

Communication N° 02-71

(CO)VARIANCE COMPONENT ESTIMATION FOR GROWTH WEIGHTS OF MONTANA TROPICAL®, A BRAZILIAN BEEF COMPOSITE. J.B.S. Ferraz, J.P. Eler, J.P.F. Dias and B.L. Golden. Grupo de Melhoramento Animal, FZEA/USP, Cx. Postal 23, 13635-900, Pirassununga, SP, Brazil.

A large beef composite population with more than 153,000 records on weights was analyzed to estimate (co)variance components for weaning weight (WW), yearling weight (YW), weight gain from weaning to 12 and 15 month of age (WG160 and WG245). The breed composition for each animal was controlled as fractions for each breed, grouped in four biological types. The model of analysis included the fixed effects of class of age of dam (8 classes), contemporary groups (varying from 1,039 to 1,965, according to trait), age (covariate, for WW and YW) and the outcrossing percentage among biological groups. Heritability estimates for direct effects were .14 (WW), .15 (YW), .08 (WG160) and .07 (WG245). The estimates for maternal genetic effects were .16 (WW), .05 (YW) and .04 (WG160 and WG245).

Communication N° 02-72

GENETIC PARAMETERS, SIRE EVALUATION AND GENETIC TRENDS IN PREWEANING GROWTH TRAITS OF FRIESIAN CALVES IN EGYPT. E.Z.M. Oudah. Animal Production Department, Faculty of Agriculture, Mansoura University, Postal Code 35516, Egypt.

Records of birth (BWT), weaning (WWT) weights and average daily gain (ADG) of 1184 male and female Friesian calves progeny of 49 sires born from 1990 to 2000 were used. Data were analyzed using computer program of Harvey (1990). Heritability estimates were 0.17, 0.10, and 0.14, respectively. The genetic, phenotypic and environmental correlations were 0.7, 0.892 and 0.886, respectively and between BWT and WWT, respectively. Estimates of estimating sire-transmitting effects for BWT, from -3.86 to 4.46 kg for WWT and from -0.060 to 0.503 kg/year, respectively. Trends were 0.503, -0.060 kg/year and -0.615 g/d/year, respectively. -0.268 kg/year and -2.55 g/d/year, respectively.

Communication N° 02-73

SAMPLE SIZE FOR BODY WEIGHT IN BEEF CATTLE IN REPEATED MEASUREMENTS EXPERIMENTS. C.C.P. Paz, A.R. Freitas, I.U. Packer, D.D. Tambasco, L.C.A. Regitano and M.M. Alencar. Instituto de Zootecnia, Centro de Genética e Reprodução C.P.60, Cep 13460-000, Nova Odessa-SP-Brasil.

The objective of this work was to estimate minimum sample size (n) required for an experiment which associates of the candidate genes (GH, K-Cas and B-Lac) with body weight in crossbred beef cattle, assuming the body weight as repeated measures (14 measurements). The value of n required to detect significant differences (Δ) between any two measurements of body weight was obtained by SAS program that considered a p -variate normal distribution ($p=14$), F-distribution with noncentrality parameter δ^2_{Δ} and levels of type I error (α), power test ($1-\beta$), correlation between repeated measures (ρ_{min}) and Δ . The calculated n ranged from 6 to 74 being mostly affected by variation in Δ .

Communication N° 02-74

EVALUATION OF POSTWEANING GROWTH AND CARCASS TRAITS IN CROSSBRED CATTLE FROM THE GERMLASM EVALUATION PROJECT, CYCLE V-3. E. Casas and L.V. Cundiff*. U.S. M.A.R.C., Clay Center, NE, 68933, USA.

Sire and grandsire breed effects were evaluated for postweaning growth and carcass traits of 1422 animals obtained by mating F_1 cows to Belgian Blue F_1 or Charolais sires. F_1 Cows were obtained from mating Hereford, Angus and MARC III dams to Hereford or Angus, Tuli, Boran, Brahman or Belgian Blue sires. Grandsire breed was significant ($P<.0008$) for postweaning average daily gain (kg/d), live weight (kg), hot carcass weight (kg), fat depth (cm), longissimus muscle area (cm²), estimated kidney, pelvic, and heart fat (%), percent choice, marbling, USDA yield grade, retail product yield (%), retail product weight (kg), fat yield (%), fat weight (kg), bone yield (%), and bone weight (kg), were analyzed in this population. Sire breed was significant ($P<.05$) for all traits but estimated kidney, pelvic, and heart fat, retail product weight, and fat yield. Sire and grandsire breed effects can be optimized by selection and use of appropriate crossbreeding systems.

Communication N° 02-75

COMPARISON OF SELECTION CRITERIA FOR PRE-WEANING GROWTH TRAITS OF NELORE CATTLE. C.D. Ortiz Peña, R. Carvalheiro, S.A. de Queiroz and L.A. Fries. Departamento de Zootecnia, MGA/FCAV-UNESP, Jaboticabal, SP. CEP 14884-900. Brazil.

This study estimated genetic parameters for pre-weaning average daily gain (ADG) and the number of days to gain 160 kg (D160) of Nelore cattle. Heritability estimates (Restricted Maximum Likelihood - unitrait animal models) were 0.17, 0.10 for ADG (direct and maternal), and 0.14, 0.09, for D160 (direct and maternal). The correlation between breeding values for ADG and D160 were estimated at 0.94 and 0.93, for direct and maternal effects, respectively. Despite similar heritability estimates and high genetic correlations, results showed that changes could happen when choosing the best animals according to D160 or ADG. Sires selected using D160 produce progeny that achieve a specified market weight at an earlier age and are more uniform, since this criterion is calculated as a harmonic mean function.

Communication N° 02-76

GENETIC PARAMETERS FOR SCROTAL CIRCUMFERENCE AND 18 MONTHS WEIGHT OF URUGUAYAN ABERDEEN ANGUS ESTIMATED BY BAYESIAN APPROACHES. J.I. Urioste, A.C. Espasandin, G.J.M. Rosa and H.N. Oliveira. Depto. Producción Animal y Pasturas, Facultad de Agronomía, UDELAR, 12900 Montevideo, Uruguay.

Some 5146 records for 18 months weight (W18) and 1203 records for scrotal circumference (SC) of Aberdeen Angus bulls were used to estimate heritability (h^2) and genetic and residual variances by Bayesian approaches with informative or flat priors. Heritability for W18 varied between 0.554 and 0.579, depending on the models and the approach used. Corresponding h^2 values for SC were from 0.545 to 0.725. Genetic and residual correlations between W18 and SC were 0.25 to 0.29 and 0.46 to 0.56, respectively. In general, parameters estimated with informative priors showed less variability than those obtained with flat priors, and this was more pronounced for SC than for W18. Incorporation of prior information may improve variance component estimates when the amount and quality of data are limited.