

## Supplementary materials

**Table S1.** Least Squared Means and Mean difference of Morphometric characteristics from bovine creole of Southern Ecuador for the biotype and sex.

Live Weight							
Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		279	13,1			0.4815	Ca vs Co
Colorado		291	15,6	139	18.60	0.3915	Ca vs E
Encerado		293	12,9	139	22.69	0.3925	Ca vs N
Negro		290	12,3	139	23.56	0.9285	Co vs E
	F	275	9,9	139	27.75	0.9567	Co vs N
	M	302	13,6	139	22.12	0.8654	E vs N
Mean		288	12,9			0.0482	F vs M
Thoracic Circumference							
Least Squared Means (LSM)							
Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		150	2,8	139	53.84	0.6758	Ca vs Co
Colorado		149	3,4	139	43.28	0.8106	Ca vs E
Encerado		149	2,8	139	52.75	0.8882	Ca vs N
Negra		151	2,6	139	59.08	0.8572	Co vs E
	F	147	2,0	139	73.05	0.5767	Co vs N
	M	153	3,0	139	51.64	0.7042	E vs N
Mean		150	2,8			0.0350	F vs M
Least Squared Means (LSM)							
Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		111	1,5	139	74.96	0.0770	Ca vs Co
Colorado		107	2,0	139	54.16	0.3915	Ca vs E
Encerado		109	1,6	139	67.06	0.9959	Ca vs N
Negra		111	1,2	139	90.58	0.3649	Co vs E
	F	107	0,9	139	123.19	0.0601	Co vs N
	M	111	1,7	139	67.31	0.3573	E vs N
Mean		109	1,5			0.0415	F vs M
Chest Width: Least Squared Means (LSM)							
Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		34	0,9	139	38.30	0.1834	Ca vs Co
Colorado		33	1,1	139	30.48	0.6185	Ca vs E
Encerado		34	0,9	139	38.08	0.9376	Ca vs N
Negra		34	0,8	139	40.83	0.4234	Co vs E
	F	32	0,7	139	48.05	0.1774	Co vs N
	M	35	0,9	139	37.65	0.6432	E vs N
Mean		34	0,9			0.0018	F vs M
Thoracic Length: Least Squared Means (LSM)							
Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		62	1,4	139	45.23	0.4194	Ca vs Co
Colorado		60	1,6	139	37.06	0.8022	Ca vs E
Encerado		62	1,3	139	46.28	0.8253	Ca vs N

Negra		61	1,3	139	47.78	0.3372	Co vs E
	F	60	1,0	139	57.94	0.4975	Co vs N
	M	63	1,4	139	44.21	0.6462	E vs N
Mean		61	1,3			0.0460	F vs M

**Body Length: Least Squared Means (LSM)**

biotype	Sexo	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		178	2,9	139	60.78	0.1915	Ca vs Co
Colorado		172	3,9	139	44.06	0.4493	Ca vs E
Encerado		174	3,2	139	54.29	0.8919	Ca vs N
Negra		177	2,4	139	73.26	0.5748	Co vs E
	F	172	1,7	139	99.62	0.1996	Co vs N
	M	179	3,3	139	54.70	0.4861	E vs N
Mean		175	2,9			0.0599	F vs M

**Thoracic Depth: Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		57	1,4	139	40.78	0.7927	Ca vs Co
Colorado		57	1,7	139	34.23	0.9310	Ca vs E
Encerado		57	1,4	139	41.96	0.7195	Ca vs N
Negra		58	1,3	139	43.26	0.7513	Co vs E
	F	55	1,1	139	50.98	0.5693	Co vs N
	M	59	1,5	139	40.91	0.8261	E vs N
Mean		57	1,4			0.0026	F vs M

**Abdomen depth: Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		60	1,4	139	41.34	0.4922	Ca vs Co
Colorado		58	1,7	139	33.90	0.7874	Ca vs E
Encerado		59	1,4	139	41.68	0.9609	Ca vs N
Negra		60	1,4	139	43.84	0.6882	Co vs E
	F	57	1,1	139	52.18	0.4908	Co vs N
	M	61	1,5	139	40.80	0.8066	E vs N
Mean		59	1,4			0.0049	F vs M

**Anterior Hip Width : Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		40	1,0	139	40.84	0.1711	Ca vs Co
Colorado		38	1,2	139	32.98	0.8055	Ca vs E
Encerado		40	0,9	139	42.02	0.9807	Ca vs N
Negra		40	0,9	139	43.12	0.1408	Co vs E
	F	39	0,7	139	52.62	0.1522	Co vs N
	M	39	1,0	139	39.22	0.7770	E vs N
Mean		39	1,0			0.6340	F vs M

**Posterior Hip Width:Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		15	0,5	139	27.86	0.6433	Ca vs Co
Colorado		15	0,6	139	24.13	0.3210	Ca vs E
Encerado		16	0,5	139	29.85	0.1554	Ca vs N
Negra		16	0,5	139	30.59	0.6669	Co vs E

	F	16	0,4	139	37.45	0.5080	Co vs N
	M	15	0,6	139	27.30	0.8576	E vs N
<b>Mean</b>		<b>16</b>	<b>0,5</b>			<b>0.4324</b>	<b>F vs M</b>

**Length of canon: Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		17	0,3	139	67.86	0.1167	Ca vs Co
Colorado		17	0,3	139	49.07	0.9282	Ca vs E
Encerado		17	0,3	139	61.61	0.0969	Ca vs N
Negra		17	0,2	139	79.62	0.1698	Co vs E
	F	17	0,2	139	113.02	0.7456	Co vs N
	M	17	0,3	139	59.73	0.1680	E vs N
<b>Mean</b>		<b>17</b>	<b>0,3</b>			<b>0.8836</b>	<b>Fvs M</b>

**Circumference of canon: Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		15	0,3	139	47.59	0.8639	Ca vs Co
Colorado		15	0,4	139	40.08	0.7328	Ca vs E
Encerado		15	0,3	139	48.45	0.9638	Ca vs N
Negra		15	0,3	139	50.03	0.8915	Co vs E
	F	14	0,2	139	58.53	0.8847	Co vs N
	M	16	0,3	139	48.09	0.7460	E vs N
<b>Mean</b>		<b>15</b>	<b>0,3</b>			<b>&lt;0.0001</b>	<b>F vs M</b>

**Head width : Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		21	0,3	139	66.18	0.5289	Ca vs Co
Colorado		21	0,4	139	48.91	0.4427	Ca vs E
Encerado		20	0,3	139	59.19	0.4752	Ca vs N
Negra		21	0,3	139	78.96	0.9394	Co vs E
	F	20	0,2	139	106.64	0.9274	Co vs N
	M	21	0,4	139	60.82	0.8450	E vs N
<b>Mean</b>		<b>21</b>	<b>0,3</b>			<b>0.0001</b>	<b>F vs M</b>

**Head length : Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		46	0,7	139	62.25	0.1392	Ca vs Co
Colorado		45	1,0	139	44.96	0.4017	Ca vs E
Encerado		46	0,8	139	55.52	0.5764	Ca vs N
Negra		46	0,6	139	74.43	0.5147	Co vs E
	F	45	0,4	139	101.74	0.2600	Co vs N
	M	47	0,8	139	55.81	0.6814	E vs N
<b>Mean</b>		<b>46</b>	<b>0,7</b>			<b>0.0607</b>	<b>F vs M</b>

**Length of horns : Least Squared Means (LSM)**

Biotype	Sex	Value	Standard Error	DF	t valor	Pr >  t	Mean Difference
Cajamarca		21	1,4	135	15.40	0.7365	Ca vs Co
Colorado		22	1,8	135	12.04	0.8835	Ca vs E
Encerado		21	1,5	135	13.86	0.9833	Ca vs N
Negra		21	1,1	135	18.91	0.6623	Co vs E
	F	19	0,8	135	24.44	0.7325	Co vs N

	<b>M</b>	23	1,5	135	14.94	0.8595	E vs N
<b>Mean</b>	<b>21</b>		1,3			<b>0.0496</b>	F vs M