

Influence of Akaushi Genetics on Beef Performance and Carcass Merit in Grain and Grass-Finishing Systems

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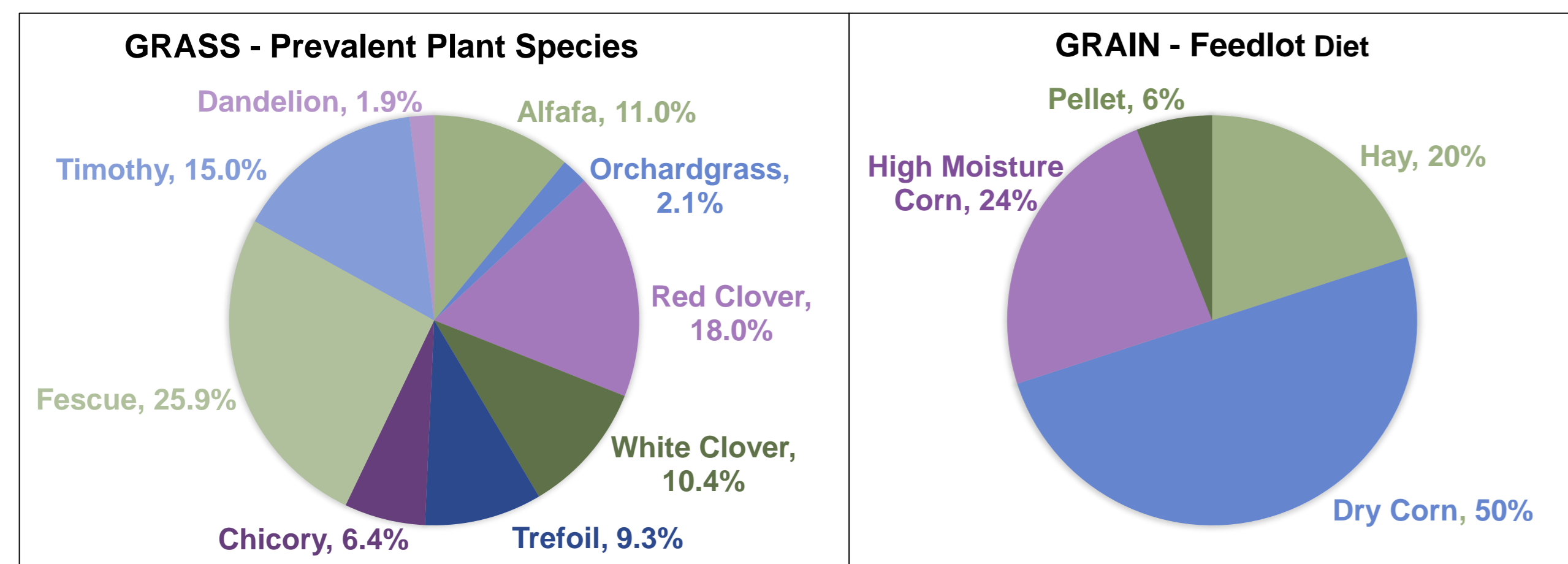


Introduction

- Grass-fed beef has been reported as a potentially healthier alternative and contains an altered fat content and fatty acid profile when compared to grain-fed beef (Duckett et al., 2009; Harmon et al., 2020).
- Introducing beef genetics for high marbling could help grass-fed carcass more consistently grade choice.
- The study objective was to investigate the impact of beef genetics and finishing systems on beef production and carcass merit.

Material and Methods

- Sixty steers of two genetic groups, Red Angus (RA) and RA x Akaushi (AK) sired, were divided in two finishing systems (GRASS- or GRAIN-fed).
- GRAIN were fed once daily over 107 d and GRASS grazed over 80 d.
- Body weight (BW) was measured after a 12-hour fasting period at the onset and end of the trial.
- All cattle were slaughtered on the same day. To insure both treatments were at a point of compositional maturity, there was an 8 mo difference of age in the grass (26 mo age) and grain-fed cattle (18 mo age) at slaughter.
- Carcass data was collected 48 h *postmortem*.



Results and Discussion

Table 1. Effects of breed composition and finishing system on animal performance and carcass merit of beef cattle

Item	System		Breed		SEM	P-value		
	GRASS	GRAIN	RA	AK		System	Breed	S*B
Initial weight (kg)	439.1	469.7	453.6	455.3	5.40	0.016	0.823	0.530
Final weight (kg)	548.8	611.	580.7	579.2	6.83	0.003	0.876	0.791
Total gain (kg)	90.1	141.3	116.4	115.0	6.55	0.005	0.715	0.327
ADG ¹ (kg/d)	1.13	1.32	1.23	1.22	0.07	0.112	0.812	0.323
Slaughter Wt (kg)	533.7	585.8	559.0	560.5	6.42	0.004	0.868	0.881
HCW ² (kg)	308.0	358.4	328.6	337.8	3.91	0.0008	0.104	0.401
Carcass Yield ³ (%2)	57.7	61.2	58.7	60.2	0.23	0.0005	<0.0001	0.085
Backfat (mm)	7.2	13.6	10.3	10.4	0.53	0.001	0.935	0.061
Ribeye (cm ²)	68.9	75.7	70.2	74.4	1.22	0.017	0.020	0.595
Internal fat (%)	0.55	2.52	1.43	1.63	0.03	<0.0001	0.0007	0.004
Pre-Yield Grade	2.70	3.33	3.01	3.02	0.05	0.001	0.935	0.061
Calculated YG	2.54	3.73	3.23	3.05	0.08	0.0005	0.119	0.415
USDA YG	2.13	3.23	2.76	2.60	0.08	0.001	0.196	0.072
Marbling score ³	Choice-	Choice+	Choice-	Choice0	21.24	0.002	0.003	0.958

¹ADG = Average daily gain; ²HCW = Hot carcass weight; ³Ratio of hot carcass weight to body weight at slaughter; ³Choice- = 400–499, Choice0 = 500–599, Choice+ = 600–699

Conclusions

- GRAIN had superior performance and carcass merit than GRASS
- AK enhanced these carcass traits to a greater degree as compared to RA.

System

The **GRAIN's** advantage in performance, led to:

- HCW +16%
- Ribeye area +10%
- Backfat +52%
- Dressing +6%
- Marbling score (621 vs 417)

Breed

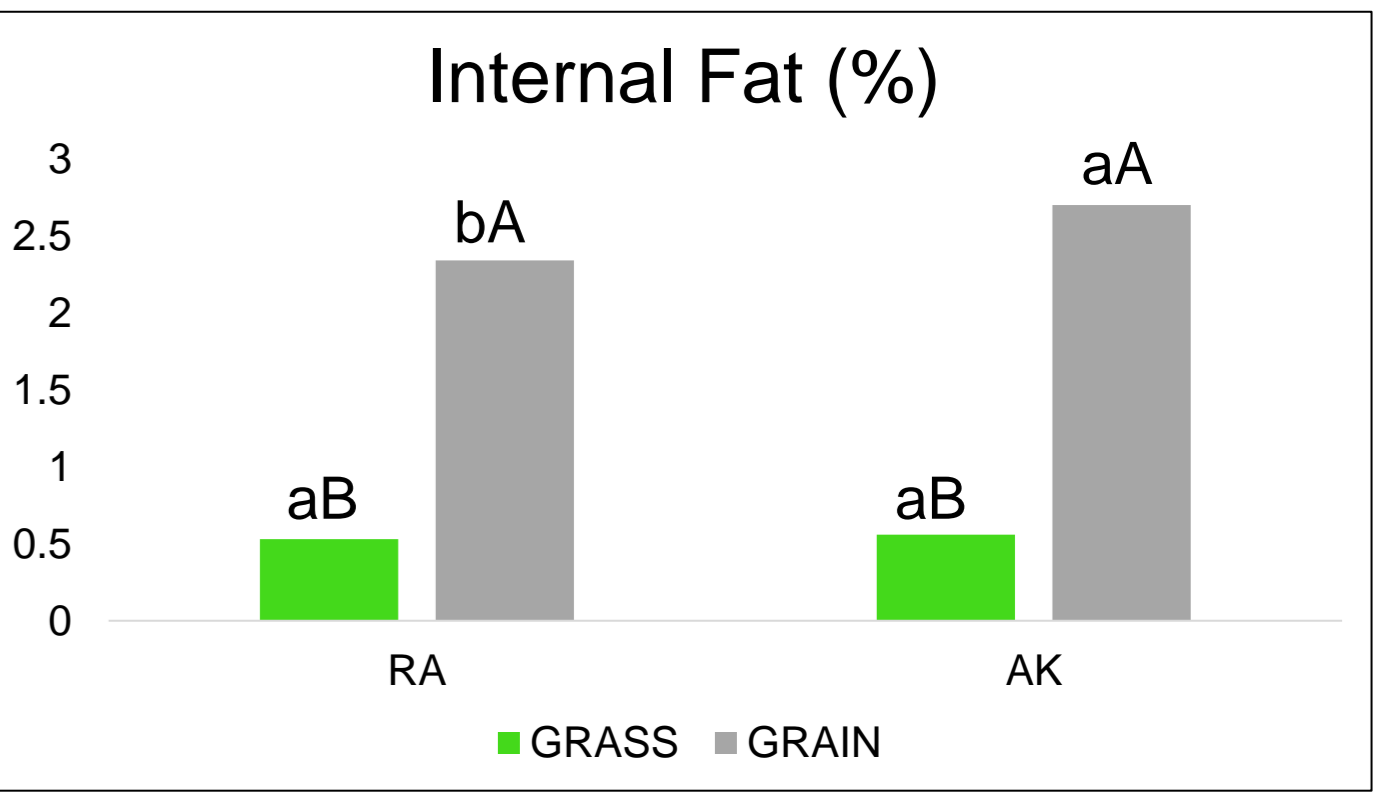
The **AK** sired cattle presented higher values:

- Dressing +3%
- Ribeye area +6%
- Marbling score (548 vs 490)

Interaction

Internal fat:

- The AK had a greater value than RA (2.7 vs 2.3%) in the GRAIN treatment.



Means with different lowercase superscripts indicate statistically significant differences for breed in a given system and uppercase superscripts indicate statistically significant differences for system in a given breed ($P < 0.05$).

References

- Duckett, S. K., et al. 2009. Effects of winter stocker growth rate and finishing system on: III. Tissue proximate, fatty acid, vitamin, and cholesterol content. *Journal of animal science* 87.9: 2961-2970.
- Harmon, Deidre D., et al. 2020. Warm-season annual forages in forage-finishing beef systems: II. Animal performance and carcass characteristics. *Translational Animal Science* 4.1: 400-410.