

# The effects of flavoring agents on feeding behavior, feed efficiency and temperament of newly received feedlot cattle

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## Introduction

- Quickly getting newly arrived feedlot cattle on feed is key to successful conditioning programs leading to optimal cattle health and performance, reducing death loss and use of antimicrobials (Duff and Galyean, 2007).
- Improving diet palatability is one of the recommended strategies to boost intake upon arrival (Yang et al., 2010).
- We hypothesize that the use of flavoring agents in the diet of receiving beef cattle will promote feed intake, with a positive impact in calves' performance, health and welfare.

## Objective

- To assess the effects of flavoring agents on feeding behavior, feed efficiency, growth performance and temperament of newly arrived feedlot cattle.

## Methods

90 steers distributed into 6 pens in homogenous groups based on body weight (BW)



- Treatments randomly assigned to pens (2 pens/treatment):
1. Control diet (CT): 50% barley silage, 39.5% dry rolled barley, 10% canola meal and vitamins/minerals supplement.
  2. Control diet + Sweeteners (SW): From Lucta, at 1 g/kg
  3. Control diet + Mix of basic tastes (MX) : From Lucta, at 1g/kg



56-d feeding trial, measuring BW and flight speed biweekly



Continuous feeding behavior monitored with Growsafe System. Daily data averaged individually by week.



Visits to the feed bunk were pooled into meals based on a 300 seconds meal criterion (Schartzkopf-Genswein et al., 2004)



Statistical analysis using a mixed-effects model with repeated measures by SAS University Edition, with Treatment and Time as fixed effects, Pen as random effect and Steer as subject

## Methods

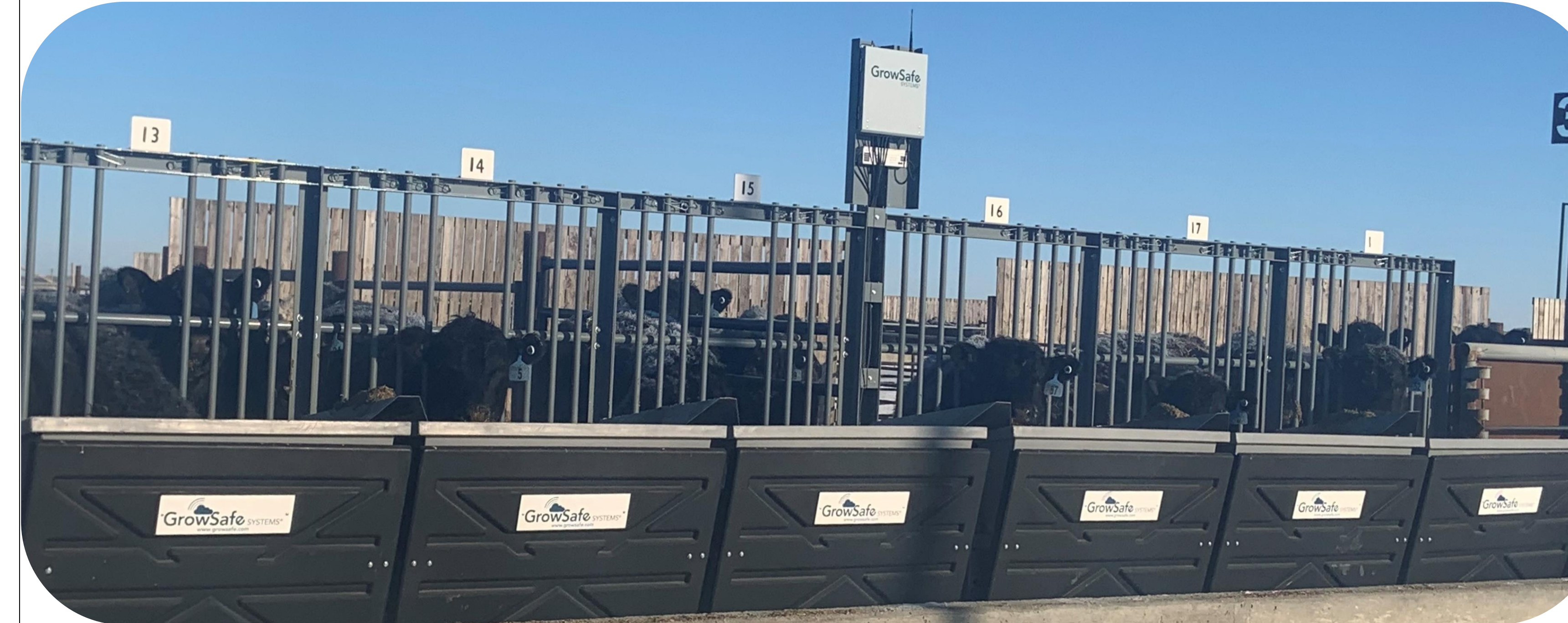


Fig. 1: Pens with Growsafe System for monitoring their feeding behaviour.



Fig. 2: Flight speed device used to measure cattle temperament.

## Results and discussion

### Feeding behaviour

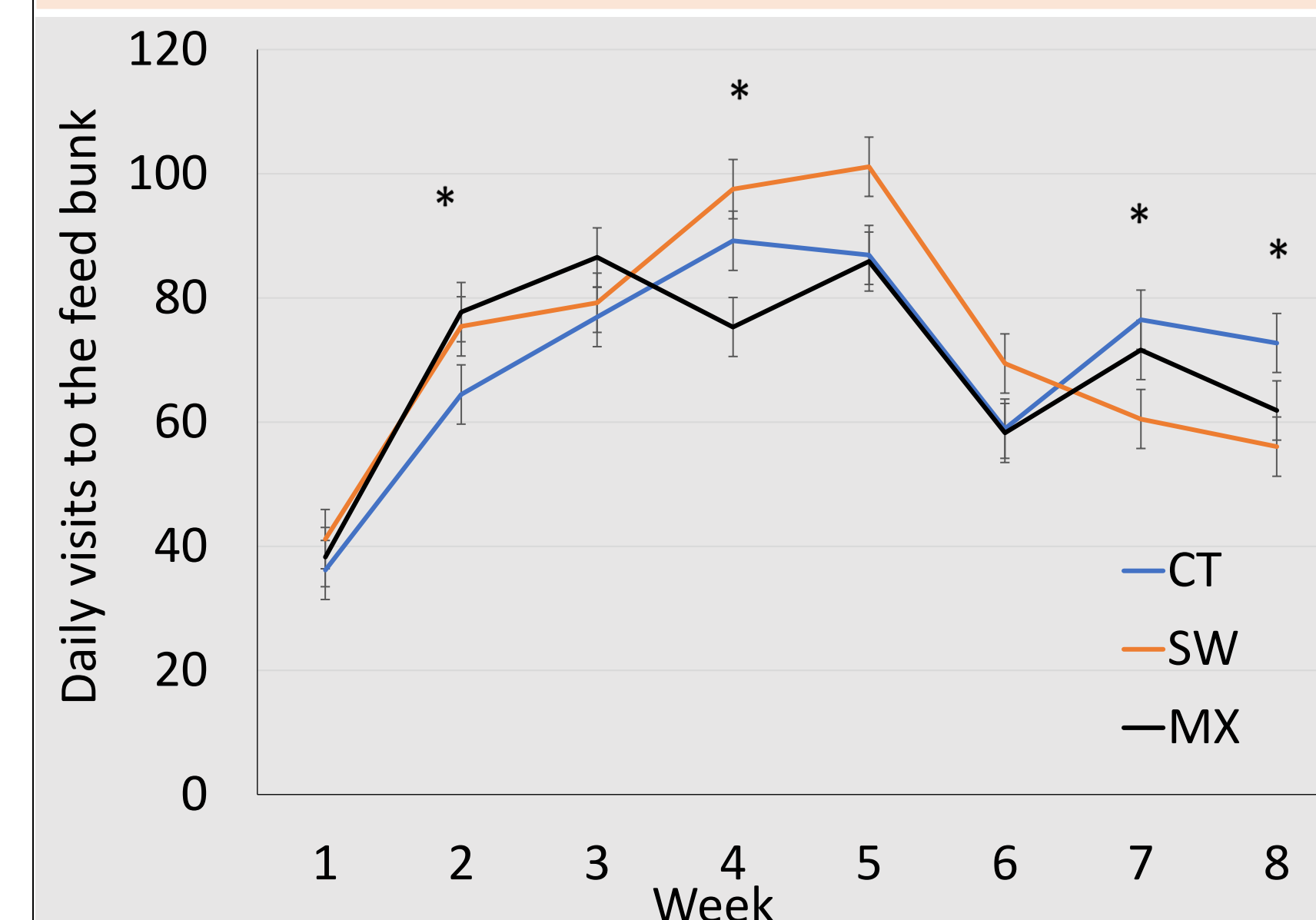


Fig. 3: Average number of visits to the feed bunk per steer and day. \* *P*-value Treatment x Time < 0.0001

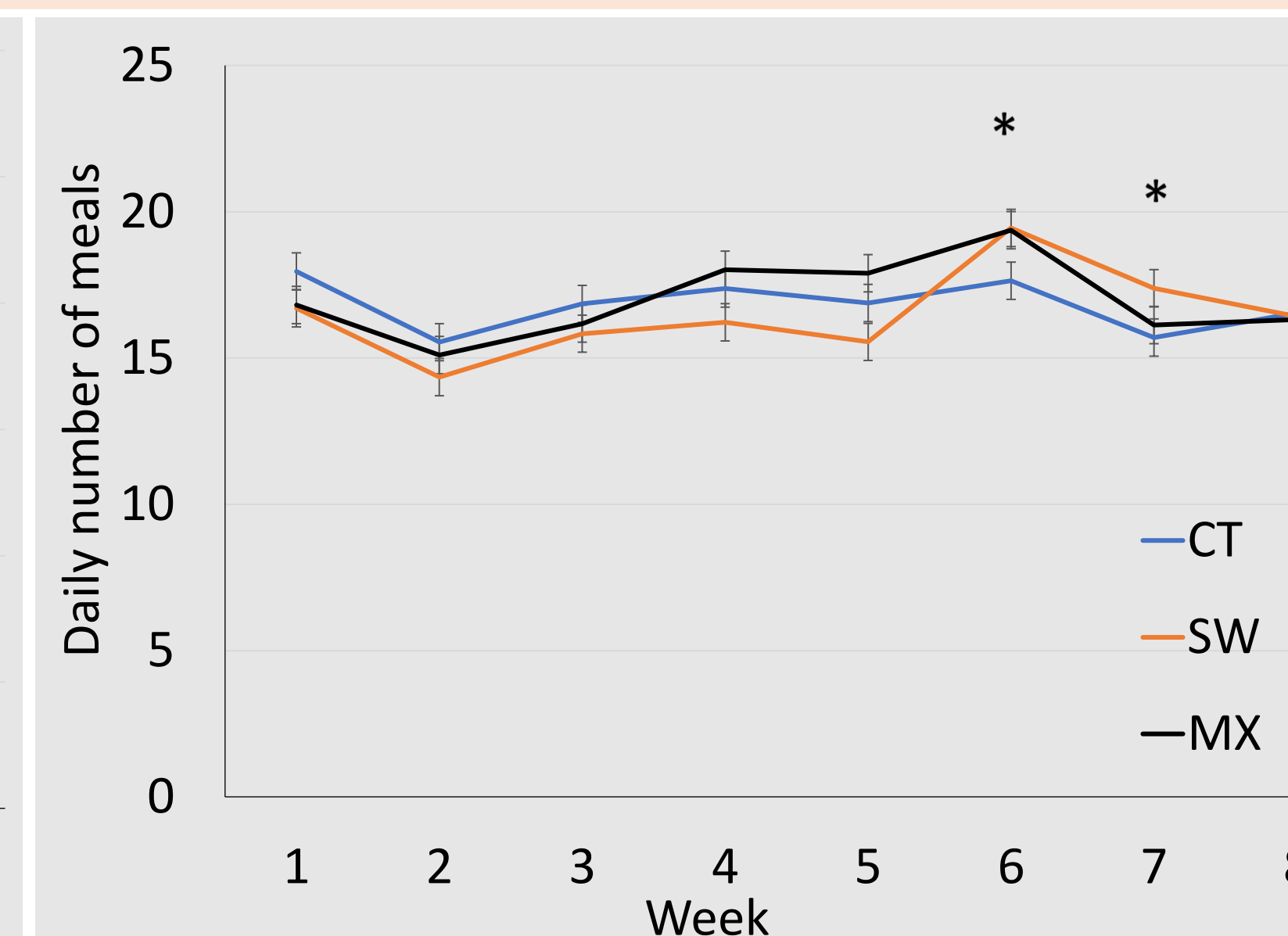


Fig. 4: Average number of meals per steer and day. \* *P*-value Treatment x Time < 0.0001

## Results and discussion (continued)

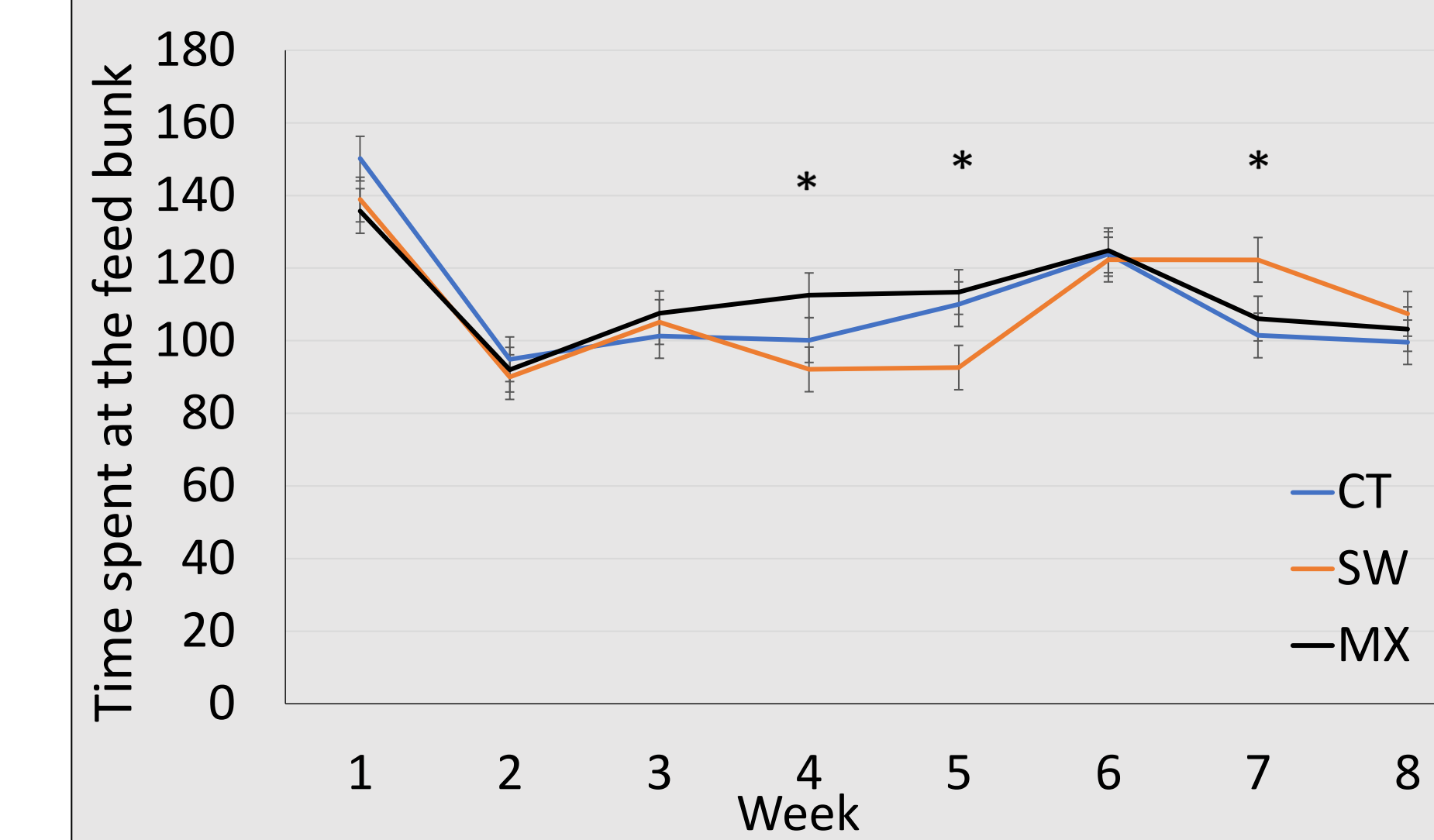


Fig. 5: Average time spent at the feed bunk per steer and day. \* *P*-value Treatment x Time < 0.0001

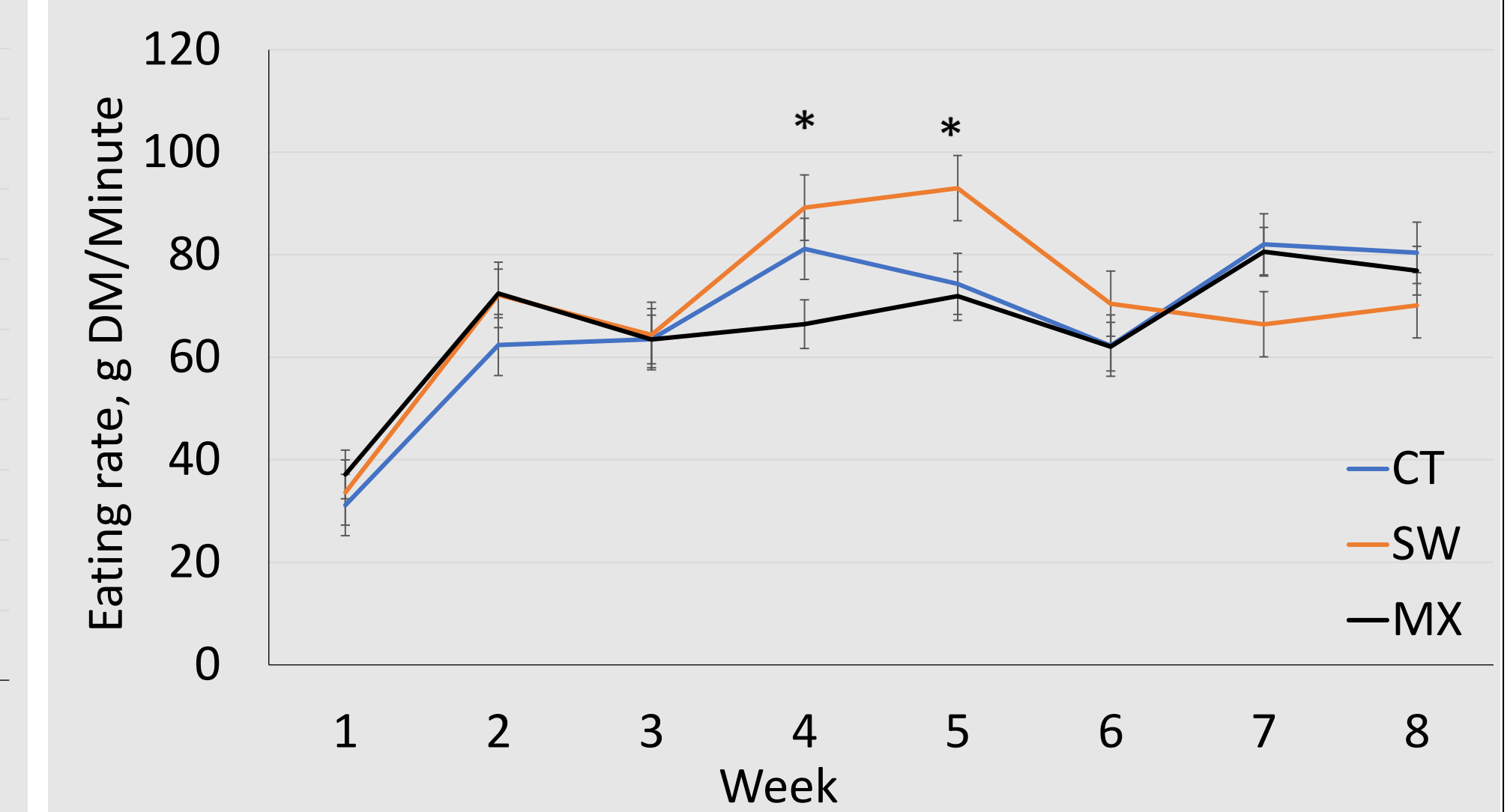


Fig. 6: Average feed consumption per minute spent at the feed bunk. \* *P*-value Treatment x Time < 0.0001

### Average daily gain and feed efficiency

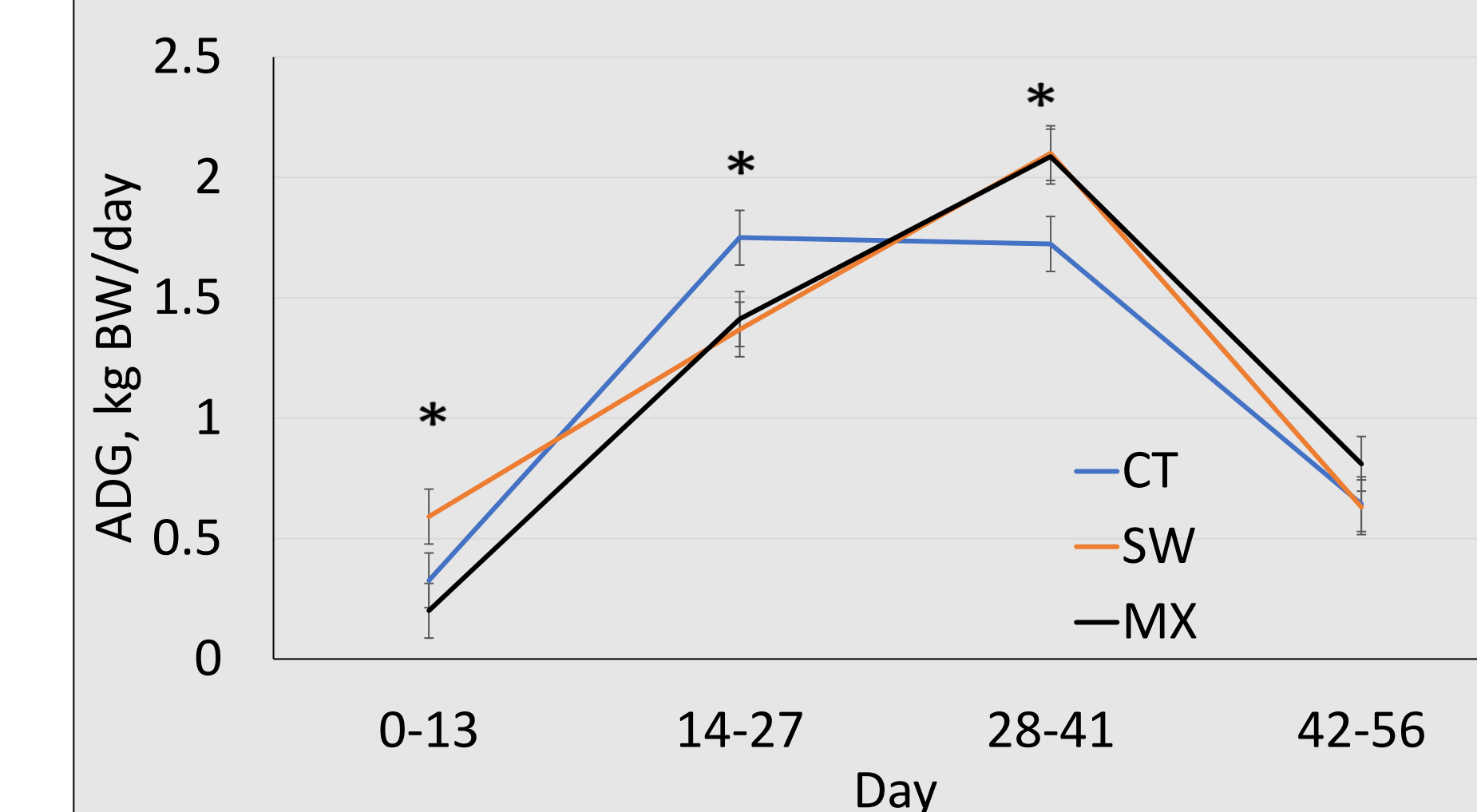


Fig. 7: Average daily gain significantly changed over time with the treatments, but no changes were found over the 56-d feeding period. \* *P*-value Treatment x Time < 0.0001

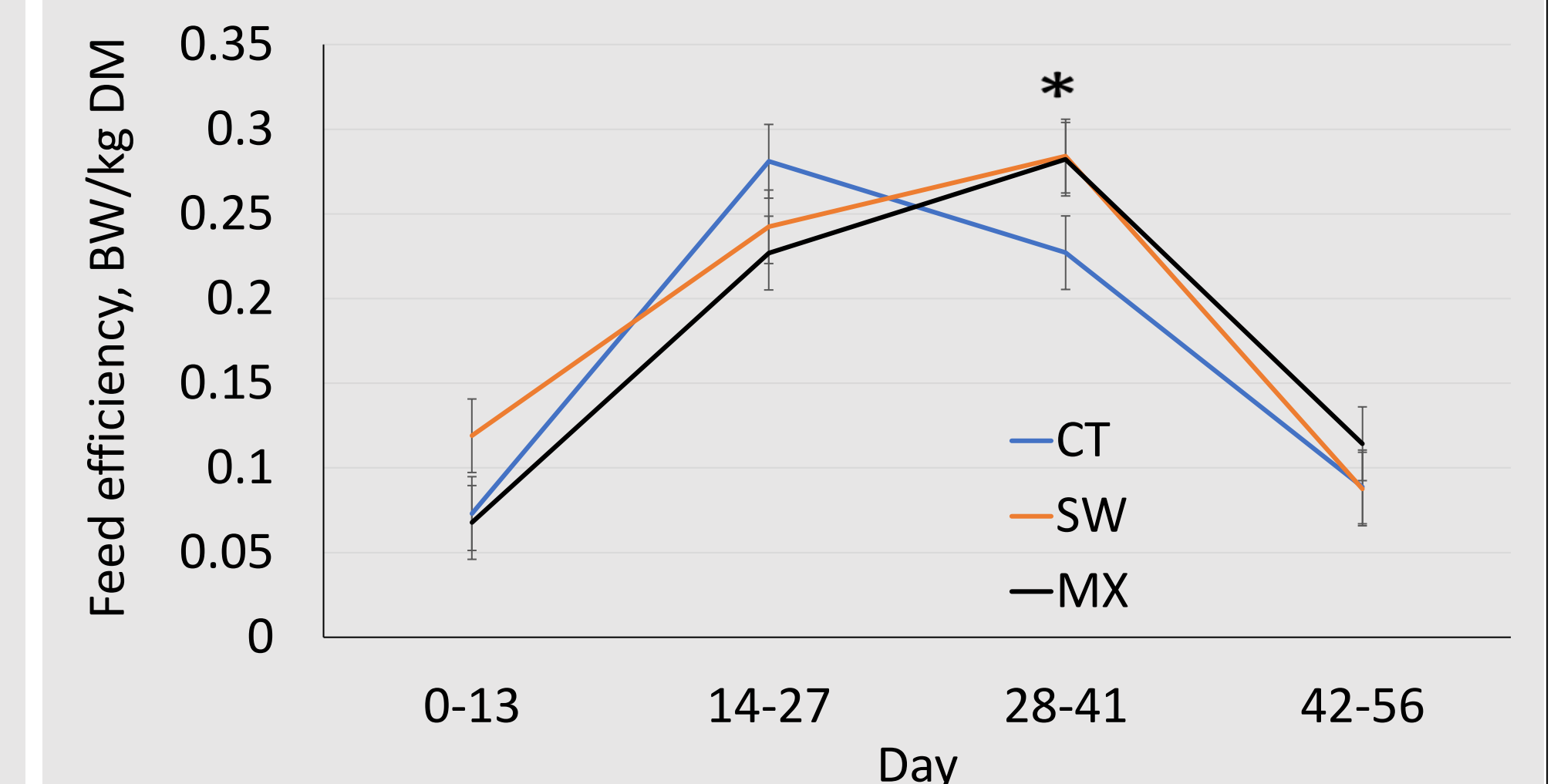


Fig. 8: Feed efficiency significantly changed over time with the treatments, but no changes were found over the 56-d feeding period. \* *P*-value Treatment x Time < 0.0001

- No significant treatment effect found on dry matter intake (*P* = 0.86) or cattle temperament (*P* = 0.26).

## Conclusion

Results suggest that the use of flavouring agents had multiple effects on the feeding behavior and feed efficiency of newly received feedlot cattle, although there was not a consistent pattern throughout the 56-d feeding trial.

## References

1. Duff and Galyean, 2007; J. Anim. Sci 85:823-840
2. Yang et al., 2010. J. Anim. Sci. 88:1082-1092.
3. Schwartzkopf-Genswein et al., 2004; J. Anim. Sci. 82, 3357-3365.

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