



Lifetime undernutrition and lactation performance of Boran and Boran×Holstein-Friesian cows in the Tropics

A. Jenet, A. Tegegne, P.O. Osuji, A. Yimegnuhal, M. Kreuzer,
G. McCrabb, S. Fernandez-Rivera



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Introduction

Smallholder dairy sector has impact on

- household nutrition
- income generation
- poverty reduction

Among ruminant production systems, the most dynamic and to a very large extent dependent on market participation

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Introduction /ii

- Low availability and quality of feed are a major constraint to increasing livestock productivity in the tropics.
- Improved *Bos taurus* breeds have been introduced to achieve higher production per animal.
- And this resulted in higher income for smallholder dairy producers.
- Unclear how crossbred cows tolerate life-time undernourishment



Project objective

to assess the effects of lifetime feeding level on live-weight and lactation performance of Zebu (Boran) and crossbred (Boran×Holstein) cows.

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Material and methods

Organic matter intake (kg/d)

Genotype	Boran			Boran×Friesian		
	low	medium	high	low	medium	high
Level n	5/5	8/7	5/3	7/7	8/7	8/8
1 st Lact.	4.4	5.2	6.5	4.5	5.6	7.3
2 nd Lact.	4.4	5.3	6.8	4.6	5.4	7.2



Material and methods

Weight (kg)

Genotype	Boran			Boran×Friesian		
	low	medium	high	low	medium	high
Level n	5/5	8/7	5/3	7/7	8/7	8/8
1 st Lact.	318	322	374	336	347	410
2 nd Lact.	330	328	382	340	339	400

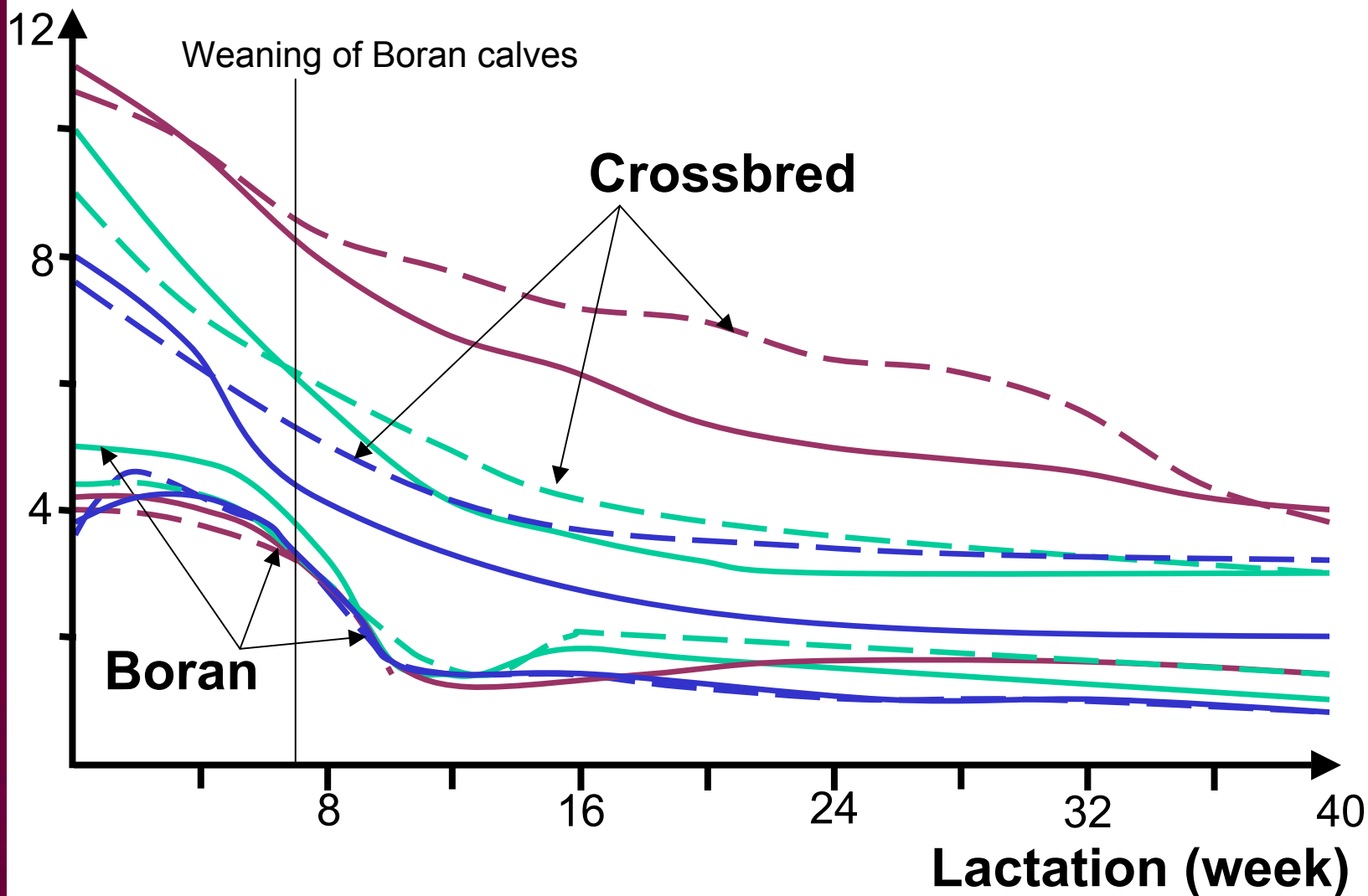
Feed level effect (P<0.001)



Results

Milk (kg/d)

— high
— medium
— low
1st 2nd lactation

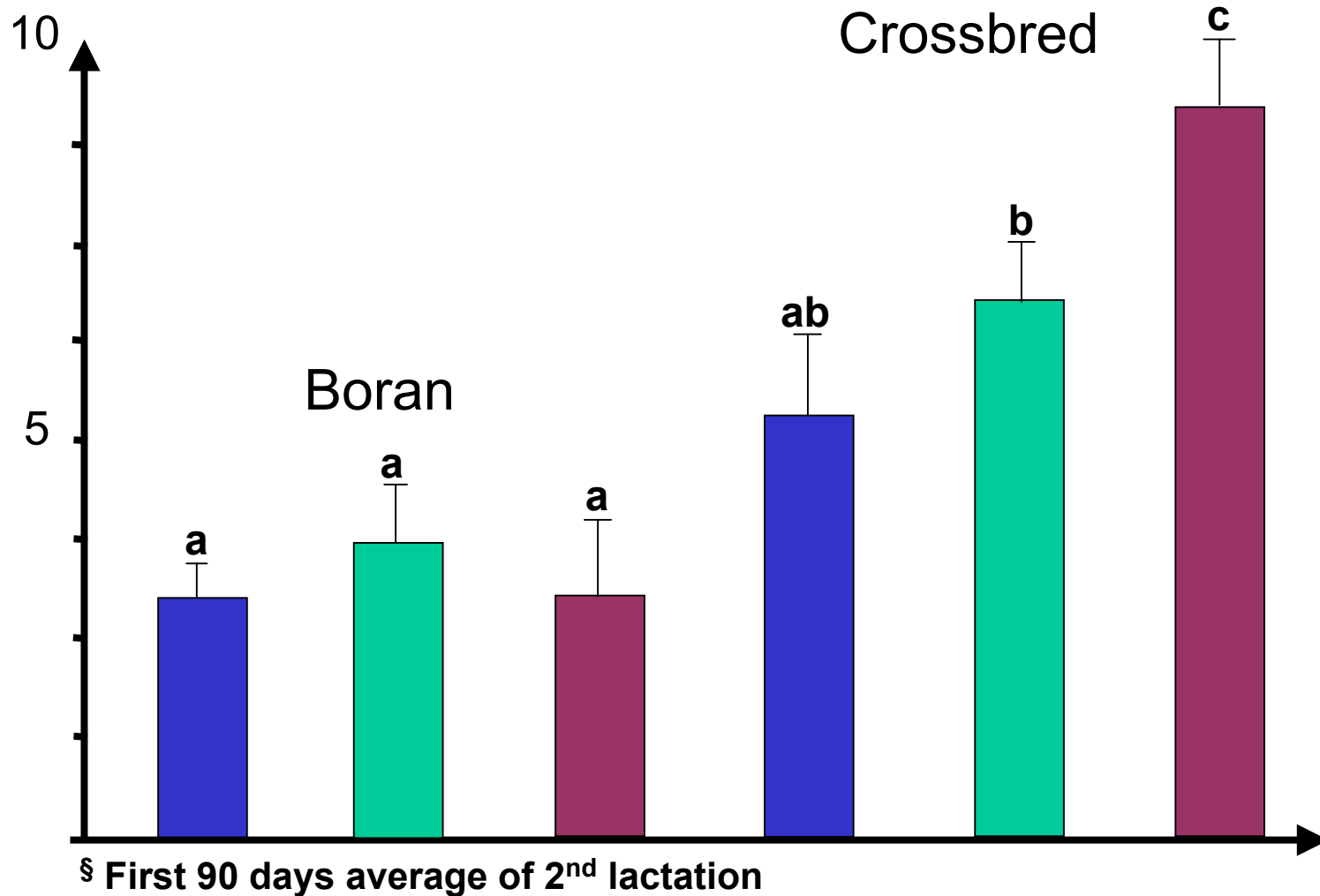




Results

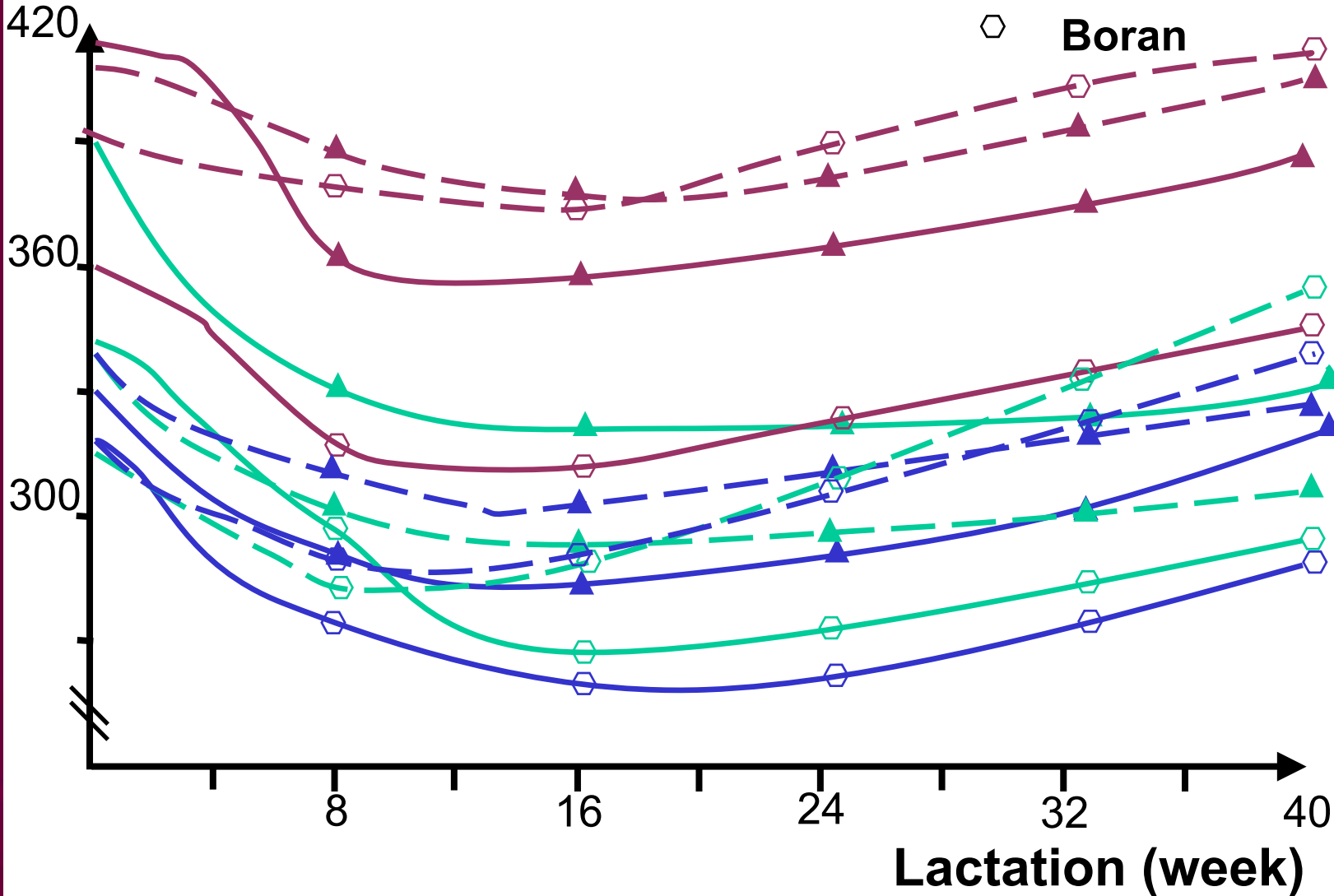
- high
- medium
- low

Milk (kg/d) §



Results

Weight (kg)

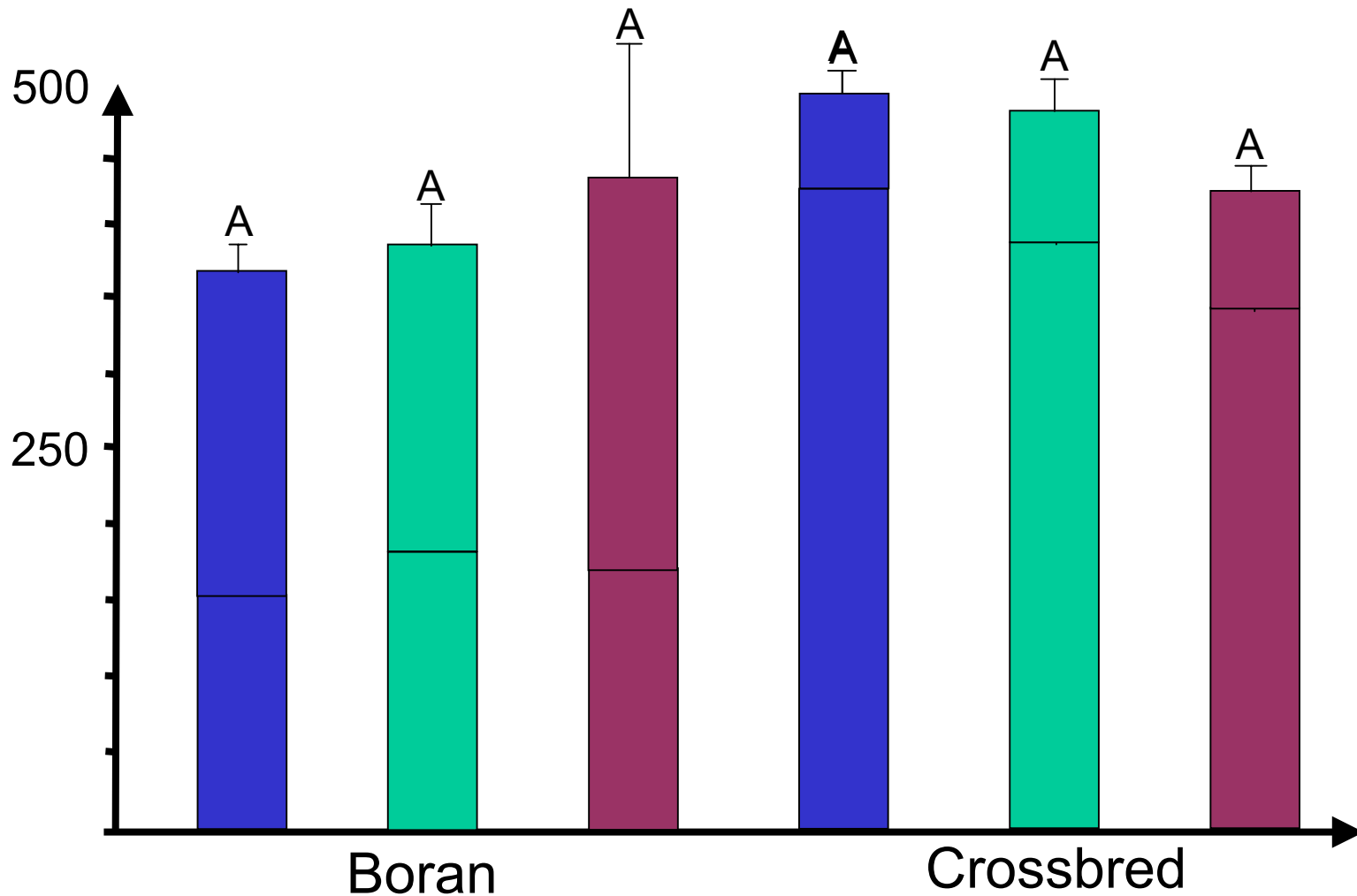




Results

Lactation length (d) §
Calving Interval (d) §

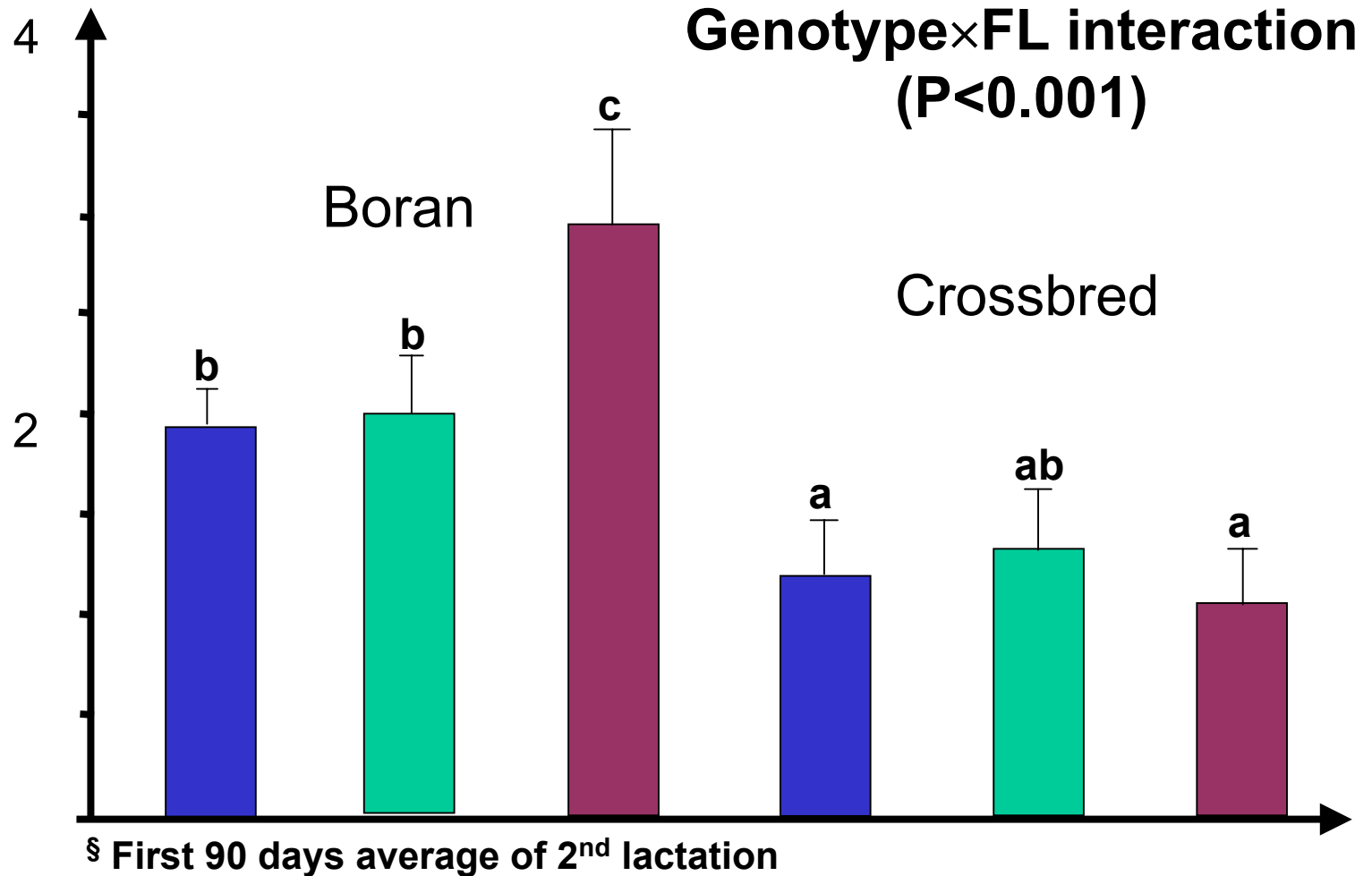
— high
— medium
— low
§ 2nd lactation



Results

**Feed conversion efficiency
 (kg OMI/kg milk) §**

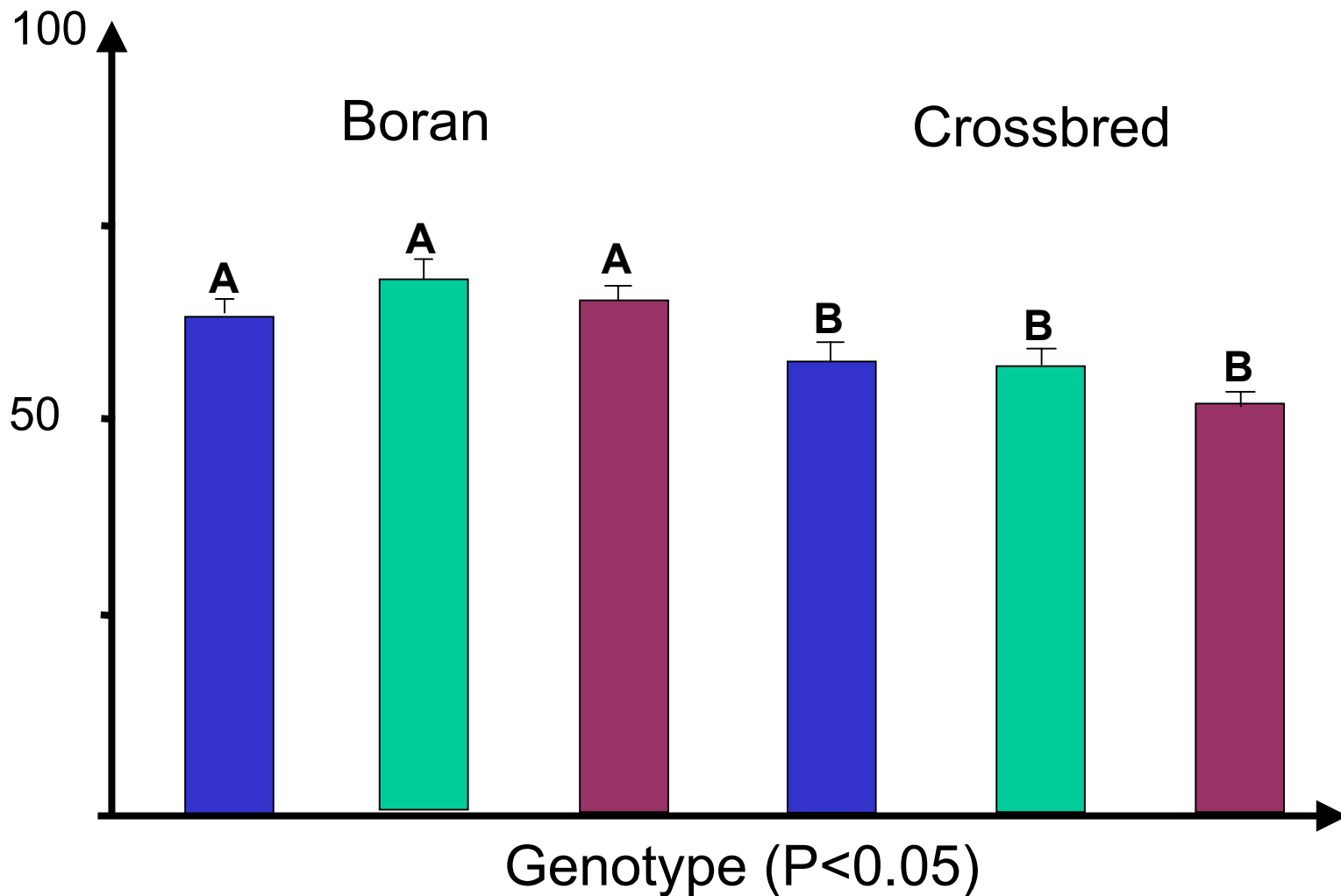
— high
 — medium
 — low



Results

Apparent OM digestibility (%) §

— high
— medium
— low
§ 1st lactation





Conclusions

- Boran cows produced less milk than crossbred cows, partly because of the short lactation length
- Only cows at high feeding level could retain enough energy for additional growth
- Crossbred cows responded to additional feed supply with higher milk production, whereas Boran cows did not
- With increasing feed supply feed conversion efficiency to milk decreased in Boran cows, however, not in crossbred cows.



Conclusion

Results suggests that crossbreds would be an appropriate option in those areas where more and better quality feed can be produced and with access to milk markets.

Boran cows have high relevance in remote areas, where feed supply is not guaranteed and a multipurpose use of cows is prevalent.