

# Effects of prescribed-fire timing on yearling-cattle grazing performance and forage biomass accumulation in the Kansas Flint Hills

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## Introduction

- Many ranching operations in the Kansas Flint Hills practice annual prescribed burning during the spring
- We recently reported that burning native range during August or September comprehensively controlled propagation of sericea lespedeza without negative changes to native grasses or forbs
- It is unknown how prescribed burning during summer or fall may influence subsequent grazing performance of yearling cattle managed under intensive-early stocking

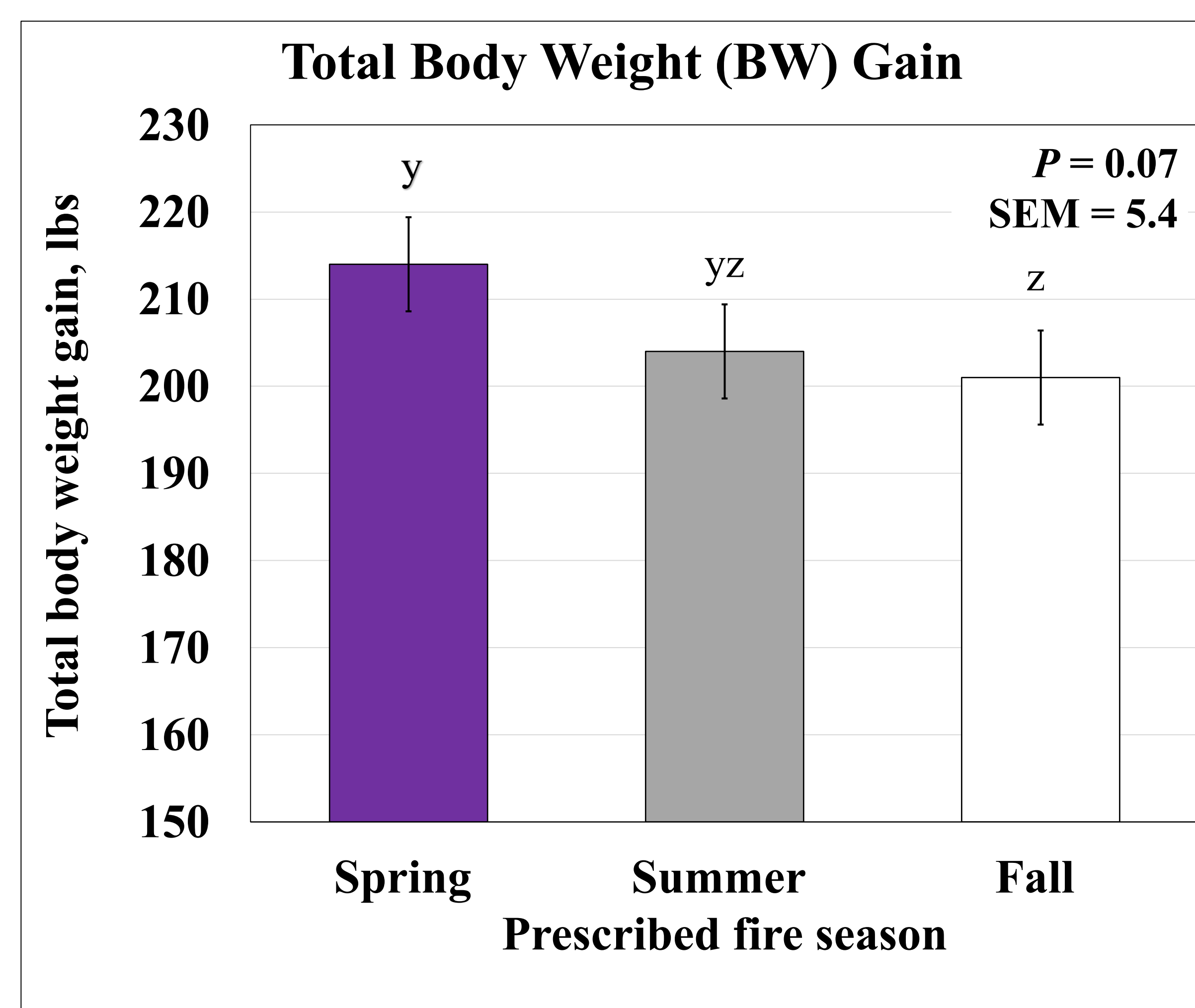
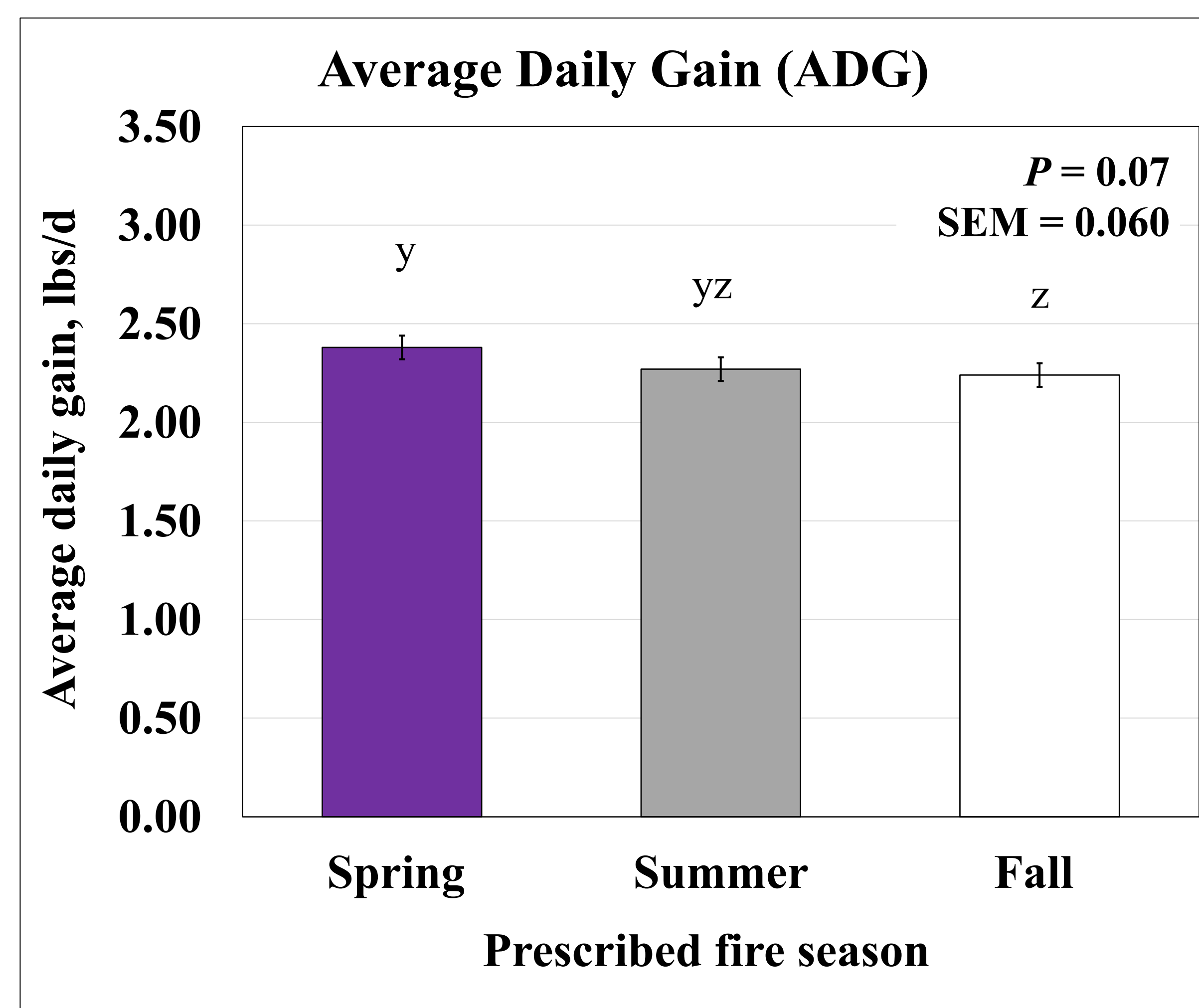
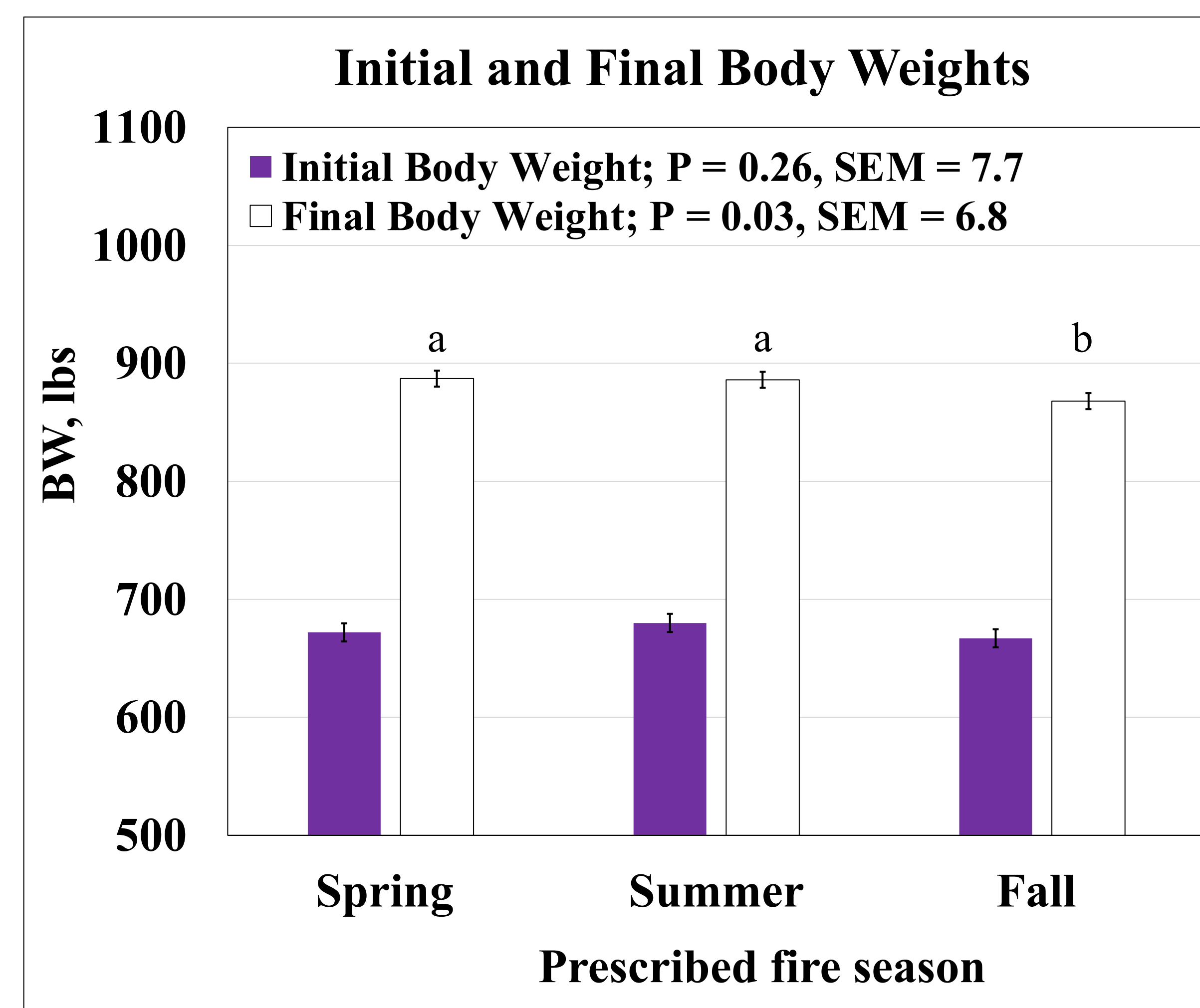
## Objective

- Evaluate the effects of annual spring, summer, and fall prescribed fires on growth of yearling beef cattle and forage biomass accumulation in the Kansas Flint Hills

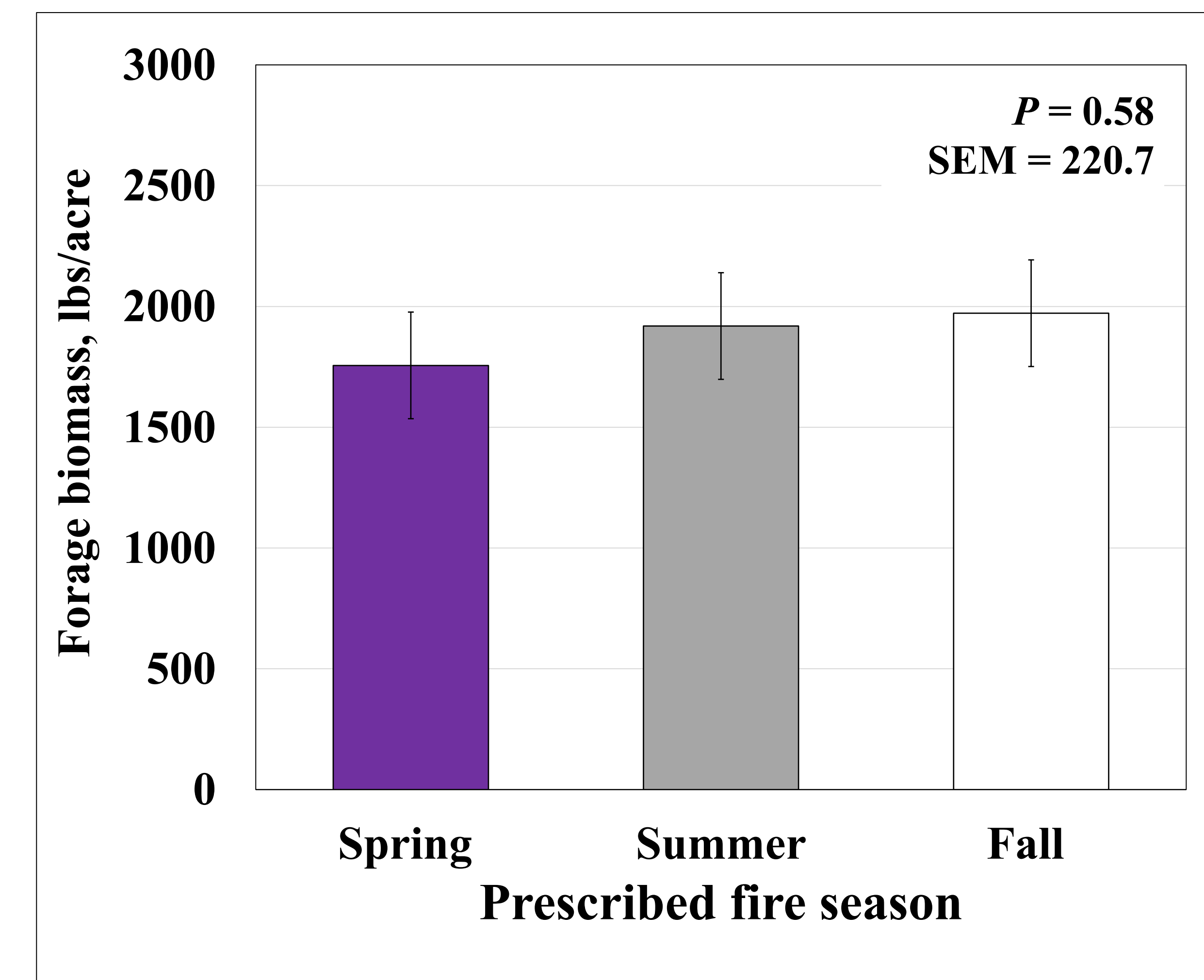
## Materials and Methods

- Our experiment was conducted at the KSU Stocker Unit from June 2018 to August 2022
- Eighteen pastures were grouped by watershed and assigned to one of three prescribed-fire treatments: spring (9 April  $\pm$  5.1 d), summer (23 August  $\pm$  4.9 d), or fall (29 September  $\pm$  8.7 d)
- Burn treatments were applied in years 1, 2, and 3 of the experiment prior to grazing
- Due to unfavorable burn conditions, burn treatments were not applied in year 4
- A total of 1,416 yearling cattle were grazed from May to August at a targeted stocking density of 250 lb live-weight  $\cdot$  acre<sup>-1</sup> beginning in 2019
- Forage biomass was estimated in 2018, 2020, and 2022 by clipping vegetation 1-cm above the soil surface within ten 0.25<sup>2</sup>-meter frames in each pasture

## Stocker Cattle Performance



## Forage Biomass



## Conclusions

- Total bodyweight gains and average daily gains of yearling cattle did not differ between spring and summer prescribed-fire treatments
- Final body weights were greater for calves that grazed spring- and summer-burned pastures compared with those that grazed fall-burned pastures
- Prescribed fire timing was not associated with negative effects on forage biomass accumulation
- Beef producers can employ summer prescribed fire to manage sericea lespedeza without reducing performance of yearling grazing cattle
- The long-term impacts of prescribed fire timing on stocker cattle performance and forage biomass accumulation will continue to be evaluated.
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