Ten years-data of milk production in beef cattle under South American grazing conditions: preliminary analysis

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Uruguay: some general figures
Bioma pampa: 70 million of hectares (Soriano et al. 1991)

Uruguay: more than 80% of area with native pastures
• Stock: 11 million of cattle (4.2 million of cows)

• Cattle with whole tracking (allows to identify the origin of the product at any time)
Uruguay: some general figures

- Beef represents 30% of the total exportations of the country
- 80% of the beef produced is exported
- 6th exporter in the world (370,000 ton)
- Livestock production takes 87% of the total area of Uruguay
- Beef consumption: 61 kg beef meet/hab/year
Unsubsidized production systems
Open sky: weather dependent
Main diet for cows and calves: NATIVE PASTURES
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Materials and Methods
Animal description

• Palo a Pique Experimental Unit-INIA

• 740 total lactation curves (primiparous and multiparous with different nutritional and suckling restriction treatments)

• 114 multiparous, British crossbred cows were selected for this analysis

• 4 to 10 years old

• Calved in spring

• Managed on native pastures
Biotype
Native pastures characterization

• Forage allowance = 8 – 12 kgDM/100 kg cow LW

• Crude Protein = 8 -10 %

• Digestibility = 45 – 55 %
Milk measurements

• Milk production was measured using a milking machine after an oxytocin injection (cows separated from calves at 6am, oxytocin and milked, then 8h after oxytocin and milking, measured and samples for quality)

• Milk yield was assessed between 20 - 30 days postpartum and monthly until weaning (day 180)

• Milk samples were analysed for fat, protein and lactose.
Live weight and body condition score

• Body live weight and body condition score (1 to 8 units) were measured monthly from calving to weaning.

• Calves live weight was measured at birth and monthly until weaning.
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Results
Body live weight and body condition score

Mean ± Standard Error

CC = 3

CC = 5
Lactation curve
Dairy cattle
Lactation curve
Analysis with linear splines with 3 knots at 30, 60 and 150 days

Milk yield peak was at 35 days postpartum, **7.33** k/d

Average milk production was **5.3** k/d

Average total milk production was **821** k.

Milk yield decrease until weaning, with a daily milk production of **3.3** k
Average milk composition for the entire lactation period

- Fat = 2.38 % ± 0.13
- Protein = 3.15 % ± 0.03
- Lactose = 4.93 % ± 0.03

Mean ± Standard error
Calves performance

Birth live weight = 36 ± 0.2 kg
Weaning live weight (at 180d) = 176 ± 1.0 kg

Calves daily live weight gain was 980 g from birth until peak; decreasing to 793 g until weaning

\[ y = 0.8144x + 36.97 \]
\[ R^2 = 0.9427 \]
Implications

• Knowledge of milk production of beef cows under our range conditions

• To establish the correlation between milk production and calves daily live weight

• Inputs for a model of lactation and maintenance requirements to fuel an EPD in Maintenance Energy
Our team
Thanks!

Gracias!