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Supplementary Material

A review of the genetic and non-genetic factors affecting extended lactation in pasture-based dairy systems

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Table S1. Genetic, phenotypic and environmental correlation (±s.e.) estimates for extended lactation milk and protein yield traits between the first 150 (5 months) of the standard 305-day lactation and the last 300 days of extended lactation period as derived by Haile-Mariam and Goddard (2008)

NC, not calculated

Milk traits first 300 days of lactation	Milk traits measured after 300 days of lactation		
	Genetic	Phenotypic	Environmental
	Cumulative milk yield		
0–60 days	0.73±0.03	0.30±0.00	0.50±0.01
0–90 days	0.76±0.03	0.32±0.00	0.53±0.00
0–120 days	0.80±0.03	0.33±0.00	0.56±0.00
0–150 days	0.82±0.03	0.34±0.00	0.58±0.00
Full 300 days	0.85±0.02	0.36±0.00	NC
	Cumulative protein yield		
0–60 days	0.81±0.03	0.26±0.00	0.51±0.01
0–90 days	0.83±0.03	0.28±0.00	0.53±0.00
0–120 days	0.85±0.02	0.29±0.00	0.55±0.00
0–150 days	0.87±0.02	0.30±0.00	0.57±0.00

Table S2. Genetic (±s.e.) and phenotypic (in parenthesis) correlation estimates for milk and protein yield in first and second parity measured at 200-day intervals throughout a 600-day lactation obtained by Haile-Mariam and Goddard (2008)

±s.e. is rounded to zero for phenotypic correlations

		2nd parity milk yield	
1st parity milk yield	*1st 200 days*	*2nd 200 days*	*3rd 200 days*
1st 200 days	0.90±0.02(0.32c)	0.80±0.03 (0.34)	0.54±0.07 (0.23)
2nd 200 days	0.86±0.02 (0.28)	0.90±0.02 (0.38)	0.73±0.06 (0.36)
3rd 200 days	0.67±0.05 (0.16)	0.84±0.03 (0.26)	0.87±0.04 (0.33)
		2nd parity protein yield	
1st parity protein yield	*1st 200 days*	*2nd 200 days*	*3rd 200 days*
1st 200 days	0.93±0.01(0.28)	0.83±0.03(0.30)	0.51±0.08(0.23)
2nd 200 days	0.90±0.02(0.24)	0.91±0.02(0.32)	0.69±0.06(0.32)
3rd 200 days	0.71±0.05(0.13)	0.84±0.03(0.23)	0.82±0.06(0.29)

Table S3. Genetic (below diagonal) and phenotypic (above diagonal) correlation estimates among milk components for extended lactation up to 395 days obtained over three lactations as obtained by Yazgan *et al.* (2010)

Genetic correlations s.e. range between 0.06 and 0.30 and phenotypic correlations s.e. range between 0.06 and 0.15

	Milk yield	Protein yield	Fat yield	Lactose yield	SCS	(Fat+protein+ lactose)
Milk yield		0.88[e]	0.73–0.75	0.74–0.79	–0.04–0.11	0.71–0.75
Protein yield	0.85–0.90[d]		0.79–0.81	0.73–0.77	0.08–0.12	0.74–0.78
Fat yield	0.44–0.67	0.62–0.83		0.62 –0.65	0.03–0.11	0.70–0.74
Lactose yield	0.72–0.82	0.57–0.76	0.38–0.51		0.03–0.07	0.94
SCS	–0.42–0.07	–0.09–0.14	0.12–0.37	–0.05–0.10		0.05–0.10
(Fat+protein+ lactose)	0.64–0.74	0.62–0.79	0.55–0.70	0.96–0.98	–0.16–0.01	

Table S4. Genetic, phenotypic and environmental correlations (±s.e.) between persistency of milk and fat yield in first and second parity and survival, calving interval (CI) or difficulty at first calving derived from two studies

Trait	Genetic	Phenotypic	Environmental	Authors
Persistency of milk yield + survival 1st parity	0.07±0.12	n.a.	–0.08±0.00	Haile-Mariam *et al.* (2003)
Persistency of milk yield + survival 2nd parity	0.17±0.13	n.a.	–0.00±0.00	Haile-Mariam *et al.* (2003)
Persistency of fat yield + survival 1st parity	0.1±0.12	n.a.	–0.06±0.00	Haile-Mariam *et al.* (2003)
Persistency of milk yield + CI 1st parity	0.04±0.11	n.a.	0.16±0.00	Haile-Mariam *et al.* (2003)
Persistency of milk yield + CI 2nd parity	0.18±0.11	n.a.	0.19±0.00	Haile-Mariam *et al.* (2003)
Persistency of fat yield + CI 1st parity	0.09±0.10	n.a.	0.11±0.00	Haile-Mariam *et al.* (2003)
Persistency of milk yield + CI 1st parity	0.17±0.09	0.23±0.00	n.a.	Muir *et al.* (2004)
Persistency of milk yield + difficulty at first calving 1st parity	0.43±0.12	0.01±0.00	n.a.	Muir *et al.* (2004)