

## INTRODUCTION

Supplementing Ca salts of soybean oil (CSSO) to beef cows has been associated with productive and reproductive benefits (Cooke *et al.*, 2019; Marques *et al.*, 2017). Implementation of CSSO can be challenging though, due to the labor and costs associated with concentrate offer in pasture-based systems. Low-moisture molasses-based blocks (LMB) are a self-fed form of supplementation that can alleviate labor demands of the feeding process (Moriel *et al.*, 2019). Hence, research is warranted to determine if inclusion of CSSO into LMB will deliver equivalent amounts of  $\omega$ -6 and total FA to forage-fed beef cows compared with hand-fed granular supplements.

- **HYPOTHESIS:** Cows receiving CSSO via LMB will have similar plasma concentrations of  $\omega$ -6 FA compared with cohorts receiving CSSO daily via a hand-fed granular supplement.

## METHODS

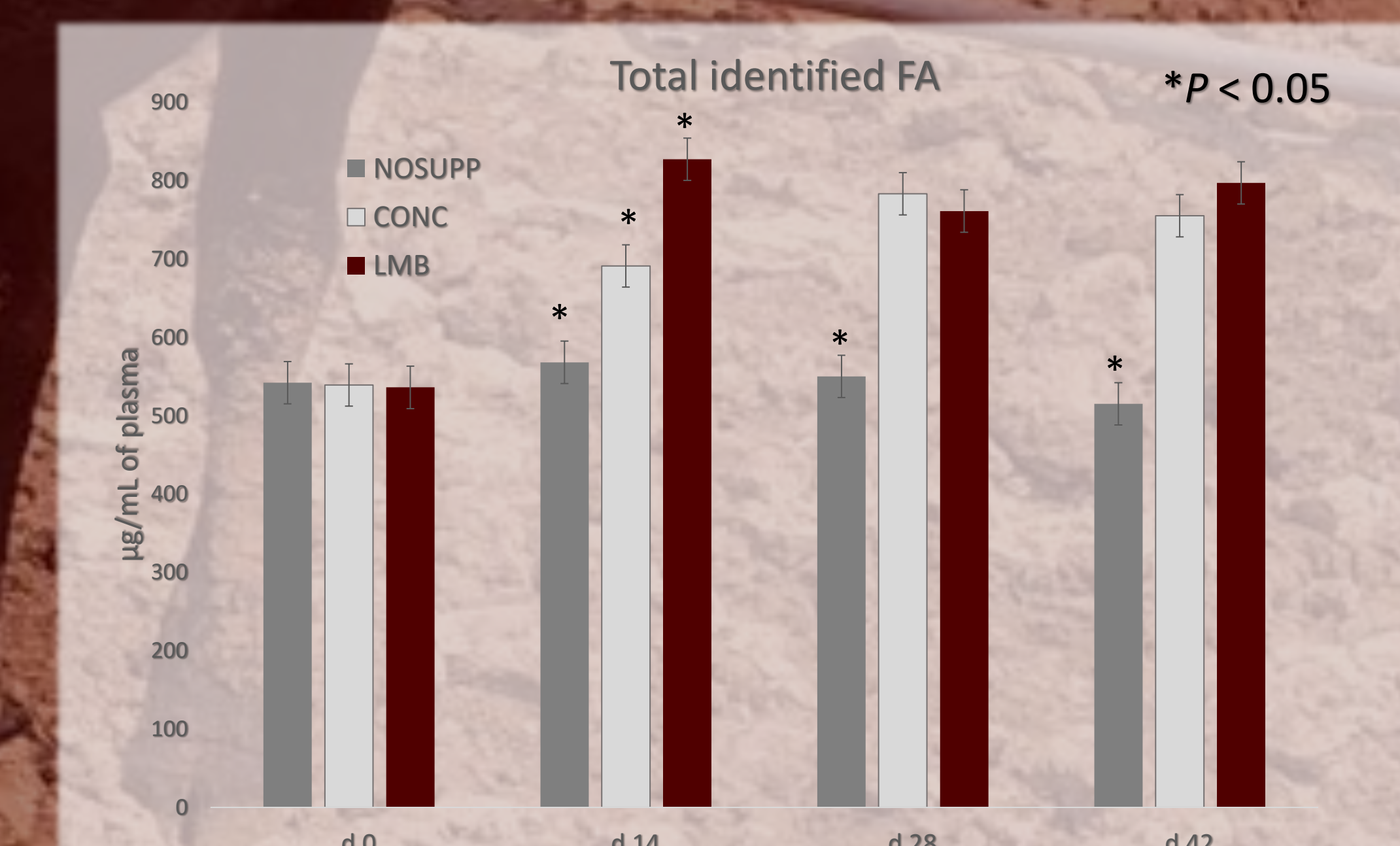
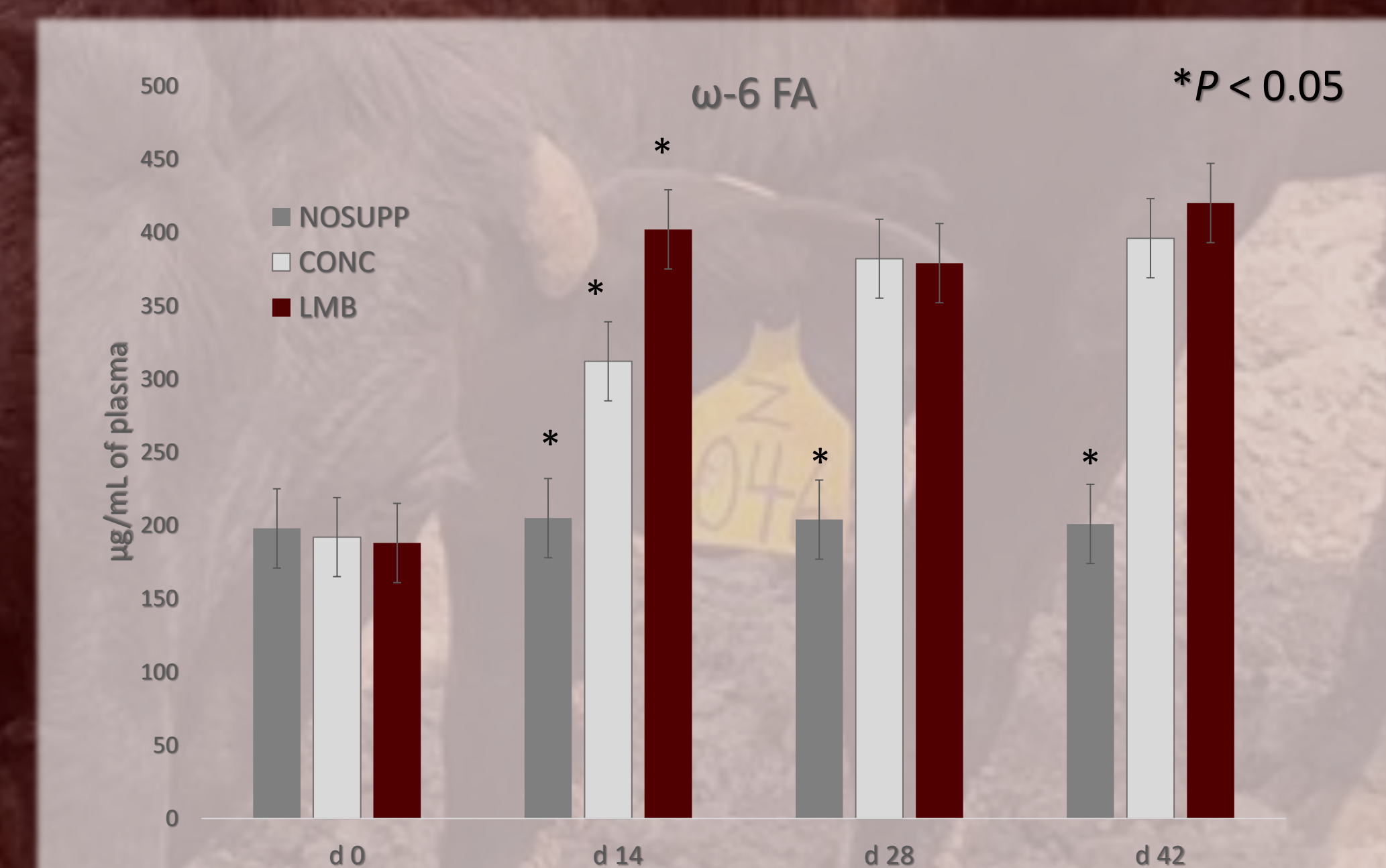
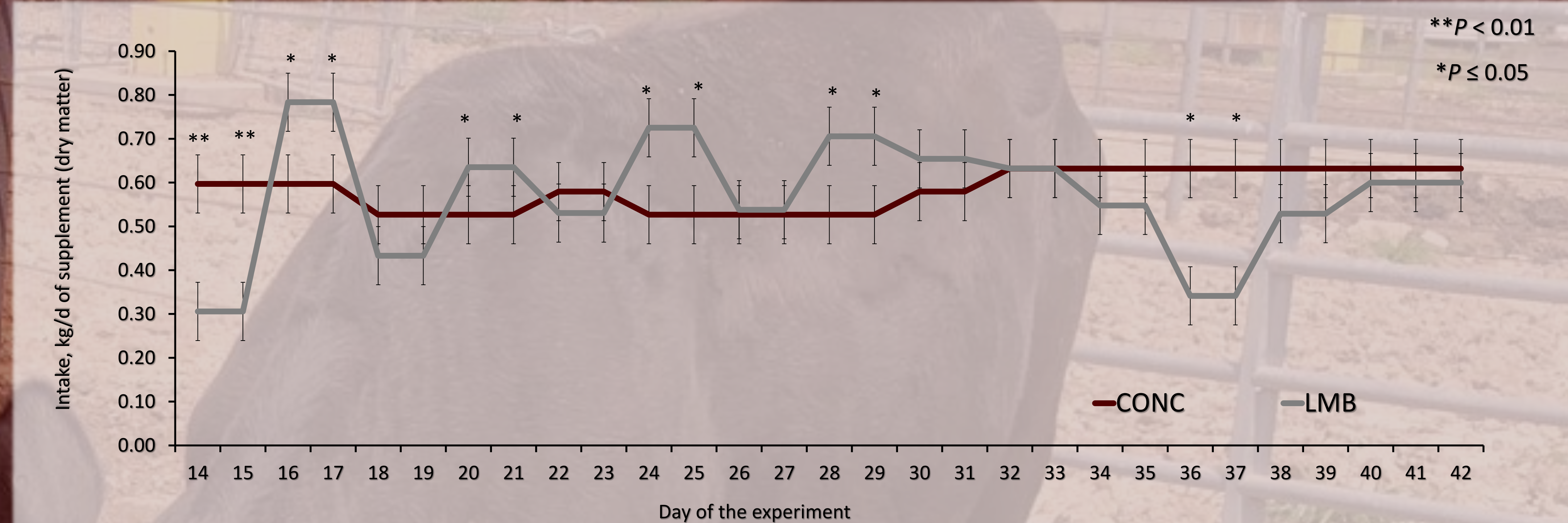
- **36** non-lactating, non-pregnant multiparous beef cows
- **Blocked by age:** block A = 3yr; block B = 5 yr and block C = 7 yr
- Within block, cows were **ranked by BW and BCS** and allocate to pens (n = 9)
- Pens were enrolled in a replicated 3 x 2 Latin square design, containing 2 periods of 42-d.
- At the beginning of each period (d 0) pens within block were randomly assigned to receive 1 of 3 treatments:

- 1) Self-fed **LMB** supplement enriched with CSSO (n = 6)
- 2) Hand-fed granular supplement enriched with CSSO (**CONC**; n = 6)
- 3) No supplementation (**NOSUPP**; n = 6).

- A washout interval (21-d) was observed between periods.
- On d 0, 14, 28 and 42 blood was sampled for FA analysis and BW and BCS were recorded
- Cows had ad libitum access to hay (*Cynodon dactylon*), water and mineral throughout the experimental period.

## RESULTS AND DISCUSSION

- Supplement DM intake did not differ ( $P = 0.39$ ) between LMB and CONC cows from d 14 to 42 as designed (0.570 vs. 0.583 kg/d, respectively; SEM = 0.011), despite a greater variation in daily intake of LMB vs. CONC (treatment  $\times$  day interaction;  $P < 0.01$ ).
- Treatment  $\times$  day interactions were detected for  $\omega$ -6 FA and total FA concentrations ( $P \leq 0.01$ ). On d 0, plasma FA profile did not differ between treatments. From d 14 to 42, plasma concentrations of  $\omega$ -6 and total FA were greater ( $P < 0.01$ ) in CONC and LMB vs. NOSUPP cows. Plasma concentrations of these FA were also greater ( $P \leq 0.03$ ) in LMB vs. CONC cows on d 14, but did not differ ( $P \geq 0.35$ ) on d 28 and 42.



- No treatments differences were noted ( $P \geq 0.40$ ) for hay intake, BCS, and BW.

## CONCLUSION

These results indicate that CSSO inclusion into LMB resulted in similar incorporation of  $\omega$ -6 and total FA in the circulation compared with CONC offered at the same daily rate. Therefore, the use of self-fed LMB appears to be a valid strategy to provide CSSO to forage-fed beef cattle with reduced labor needs.

### REFERENCES

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