

CROSSING BEEF CATTLE WITH CHIHUAHUAN CRIOLLO CATTLE IS AN EFFICIENT ALTERNATIVE FOR BEEF PRODUCTION ON ARID ENVIRONMENTS OF NORTHERN MEXICO



UNIVERSIDAD AUTÓNOMA DE
CHIHUAHUA

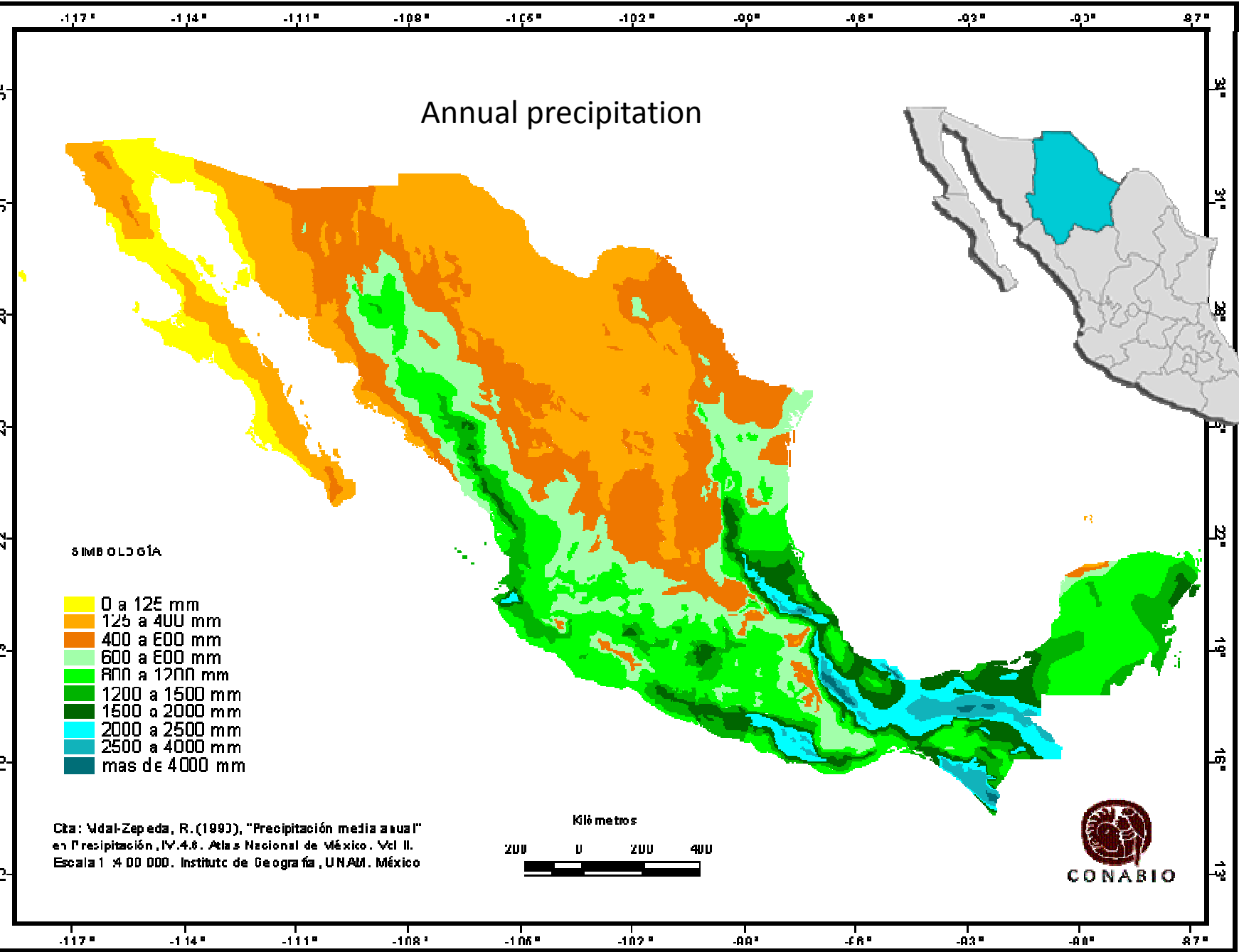


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- In dry environments, climate change aggravate conditions
 - Grasslands capacity is reduced
 - Higher costs of supplementation
- Inadequate or absent grazing cattle methods
- Deteriorated Chihuahuan grasslands with proliferation of invasive species



- Finding ecological and economical alternatives of production is compulsory for local producers
 - Reducing overgrazing
 - Low cost beef production
 - Acceptable for consumers

■ Rustic breeds advantages

- Adaptation to local conditions, tolerance to low nutrient contents, diversified use of pasture (Isselstein et al., 2007)
- Comparable meat quality (Vatansever et al., 2000; Liotta et al., 2011)
- Healthy fatty acids profile and antioxidants (Vatansever et al., 2000; Orellana et al. 2009)



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■ Grazing Criollo cattle- takes advantages of grasslands on an ecological way and produces healthy beef (Frederickson, 2005; Roacho et al., 2007; Anderson *et al.*, 2015)



- So, why not to use it pure?
 - Prejudges
 - Market (rodeo)

■ Angus and Criollo crosses

- Phenotypic characteristics similar to Angus
- Rusticity and adaptability characteristics (anecdotal)?



- To validate Criollo cattle on strategic crosses with Angus as an alternative for sustainable beef production.
 - To evaluate the use of grasslands and the grazing behaviour of Criollo, Angus and their crosses (females)
 - To evaluate productive parameters and feed efficiency of steers under extensive conditions and short indoors fattening (males)
 - To evaluate quality of meat, fatty acid and antioxidant profile of steers under extensive conditions and short indoors fattening



■ Animals

- 18 heifers (Six Criollo, six Angus x Criollo and six Angus) born and grown at the experimental site (adapted). Experimental farm from the University
- Twelve months old

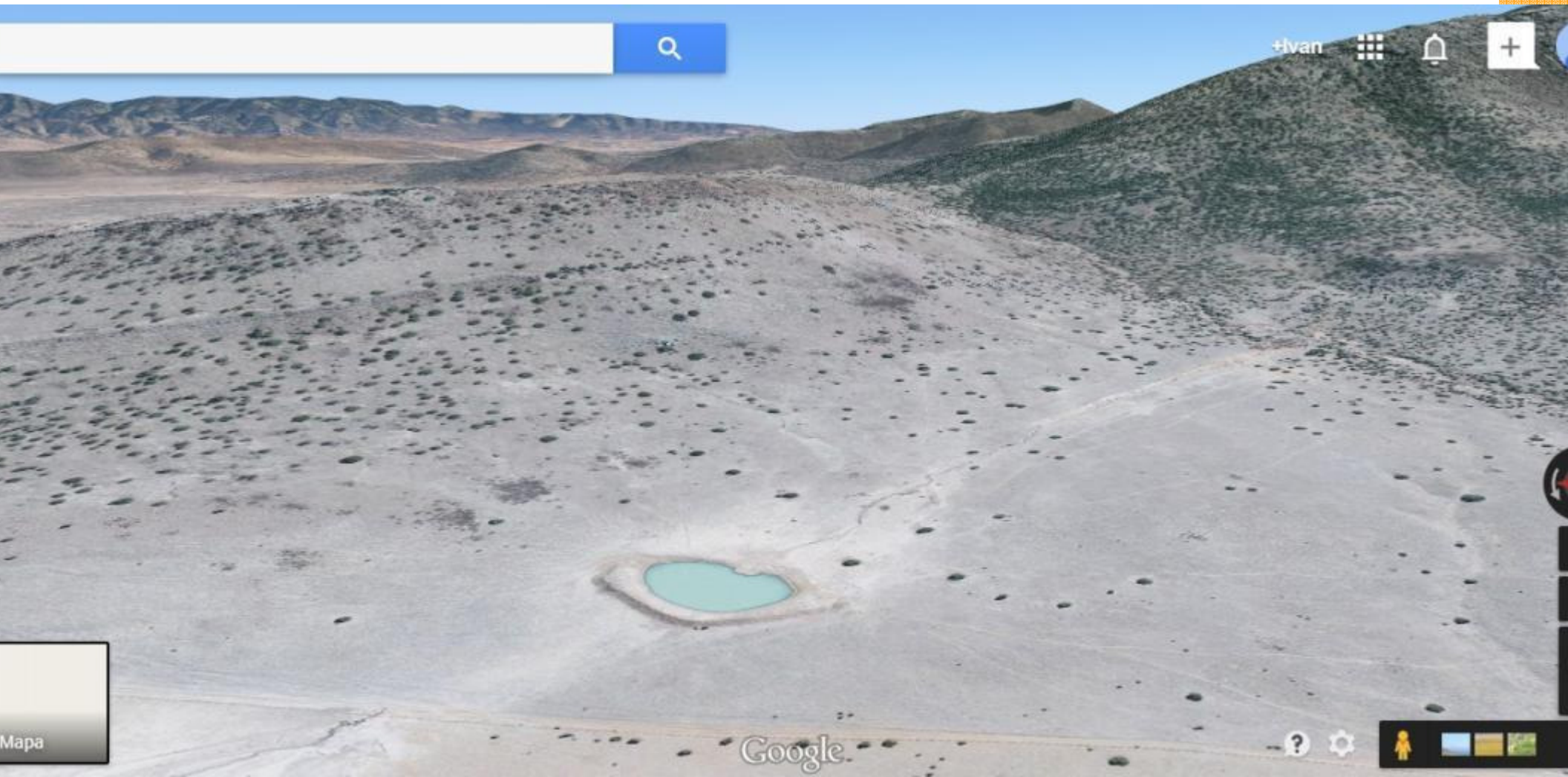
■ Grazing site

- Highly diversified plant population
- Grassland dominated by *Boutelouva hirsuta*, *B. radicata* and *B. gracilis*
- *Ad libitum* water availability

■ Monitoring of animals

- Six days of constant monitoring in summer-fall and winter
- Every day two different heifers/breed were monitored
- Students with GPS (Garmin)
 - Localization
 - Activity (Standing (no activity), Laying (resting rumia), Walking exclusively or Grazing)





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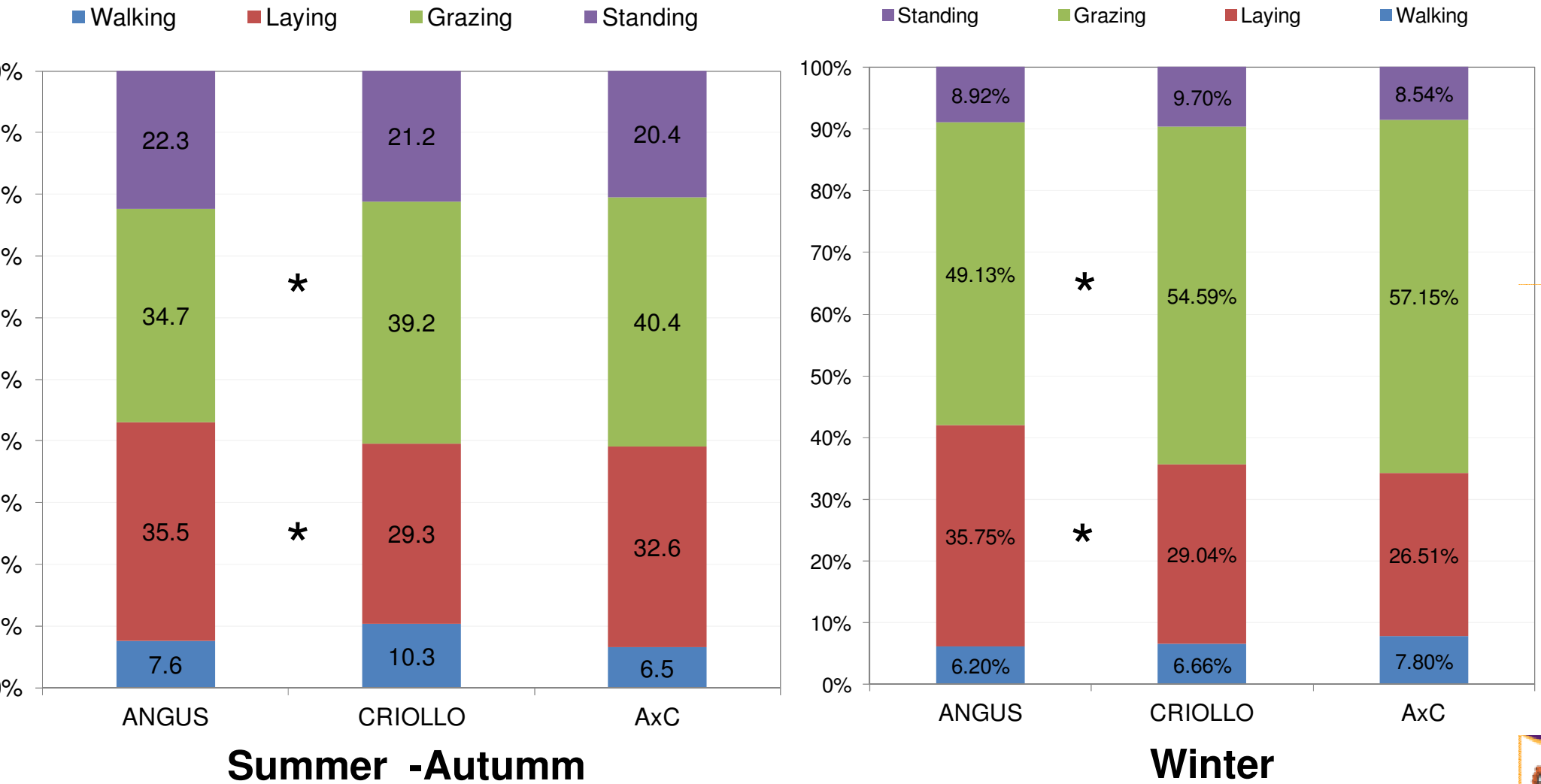
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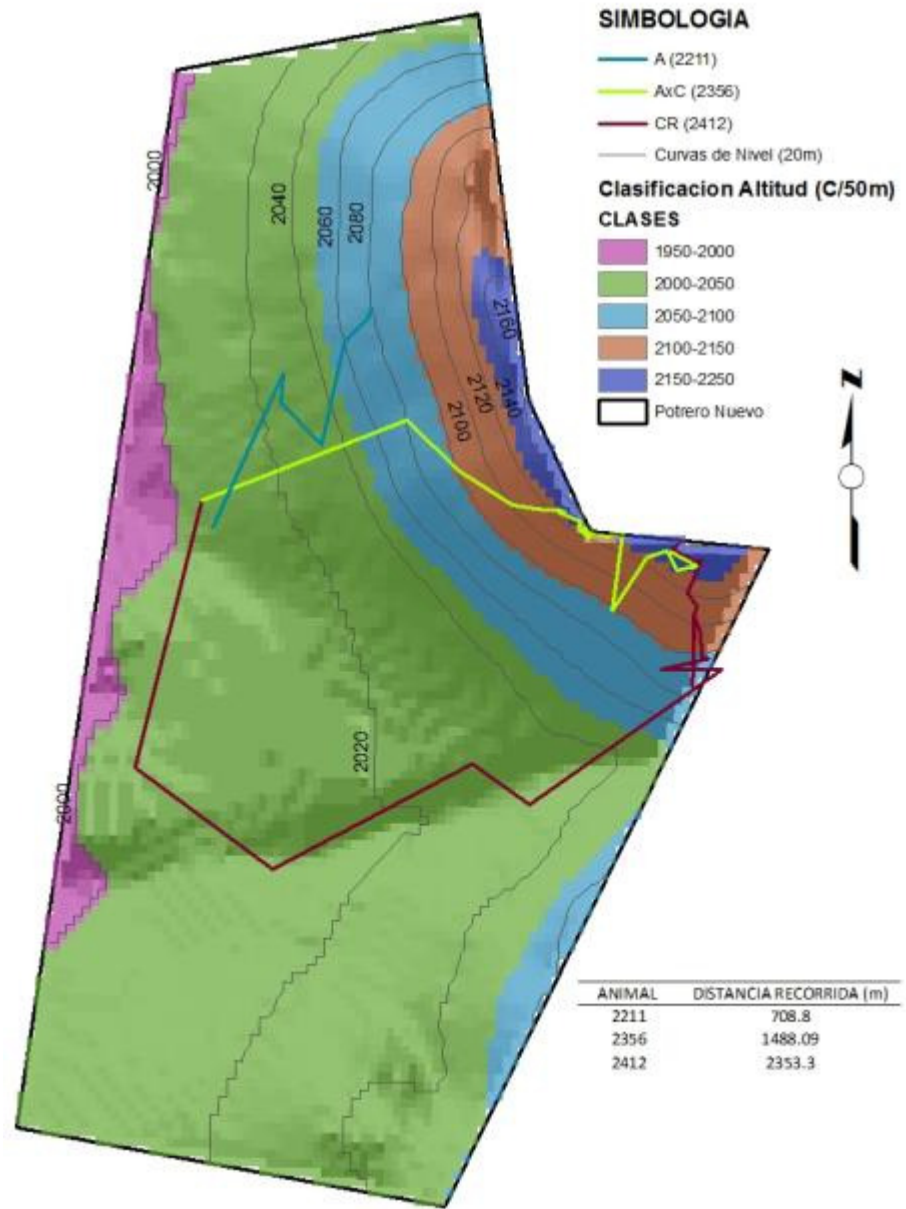
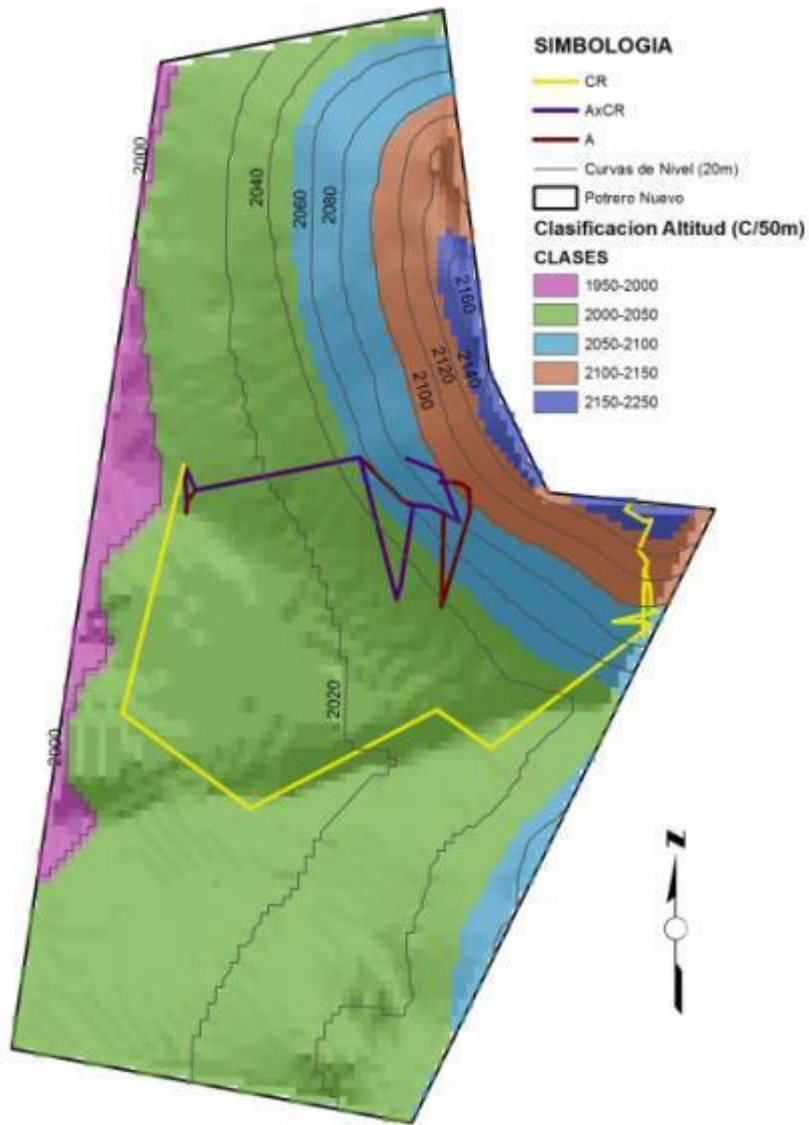
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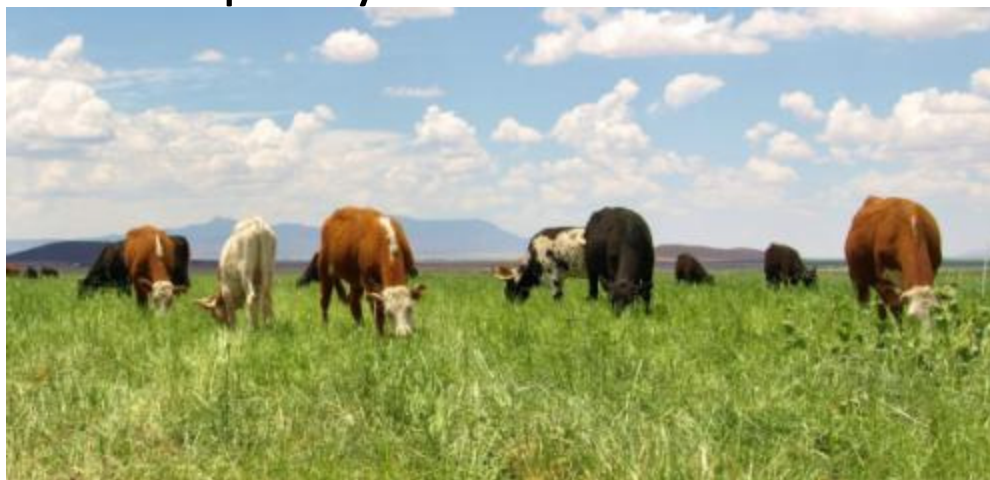
- Criollo and A x C graze > 1 hour more
- A x C and Criollo rest less than Angus on winter





Twenty-four steers (8 Criollo, 8 Angus x Criollo and 8 Hereford x Angus)

- Performance monitored for one year after weaning. Weighting animals every 2 weeks.
- Under regular management at the farm
- After one year on grazing system, animals went indoors
- Productive performance and feed efficiency measured for three months after one of adaptation
- Slaughter for evaluating; shelf life (colour), carcass characteristics, meat quality and tenderness



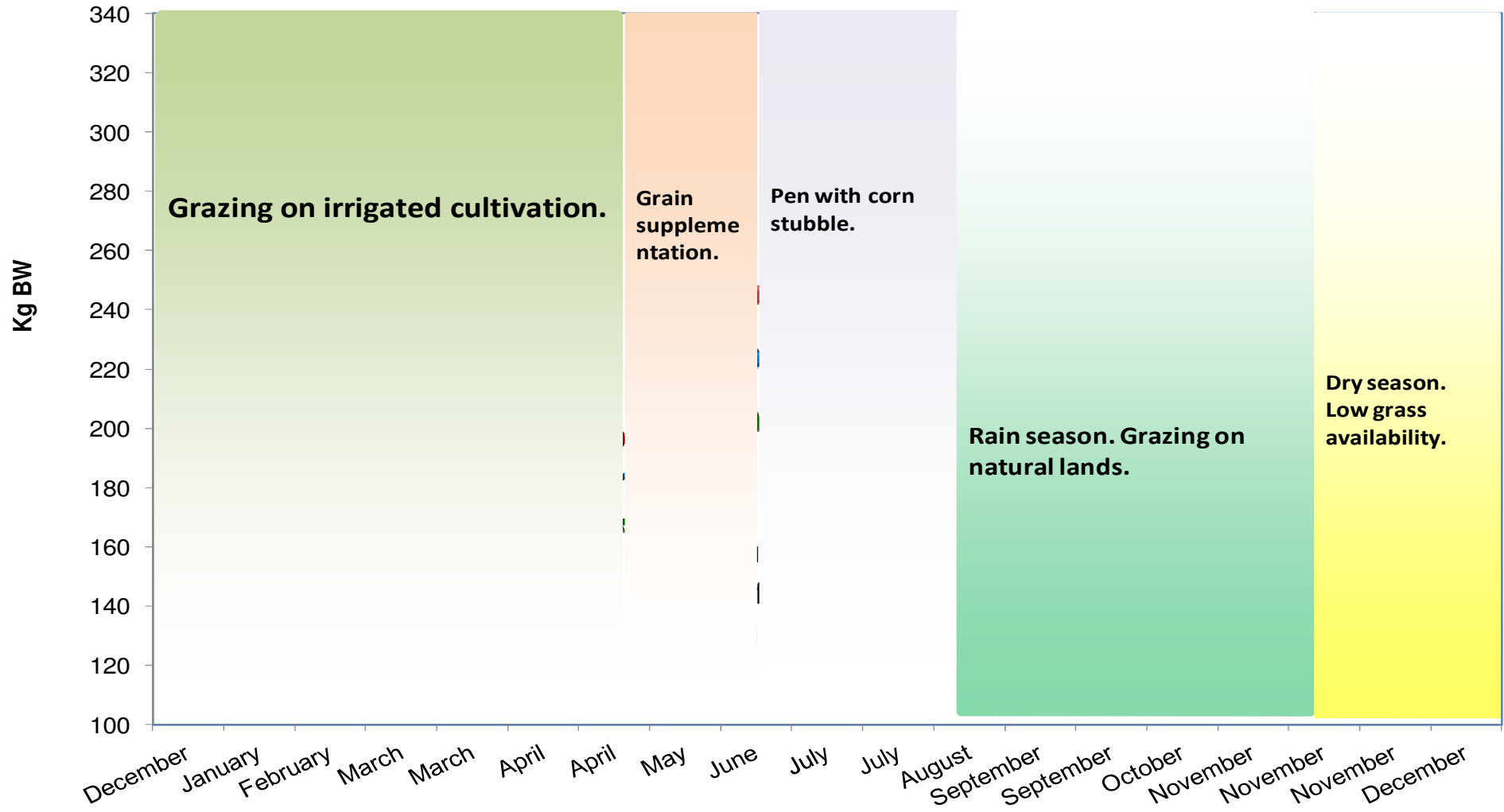


Angus x Criollo

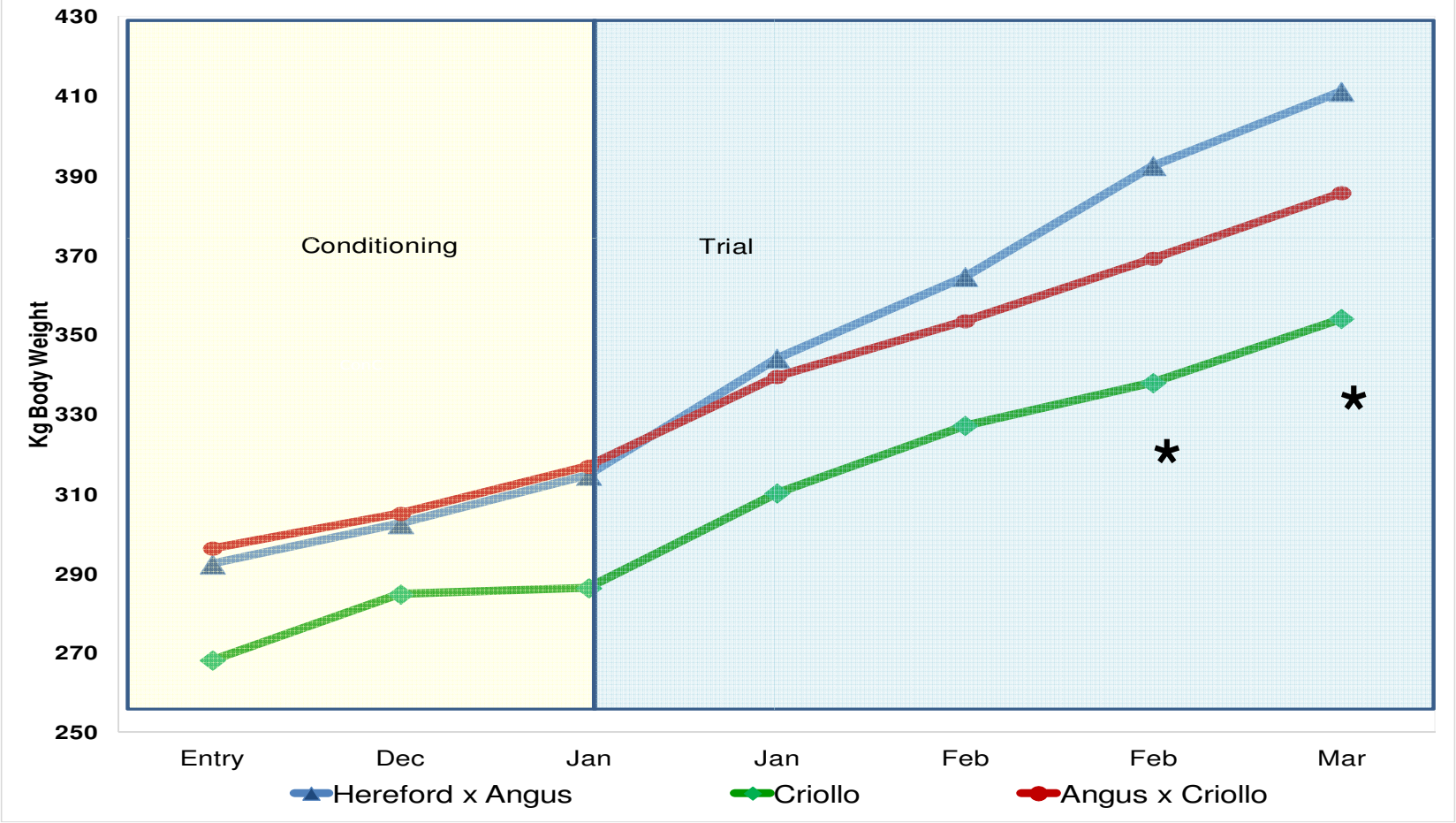
Hereford x Angus

Criollo

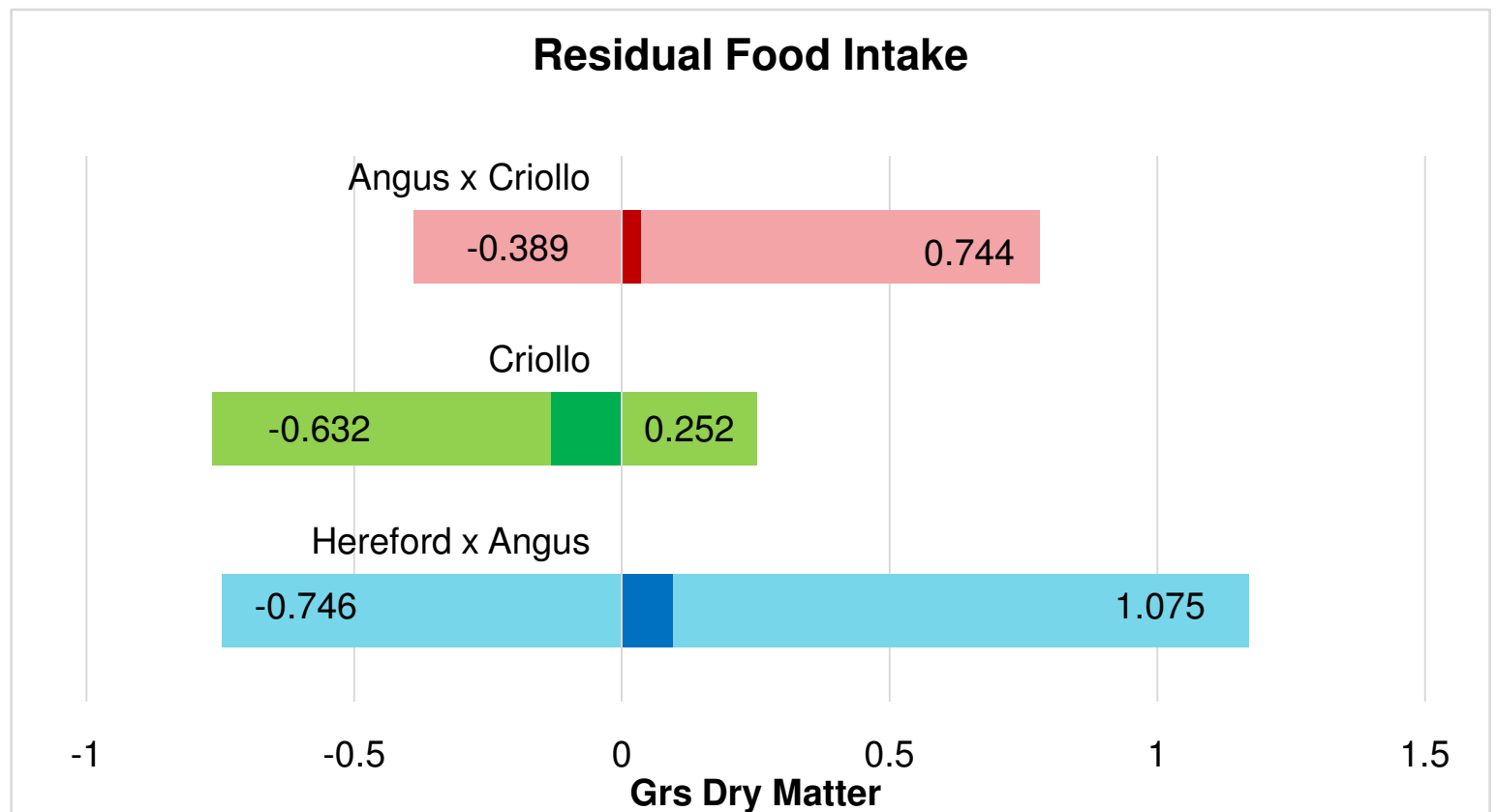
■ Weights on grazing system



- Indoors finishing
- 21 steers remaining (7 Hereford x Angus, 7 A x C y 7 Criollos)
- Why indoors?

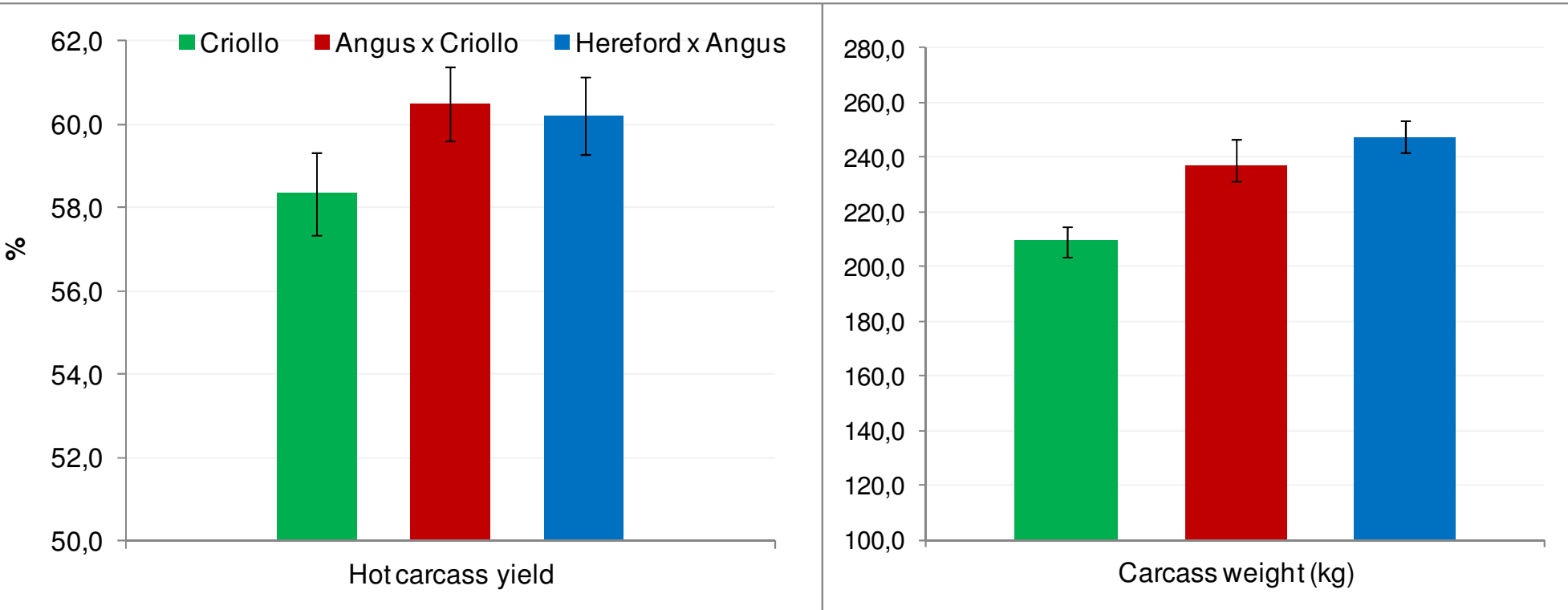


- Average:
 - 0.036 in AxC
 - 0.132 in Criollo
 - 0.094 in HxA
- Criollo had a trend to be more efficient
- AxC seems to have slightly better trend than HxA



■ Carcass weights and yields

- Final weight: *Criollo=355kg, AxC= 392kg and HxA=412kg

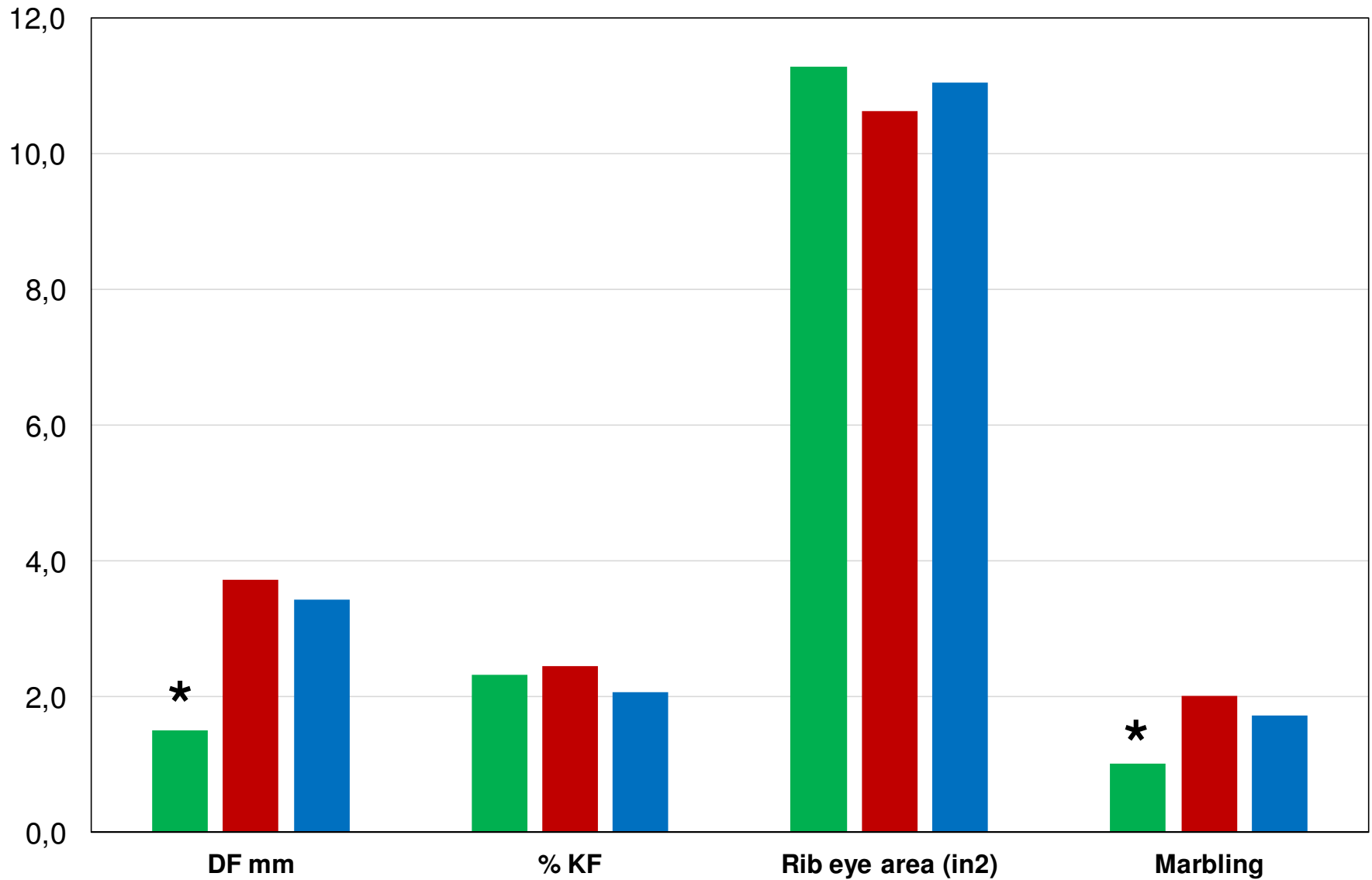


Carcass characteristics

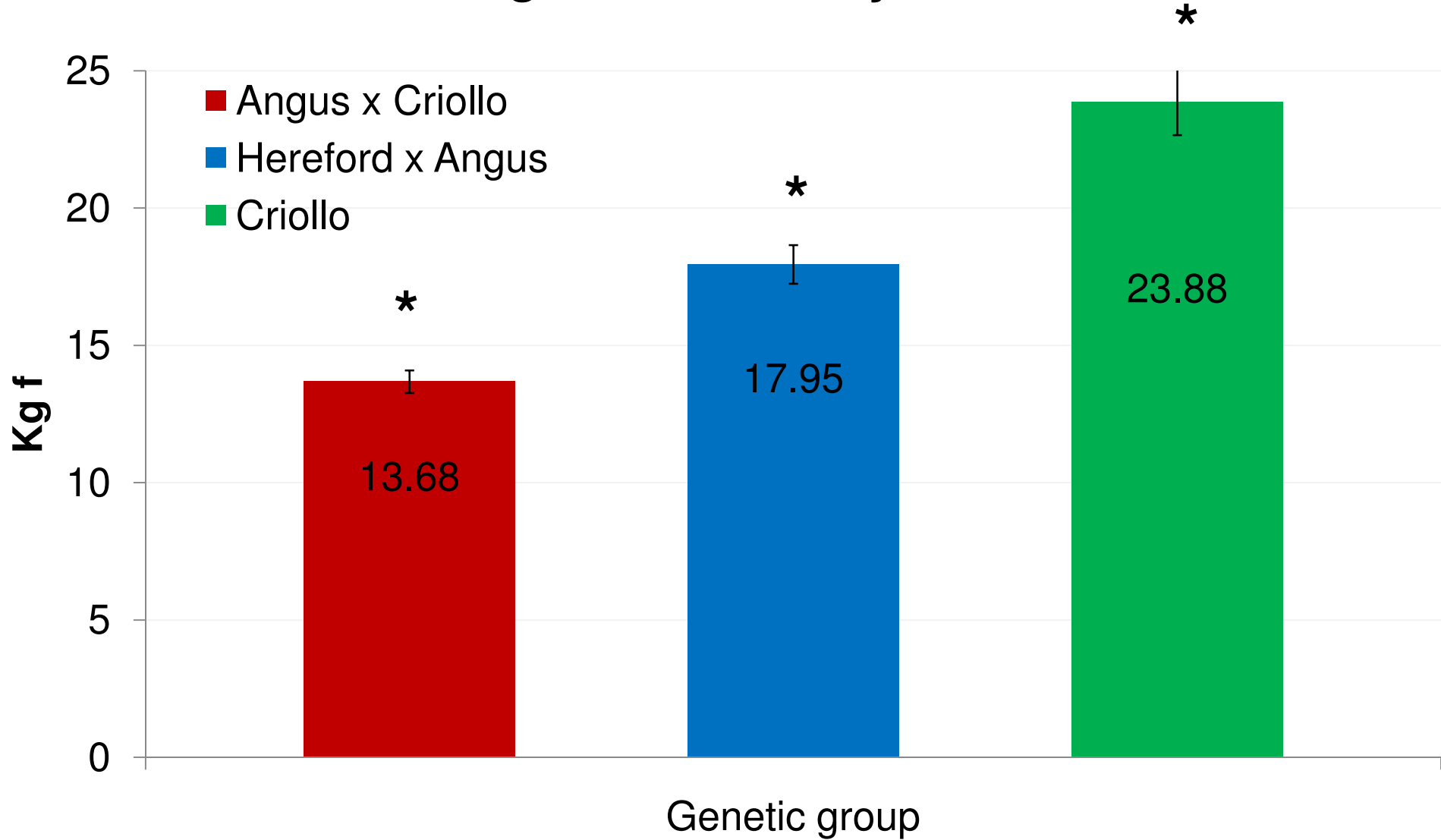
■ Criollo

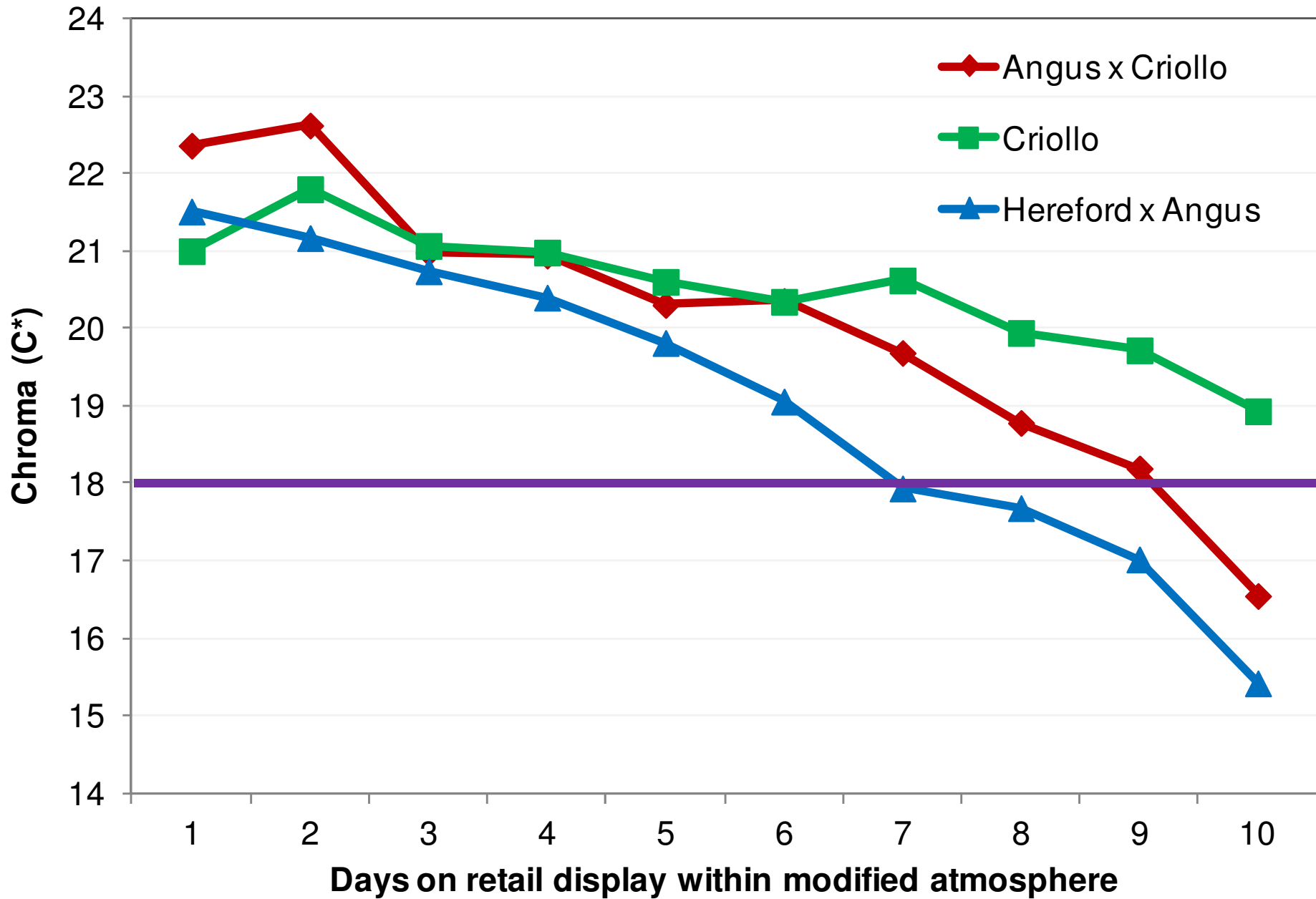
■ Angus x Criollo

■ Hereford x Angus



Thoughtness on rib eye steaks





- Criollo had some carcass traits comparable to European cattle and seemed to be more “efficient” on daily gain
- Angus x Criollo cattle showed remarkable good meat quality such as marbling , and better tenderness and colour conservation than H x A
- Remarkably, Angus x Criollo cattle kept beneficial characteristics from both Criollo and Angus, and seems a good alternative for beef production on deserted areas
- Is adaptation the key?

Thank you

QUESTIONS OR COMMENTS?

