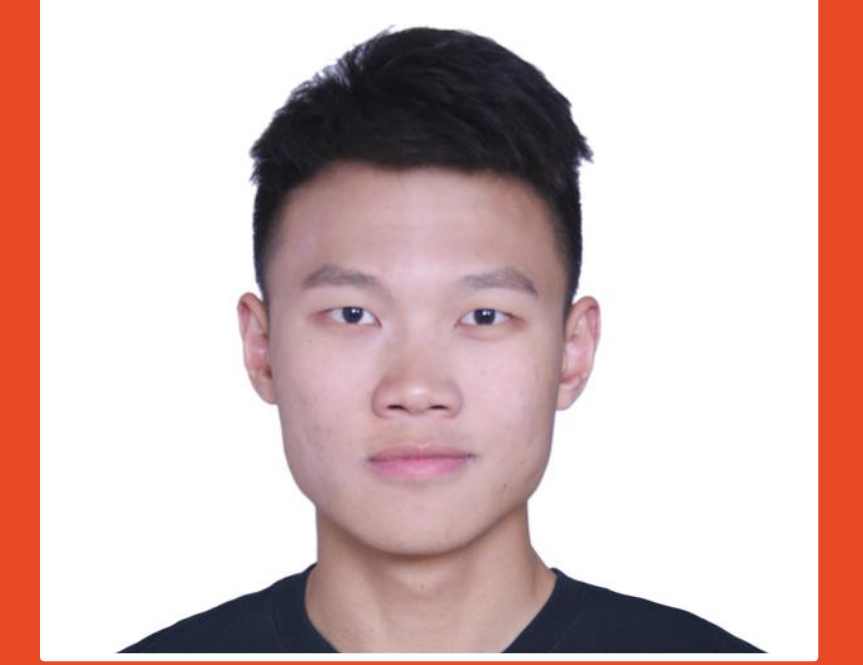




Effects of Late Gestation Calcium Salts of Fatty Acids Supplementation to Beef Cows on Offspring Finishing Phase Performance and Carcass Characteristics

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INTRODUCTION

Recent research indicated that supplementing polyunsaturated fatty acids (PUFA) to gestating ruminants has the potential to modify early development of muscle and adipose tissue, which leads to greater growth performance of the subsequent offspring. However, effects of supplementation of PUFA that is enriched in n-3 and n-6 fatty acids on finishing performance and carcass characteristics of the subsequent steer progeny under fall-calving grazing system are yet to be known

During the pre-weaning stage, steers born from dams supplemented with saturated/monounsaturated fatty acids (SFA/MUFA) had greater weaning BW and tended to have greater pre-weaning ADG (Taoqi et al., 2020 Midwest Meeting)

OBJECTIVE

The objective was to investigate the effects of late-gestation supplementation of Ca salts of fatty acids to beef cows on the finishing phase growth performance and carcass characteristics of the steer progeny



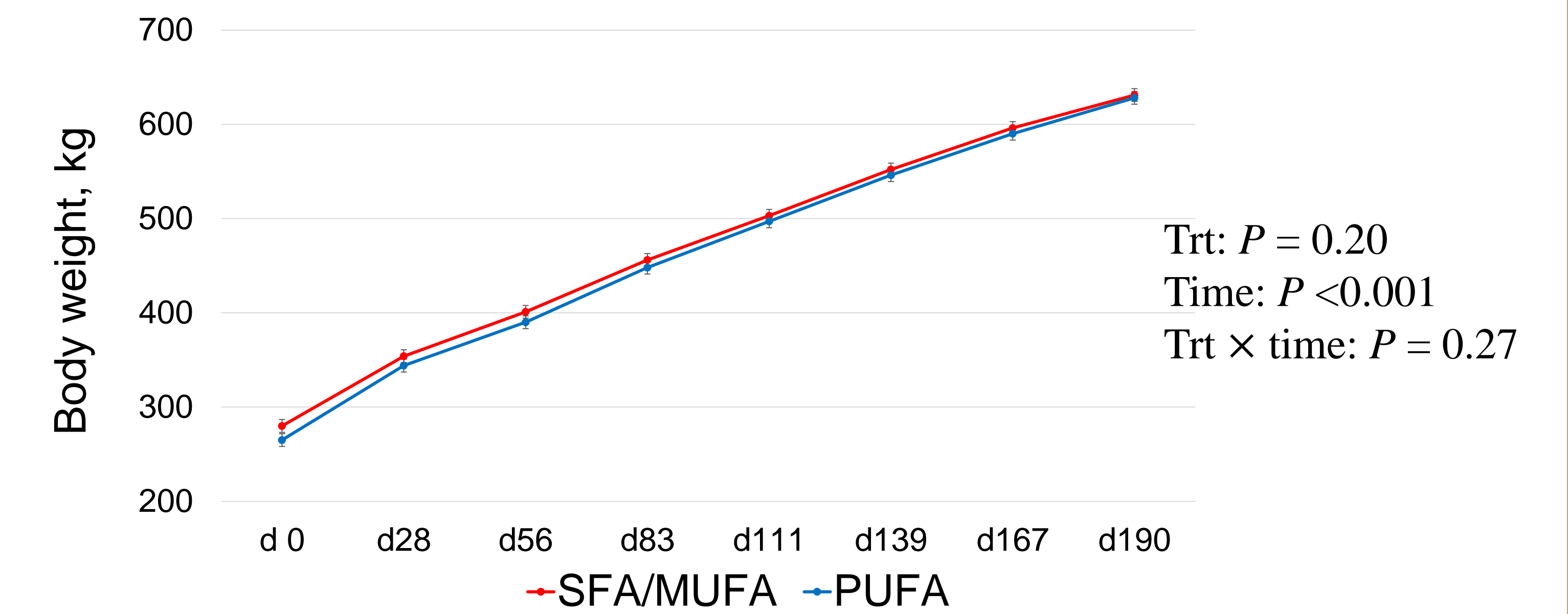
MATERIALS AND METHODS

- Ninety-six fall-calving, Angus x Simmental cow (BW = 601 ± 76 kg)
- Eight tall fescue pastures (4 pastures/treatment; 12 cows/pasture)
- Iso-caloric and isonitrogenous supplementations were bunk fed 3 times a week for the last 77 d of gestation
- Treatments:
 - SFA/MUFA:** 0.77 kg soybean hulls mixed with 155 g/cow/d EnerGII®
 - PUFA:** 0.77kg soybean hulls mixed with 80 g/cow/d Prequel + 80 g/cow/d Strata™
- Steer progeny were weaned at 186 ± 6 d of age, and 70 steers were transported to feedlot
- All steers had same managements and diets: 3 weeks of receiving diets and transitioned to finishing diets (50% high-moisture corn, 20% MWDG, 20% silage, and 10% supplement)
- MIXED and procedure of SAS was used for statistical analysis
- EPDs were used as covariates

Nutrient composition and fatty acid profile of the ingredients

Item (DM basis)	Forage	Soybean hull	EnerGII®	Prequel	Strata™
DM, %	29.3	85.1	96.4	95.3	95.7
CP, %	12.7	9.6	0	0	0
Total fat, %	3.4	2.3	94.3	83.7	83.0
Total fatty acid, %	1.5	1.0	77.2	74.4	67.3
Fatty acid profile, % of total fatty acid					
C16:0	20.35	17.2	47.2	0.40	23.8
C18:0	2.32	7.68	4.28	3.88	7.52
C18:1	4.62	14.1	36.4	27.8	12.5
C18:2	20.13	38.6	8.78	49.1	1.72
C18:3	40.07	12.2	0.29	1.27	0.94
C20:5 n-3	0	0	0	0	11.9
C22:6 n-3	0	0	0	0	7.66

Finishing phase BW of the steer progeny



Items	SFA/MUFA	PUFA	SEM	P-value
ADG, kg	1.86	1.92	0.035	0.13
DMI, kg	10.82	10.90	0.191	0.71
G:F	0.171	0.178	0.004	0.06

Carcass characteristics of the steer progeny

Items	SFA/MUFA	PUFA	SEM	P-value
HCW, kg	385	386	5.5	0.86
Dressing percentage, %	60.8	61.2	0.37	0.29
Yield grade	3.8	3.6	0.15	0.29
LM area, cm ²	87.4	86.2	1.43	0.40
Marbling score	510	525	19.8	0.47
12 th rib fat thickness, cm	1.9	1.7	0.11	0.22
KPH	2.1	2.1	0.05	0.77

CONCLUSIONS

Supplementation of calcium salts of polyunsaturated fatty acids during late gestation tended to increase finishing phase G:F ratio of the steer progeny; carcass characteristics were not affected by maternal fatty acid supplementation