

The effect of days on feed and trenbolone acetate + estradiol-17 β implants on the dimensional measurements of serially harvested steer carcasses



MEAT SCIENCE

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INTRODUCTION

- Growth promoting implants are a technology used in the cattle feeding industry to improve feed efficiency and increase rate of gain.
- This study was designed to evaluate the effect of days on feed (DOF) and trenbolone acetate + estradiol-17 β on dimensional carcass measurements.



FIGURE 1. Digital image of the lateral aspect of the right side of each carcass for each market endpoint

MATERIALS & METHODS

- Charolais x Angus steers (n=80) were randomly allocated to treatment and harvest day in a 2 x 10 factorial design.
- Steers were randomly assigned to one of two treatments; implanted with Revalor-XS (REV) on d 0 and d 190 or non-implanted control (CON).
- Four pairs were randomly assigned to market endpoints of 0, 42, 84, 126, 168, 210, 252, 294, 336, or 378 DOF.
- Forty-eight h after harvest, a digital image was obtained of the lateral aspect of the right side of each carcass in front of a grid containing 390 contrasting black and green squares (100cm² each).
- Images were individually calibrated to a common standard and digitally measured for 2-dimensional surface area and maximal carcass length.
- Maximal length was measured from the caudal tip of the hindshank to cranial edge of the foreshank and maximal width was measured from the dorsal edge of the crest to the ventral edge of the foreshank. (Figure 2.)
- Carcass dimensional measurements were analyzed using MIXED models; fixed effects were implant treatment and DOF with d0 BW as a covariate.

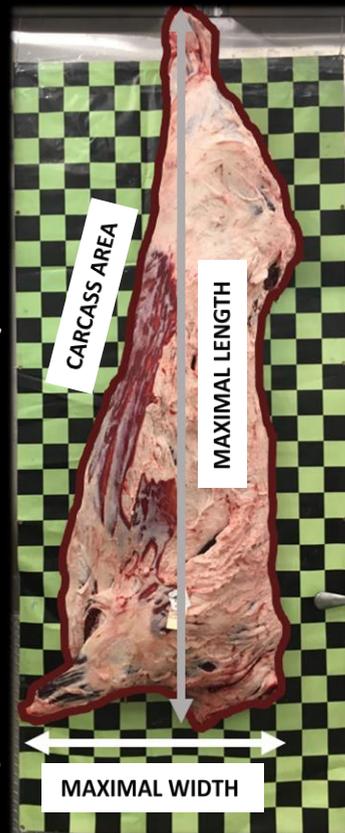


Figure 2. Illustration of dimensional trait assessment



Figure 3. Carcass length and width across a 378d feeding duration.

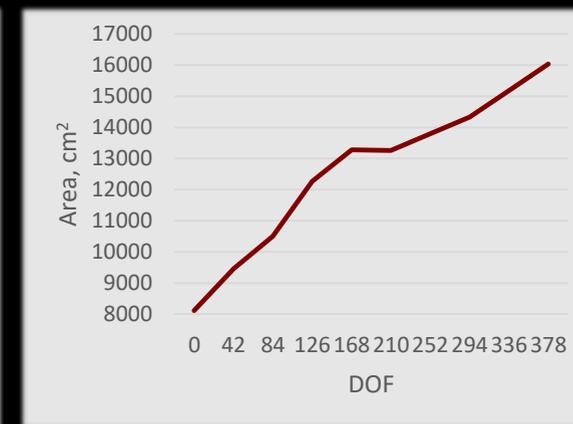


Figure 4. Carcass area across a 378d feeding duration.

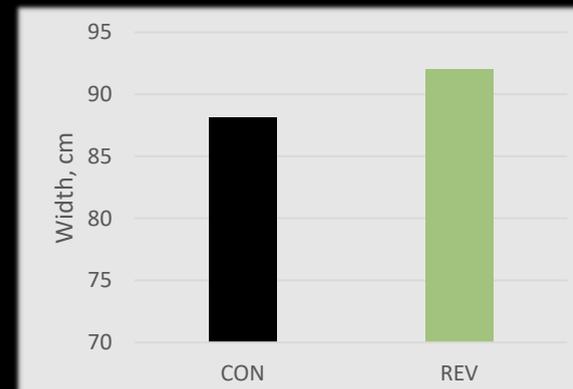


Figure 5. Carcass width of steers administered Revalor growth promoting implants versus non-implanted control



Figure 6. Carcass area of steers administered Revalor growth promoting implants versus non-implanted control

RESULTS

- No TRT x DOF interaction was observed ($P \geq 0.13$) for any dependent variable.
- Steers that received REV yielded 516cm² greater ($P < 0.01$) surface area than CON.
- Surface area increased 21.0 cm²/ day for steers administered REV.
- No TRT effect ($P = 0.57$) was observed for maximal length.
- Maximal width was 3.9 cm greater ($P < 0.01$) for REV steers.
- Steers carcasses increased 0.16 cm/day in length and 0.07 cm/day in width.

DISCUSSION

- REV carcasses were 4.2% larger in surface area and 4.4% wider than CON carcasses.
- During the 378d feeding period, steers increased 98% in surface area, 38% in width and 27% in length.

CONCLUSION

- Dimensional carcass measurements were impacted by feeding duration and growth promoting technology.