

MODELING POST-WEANING GROWTH OF THE AVILEÑA NEGRA-IBÉRICA BEEF CATTLE BREED UNDER COMMERCIAL CONDITIONS USING RANDOM REGRESSION

C. Díaz, A. Moreno, M. Serrano, M.J. Carabaño

Departamento de Mejora Genética Animal - INIA Apdo. 8111 . 28080 Madrid, Spain
Email: cdiaz@inia.es



INTRODUCTION



- Starting Age, Starting weight, length of period highly heterogeneous.
- RR models to study changes in weight during the fattening period.

Objective: To define a model for the genetic evaluation of animals of the Avileña Negra-Ibérica beef cattle during fattening.

MATERIALS AND METHODS

Table 1. Data description and fattening conditions

Item	Mean (s.d.)	Max	Min
No animals with data	5113		
Num. of records	22184		
No weights per animal	4	9	2
Num animals in pedigree	12298		
No of sires	202		
Starting Age (d)	238 (47.1)	138	335
Starting weight (kg)	247 (56.9)	85	472
Finishing Age (d)	413 (55.7)	171	678
Finishing weight (kg)	490 (36.2)	164	662
Length fattening period(d)	175 (48.4)	7	369

Bayesian Analysis

Weight during fattening:

$$y_{ijklm}(t) = \text{CG}_i + \text{dec}_j + \sum_{n=0}^p \text{PC}_{kn} \phi(\pi) + \sum_{n=0}^p \text{YS}_{ln} \phi(t) + \sum_{n=0}^p \alpha_{mn} \phi(t) + \sum_{n=0}^p \omega_{mn} \phi(t) + \varepsilon_{ijklm}$$

Effects	M1	M2	M3	M4
Contemporary Group:				
FL WS	X		X	
FL SS		X		X
Previous Conditions (π):				
H0	X	X		
SA			X	X
Age at Weighting_Days on fattening (dec)	X	X	X	X
Year Season of entry (t)	X	X	X	X
Additive Genetic (α ,t)	X	X	X	X
Permanent Component (ω ,t)	X	X	X	X

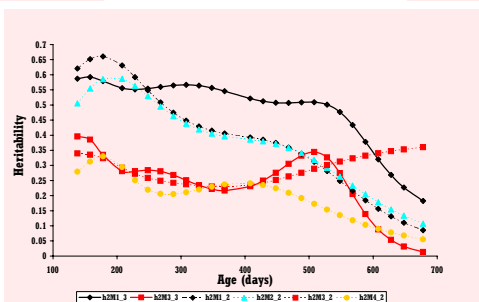
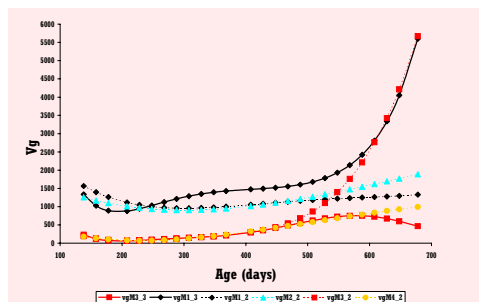
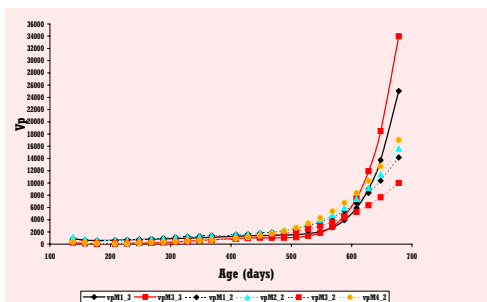
where, p = polynomial degree (2 and 3)

Comparison of models

- Log Marginal Density (LMD)
- Cross validation predictive densities (PD)

FL = Fattening Location; WS = Weighting Season; SS = Starting season; H0 = Herd of origin; SA = Class of age at starting; π = standardized days on fattening at weighting date; t=standardized age at weighting date.

RESULTS



Criteria	M1 2	M2 2	M3 2	M4 2	M1 3	M3 3
LMD	-73674.8	-80626.9	-80471.6	-81155.9	-71522.1	-78182.1
PD	164.5	169.1	147.4	156.3	125.1	122.3

CONCLUSIONS

- Both criteria determined that the third degree of polynomial was the best
- LMD and PD identified different models as the best ones when comparing models within the same degree of polynomial
- Models also showed major differences in terms of estimates of genetic parameters.