Communication N° 19-18

BIOLOGICAL AND ECONOMIC RESPONSES IN THE NE INDEX LINE. D.B. Petry and R.K. Johnson. University of Nebraska, Lincoln, NE 68583-0908 USA.

The NE Index line (I) was selected 19 generations for ovulation rate, embryo survival, and litter size. Biological and economic responses in pure line and crossbreeding applications were estimated from Generation 17-19 data. Averaged across genetic types, genetic differences between I and the control line were 3.53 ± 0.30 total pigs and 2.53 ± 0.30 live pigs per litter; however the differences were greater in pure line than crossbred litters. A negative correlated .73) due to lighter weight pigs in line I occurred. ass traits were found. Simulation of 1,250-sow ws resulted in 4,251 more pigs marketed per year rprise with Index sows.

Communication N° 19-19

COVARIANCES STRUCTURES IN REPEATED MEASURES OF BODY WEIGHT OF *Bos Indicus* BEEF CATTLE IN BRAZIL. A.R. Freitas, L.O.C. Silva, K.E. Filho, C.C.P. Paz and A.J.S. Falcão. Embrapa Pecuária Sudeste, CP 339, 13560-970 São Carlos-SP-Brasil.

The objective of this study was to select covariance structures associated to measures taken in the same animal. The data used were body weight of *Bos Indicus* pure beef cattle in Brazil (Nelore, Guzerá, Gir and Indubrasil) held by National Archive of Brazilian Zebu Breeders Association (ABCZ), analyzed as repeated measures. Considering the goodness of fit criteria provided by PROC MIXED : REML log likelihood, Akaike's Information Criterion and Schwarz's Bayesian Criterion, the best two covariance structures for each category of beef cattle were : Factor-Analytic : FA(1) and First-Order Autoregressive Moving Average : ARMA(1,1) for Nelore, Unstructured : UN and Compound Symmetry Heterogeneous : CSH for Guzerá, UN and FA(1) for Gir, UN and FA(1) for Indubrasil.

Communication N° 19-20

CORRELATED RESPONSES TO SELECTION FOR YEARLING WEIGHT ON REPRODUCTIVE PERFORMANCE OF NELORE COWS. M.E.Z. Mercadante, I.U. Packer, A.G. Razook, J.N.S.G. Cyrillo and L.A. Figueiredo. EEZS- IZ Caixa Postal 63 - Cep:14.160-000 - Sertãozinho-SP, Brazil.

Data from a growth selection experiment, carried out in Brazil, was analyzed in order to evaluate the effects of the selection for body weight on size and reproductive traits of the cows. The experiment started in 1978, with 3 lines of Nelore cattle, selection (NeS), traditional (NeT), both selected for higher yearling weight, and control (NeC), selected for mean yearling weight. Means for weight and height at the beginning of the breeding season, days to calving and calving success of cows pertaining to 3rd to 4th generations of selection, were contrasted between the selected and control lines. Cows from NeS and NeT were 15% heavier than those cows from NeC. For the reproduction traits, no significant difference was detected between the selected lines and the control. These results show that successful selection for body weight had not negative effects on the reproductive performance.

Communication N° 20-16

ENHANCING DATA QUALITY BY INTEGRATING DYSTOCIA DATA INTO A NATIONAL DAIRY CATTLE PRODUCTION DATABASE. C.P. Van Tassell and G.R. Wiggans AIPL and GEML, ARS, USDA, Beltsville, MD, USA.

The Animal Improvements Programs Laboratory assumed responsibility for conducting the national genetic evaluation for calving difficulty (dystocia) and maintaining the associated database in 1999. The dystocia data were migrated to a relational database that is integrated with the AIPL national database of production data including lactations and pedigree back to 1960. A major goal of this effort was to increase the maternal grandsire (MGS) identification (ID) rate by utilizing production pedigree information. Nearly 70% of the dam ID could be matched to the production pedigree table. By integrating pedigree information from production data, the rate of MGS ID was increased from 57 to 73%.

Communication N° 20-17

COMPARISON OF DYSTOCIA EVALUATIONS FROM SIRE AND SIRE-MATERNAL GRANDSIRE THRESHOLD MODELS. G.R. Wiggans, C.P. Van Tassell, J.C. Philpot and I. Misztal. Animal Improvement Programs Laboratory, USDA, Beltsville, MD 20105-2350 USA.

Over 5 million USA calving ease records where both sire and sire-maternal grandsire (MGS) were reported were analyzed with both a sire and a sire-MGS threshold model. Variance components were based on a heritability of .16 for the direct effect, .06 for the maternal effect and a correlation between them of -.3.The model included herd-year, sex, parity of dam, year-season of birth, birth-year group of sire, birth-year group of MGS, sire, and MGS. There were 45,567 bulls represented as either a sire or MGS. Correlations between sire and sire-MGS evaluations were .930 for all bulls and rose to .991 for the 181 bulls with >5000 records. The sire-MGS model provides more accurate evaluations by partially correcting for merit of mates and the maternal ability of the dam.

Communication N° 20-18

GENETIC EVALUATION OF DAIRY CATTLE USING TEST DAY AND LACTATION RECORDS. M. Suzuki, J.A.C. Pereira, S. Yamaguchi and T. Kawahara. Obihiro University of Agriculture and Veterinary Medicine, Obihiro 080-8555, Japan.

The estimated breeding values (EBV) obtained under a Fixed Test Day (FTD) and Random Regression (RRTD) models against the EBV of 305-day lactation models by test interval (TIM) and best prediction (BP) were compared The data were from the Hokkaido Dairy Cattle Milk Recording and Testing Association, that belong to cows calved from 1989 through 2000. The data set consisted of 712,653 cows with 14.6 million TD records from first to third lactation. The sub-models used were the Wilmink and Wood's function in RRTD models. Two sets of EBVs were obtained for each method., one from all animals from 1989 to 2000, the other only from 1989 to 1997. The animals that did not enter to the second analysis were used to evaluate the accuracy of the EBVs of the each model. Lactation models (TIM and BP) obtained values far from the ideal correlation (0.707), obtained a correlation of more than 0.80. The FTD model had the most preferable statistical properties to predict future daughters' EBV.