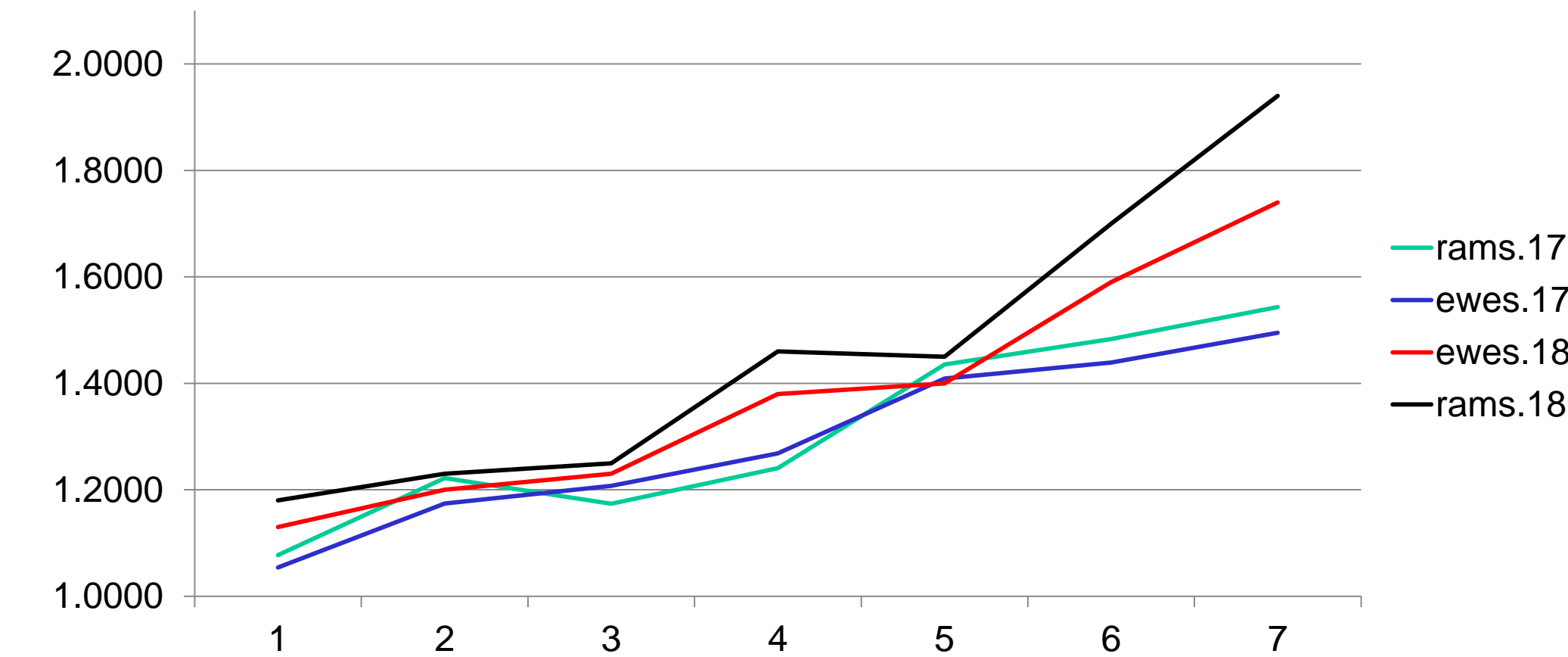
- The research project was approved by the ASU-IAUCUC: approval number 18-101
- 16 Dorper Ram Lambs
- 23 Dorper Ewe Lambs
- Ram: Mean Initial wt. 35.8 kg
- Ewe: Mean Initial wt. 28.8 kg
- Mean Age Approximately 100 days
- 1 pen, 39 Dorper lambs/pen, approximately 2 ha
- Lambs weighed once a week
- Weighed on d0 and d81 during the trial to estimate ADG
- Unlimited access to test ration, clean fresh water, and shade
- Ram: Mean end-weight 53.7 kg
- Ewe: Mean end-weight 48.3 kg

## STATISTICAL ANALYSIS

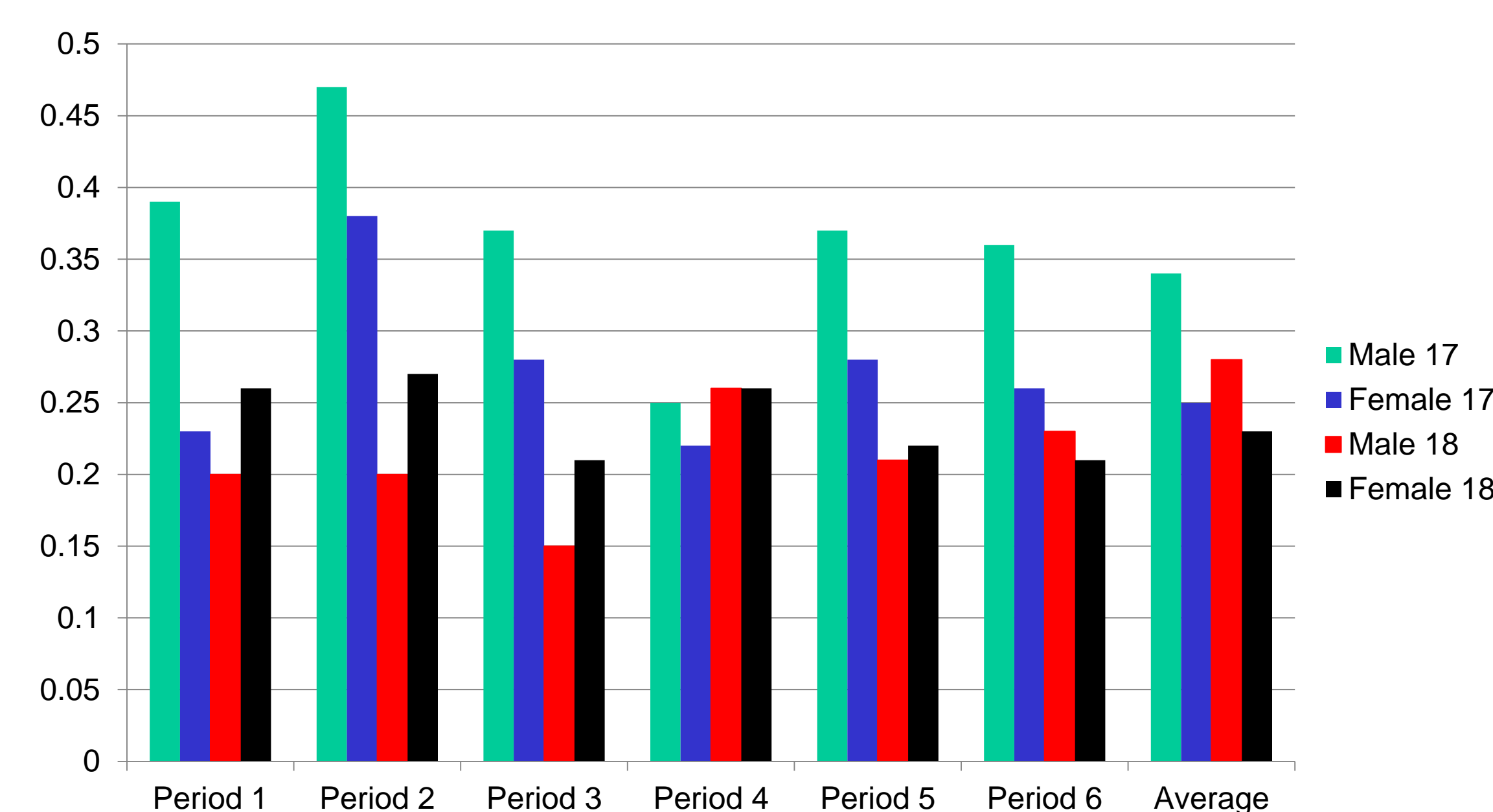
- Data Collected on this project is initial baseline data to establish a growth prediction curve for Dorper lamb production.
- Once the curve is developed the weight and age of a lamb can be compared to the curve to estimate the best a most efficient time to harvest the lamb.
- Data comparisons are between two years of data collection and between sex across year. For this data the GLM procedure in SAS was used where individual lamb served as the experimental unit and year was included as the random effect.
- Variables were considered different  $P \leq 0.05$



## Percentage growth from weaning



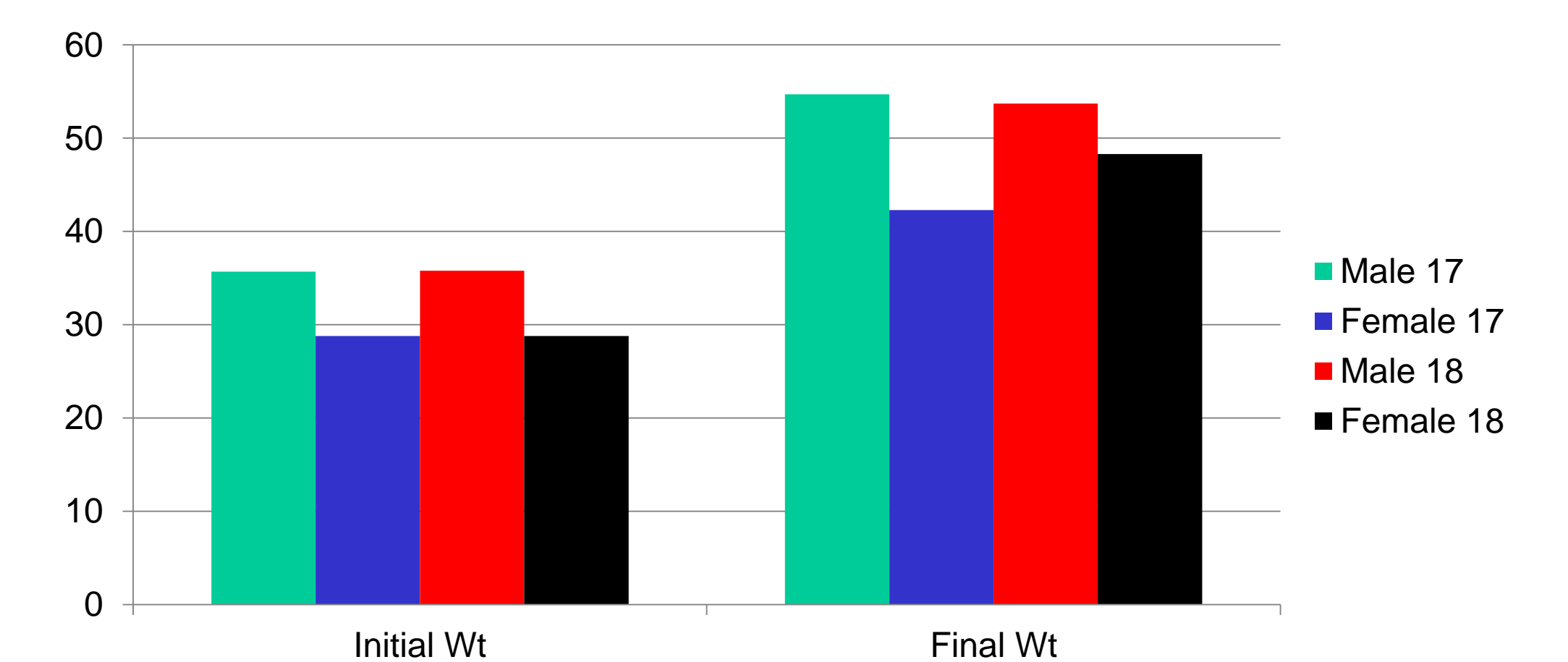
## Average Daily Gain by period



## RESULTS

- Inclement weather and equipment failure resulted in missing 3 interim weights<
- Weights and gain between years was similar ( $P > 0.05$ ) regardless of sex
- Growth rate appears to be delayed with the 2018 lamb compared to 2017. 2018 were weaned earlier to assist in determining most efficient time to begin monitoring growth but the growth pattern of period 3 – 5 in 2018 is similar to the pattern of 1 – 3 in 2017 which the lambs are similar in age at these times.

## Initial and final body weights of lambs in 2017 and 2018



## IMPLICATIONS

- Dorper lamb growth rates are higher than those reported in the literature suggesting they may more closely fit traditional markets than previously thought.
- The authors speculate that the time of weaning might play a role in the results reported in the literature as this study weaned lambs at a much earlier age than traditional sheep production but had similar weights at weaning as compared to that reported as initial weights in literature of much older lambs.
- It appears that age of lamb might be the largest factor in predicting growth because in the current study the lambs ended at similar weights and they were similar in age but those in the 2018 study were fed for approximately one month longer with similar initial weights.

## LITERATURE CITED

- Vinson, L. (2005). *Performance and Microbial Comparison of Sheep from Wool and Hair Breeds*
- Vasut, L. (2017). *Dorper growth and performance. Honors Research Program. Angelo State University*

<sup>1</sup>Project supported by the Angelo State University Freshman Research Program.

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