

Breeding Objectives and Traits Preference in three Local Cattle Breed Production Systems in Burkina Faso



University of Natural Resources and Life Sciences, Vienna

Department of Sustainable Agricultural Systems

D. Ouédraogo¹, A.Soudré², S. Ouédraogo-Koné³, B.L. Zoma¹, B. Yougbare¹, N. Khayatzadeh¹, P. Burger⁴, G. Mészáros¹, A. Traoré⁵, A. M. Okeyo⁶, M. Wurzinger¹, Sölkner¹

¹University of Natural Resources and Life Sciences (BOKU), Vienna, Dept. Of Sustainable Agricultural Systems, Austria

²Université Norbert Zongo, Unité de Formation et de Recherche en Sciences et Technologies, Burkina Faso

³Université Nazi Boni, Institut du Développement Rural (IDR), Burkina Faso

⁴University of Veterinary Medicine Vienna (VetMedU), Dept. of Integrative Biology and Evolution, Austria

⁵ Institut de l'Environnement et de Recherches Agricole (INERA), Burkina Faso

⁶ International Livestock Research Institute (ILRI), Kenya

Contact: ouedom@mail.com / dominique.ouedraogo@students.boku.ac.at <https://boku.ac.at>

Department of Sustainable Agricultural Systems
Division of Livestock Sciences



Introduction

Baoulé cattle (*Bos taurus*), locally called Lobi cattle, is the most important taurine population of Burkina Faso, from the South West part of the country. Known to be trypanotolerant, but threatened by uncontrolled crossbreeding with Zebu (Figure 1).

Aim of the study

To investigate preferred traits in pure Baoulé and crossbred production systems for the implementation of appropriate breeding programs to improve and conserve the breed.

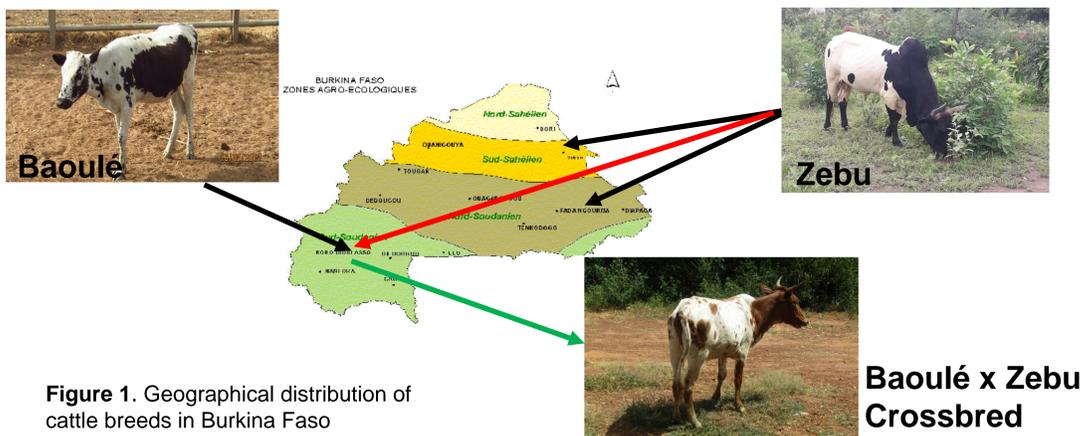


Figure 1. Geographical distribution of cattle breeds in Burkina Faso

Methods

- Household survey and own herd ranking (Jan 2017, Sep 2018)
- 194 farmers interviewed and asked to choose among 10 traits which they preferred for the selection of breeding bulls and cows
- 67 farmers with 268 cows involved in own herd ranking
- Ranking of traits based on their relative importance

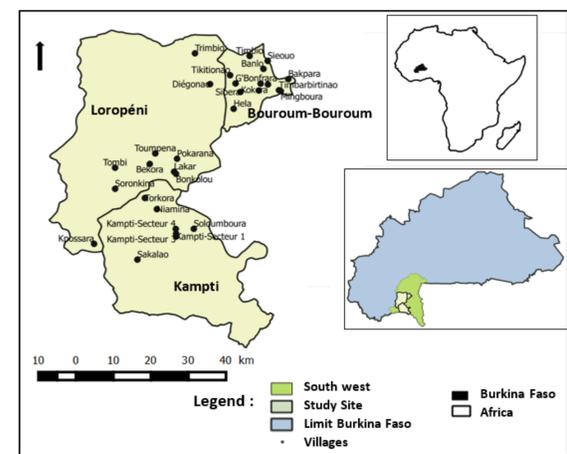


Figure 2. Map showing the study area

Results

Three production systems according to dominant genotype and practice of mobility: Sedentary pure Baoulé (SPB), Sedentary Crossbred (SCB), Transhumant Zebu and Crossbred (TZC).

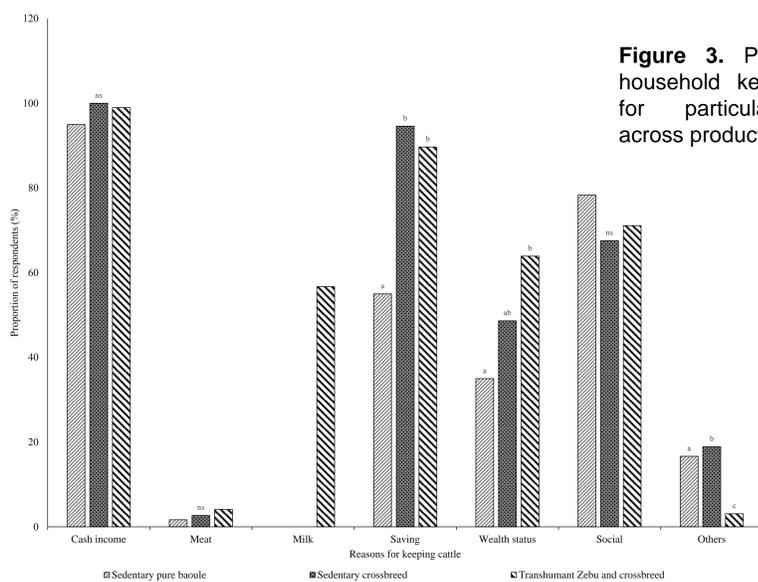


Figure 3. Proportion of household keeping cattle for particular reason across production systems

Table 3. Breeding bulls' selection, ownership and management across the production systems

	Production system			P-value
	SPB	SCB	TZC	
Mating Practice				
Own Bulls (%)				0.10
Yes	95.00	97.30	100.00	
No	5.00	2.70	0.00	
Bulls service (%)				0.56
Own herd	3.51	2.78	1.03	
Own and neighbour herd	96.49	97.22	98.97	
Keeping bull purpose (%)				< 0.0001
Mating	68.42 ^a	100.00 ^b	98.97 ^b	
Socio-cultural	1.75	0.00	0.00	
Fattening	1.75	0.00	0.00	
Mating and ploughing	28.07	0.00	1.03	
Source of replacement bulls (%)				0.34
Young from own herd	96.67	97.30	100.00	
Purchased	1.67	2.70	0.00	
Others	1.67	0.00	0.00	
Selection of best cows (%)				< 0.0001
Yes	36.67 ^a	59.46 ^{ab}	77.32 ^b	
No	63.33	40.54	22.68	
Selection of best bulls (%)				< 0.0001
Yes	65.00 ^a	97.30 ^b	100.00 ^b	
No	35.00	2.70	0.00	
Castration practice (%)				< 0.0001
Yes	33.33 ^a	64.86 ^b	71.13 ^b	
No	66.67	35.14	28.87	
Reasons of castration (%)				< 0.0001
Mating control	50.00 ^a	26.09 ^b	44.93 ^b	
Fattening	10.00	0.00	1.45	
Better temperament	40.00	52.17	8.70	
Avoid fighting	0.00	21.74	44.93	
Information about Artificial Insemination (%)				< 0.0001
Yes	6.67 ^a	16.22 ^a	44.33 ^b	
No	93.33	83.78	55.67	
Age of selection of males (Years)				*
Mean±SD	3.13±1.26 ^a	2.83±0.51 ^{ab}	2.72±0.71 ^b	
Duration of breeding bulls use (Years)				*
Mean±SD	7.38±3.81	5.92±1.59	6.46±2.09	
Age of castration of undesired bulls (Years)				*
Mean±SD	3.74±0.87 ^a	3.00±0.51 ^b	3.20±0.63 ^b	

Table 1. Relative importance of breeding cows selection criteria across the production systems

Criteria	Production System		
	SPB	SCB	TZC
Survey			
Size	1	1	1
Coat color	6	-	-
Horns	-	-	-
Calves Growth	3	2	4
Calves Survival	5	4	5
Birth frequency	4	5	6
Milk yield	-	6	2
Sexual precocity	-	-	8
Mothering	2	3	7
Udder	7	7	3
Own herd ranking			
Size	2	3	2
Milk yield	4	1	1
Fertility	1	2	3
Docility	3	4	-

Table 2. Relative importance of breeding bulls selection criteria across the production systems

Criteria	Production System		
	SPB	SCB	TZC
Size	1	1	1
Coat Color	5	-	-
Horns	9	8	8
Growth	3	2	3
Docility	2	4	4
Libido	7	7	7
Dam	4	3	2
Fattening ability	8	5	-
Sexual precocity	-	-	6
Adaptability	6	6	5

Conclusions

Heterogeneity of breeding objectives and preference of traits in different cattle production systems in South West of Burkina Faso

Implementation of successful breeding programs must take into account the specificity of each production system

Community-based breeding programs aiming to improve body size and trypanotolerance are being implemented based on the result of this study

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