GENETIC PARAMETER ESTIMATES OF ULTRASOUND MEASUREMENTS IN GROWING ANIMALS IN *BRUNA DELS PIRINEUS* BEEF CATTLE

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Session 38. Poster n.10.

INTRODUCTION

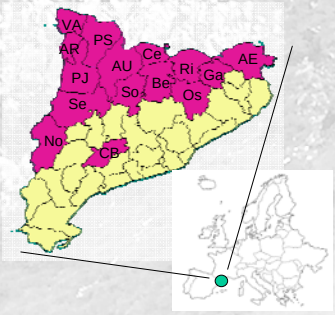
The application of ultrasound technology as a research tool allows the evaluation of carcass attributes in live animals. In addition, these measurements have potential to increase the rate of genetic progress including estimation of heritabilities and genetic correlations in genetic evaluation programs for carcass merits.

OBJECTIVE

To estimate genetic parameters for real-time ultrasound measurements of loin area (LA), loin depth (LD) and subcutaneous fat thickness over the rump (SF) in *Bruna dels Pirineus* beef cattle.

MATERIAL AND METHODS

***Bruna dels Pirineus* beef cattle was selected from the old Brown Swiss. The herds are located in the Pyrenean mountain areas of Catalonia (Spain). The production system includes a stay in valleys from October/November to June, when most of the calvings occur, after which cows and calves are taken to the mountains to graze alpine pastures.**



The measurements were obtained using a *Sonovet 2000* ultrasound unit equipped with a 3.5-MHz 17 cm linear transducer.

A unique ultrasound technician preformed all measurements.

Every animal (n=352) was scanned 2 to 5 times for each variable to estimate the intraclass correlation of ultrasonic records (estimates for LA, LD and SF were 0.964, 0.988 and 0.875, respectively).

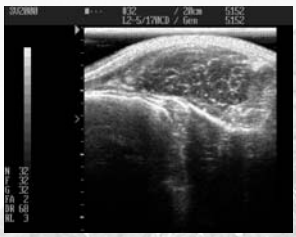
Estimates of (co)variance components were obtained using the VCE software package.

The multiple-trait animal model included only one ultrasonic measurement per animal (the closest to the mean for each animal), fixed effects for year-season (7 breeding year-seasons over a 2.5-yr period) and feedlot, and the interaction of weight by sex as a linear covariate.

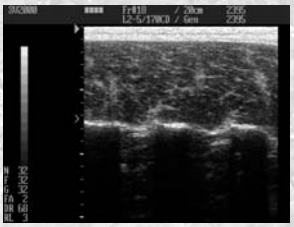
RESULTS

Ultrasound images of loin area (a), loin depth (b) and subcutaneous fat thickness in rump (c)

(a)



(b)



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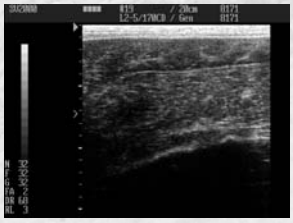
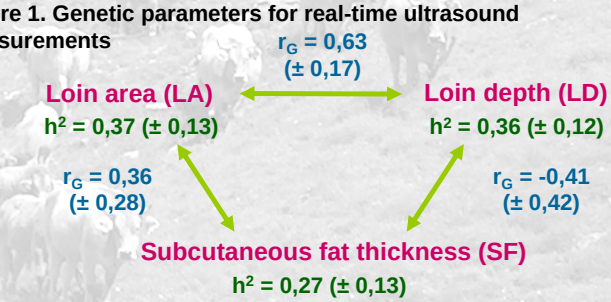


Table 1. Descriptive statistics in *Bruna dels Pirineus* cattle

	Mean	SD	Min.	Max.	CV
Life body weight (kg)	355.41	98.53	158	608	27.72
Age (d)	279.63	77.04	113	483	27.55
Loin area (LA) (cm^2)	78.61	15.48	37.41	122.78	19.70
Loin depth (LD) (cm)	5.97	0.92	3.58	8.19	15.35
Subcutaneous fat (SF) (cm)	0.49	0.08	0.23	0.74	16.58

Figure 1. Genetic parameters for real-time ultrasound measurements



IMPLICATIONS

Estimates of heritabilities and correlations indicate that a relevant additive genetic variance exists for all three traits and supports the use of live animal ultrasonic measurements as a selection tool in breeding cattle.

Acknowledgements: Research financed by Spain's Ministerio de Educación y Ciencia (AGL2007-66147-01/GAN grant), by a JUAN DE LA CIERVA scholarship granted to Joaquim Tarrés and by a CONACyT scholarship granted to Cecilia Esquivelzeta. We are indebted with FEBRUPI associates for their collaboration during calf handling for ultrasound measurement.