8th World Congress on Genetics Applied to Livestock Production

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Book of abstracts

Communication 15-27

THE GENETIC RESISTANCE TO COCCIDIA IN APPENNINICA SHEEP. F. Cecchi[1], R. Ciampolini[1], F. Macchioni[2], M. Biagetti[3], E. Ciani[1], G. Filippini[3], E. Mazzanti[1], M. Tancredi[1], P. Papa[3], D. Deni[4]. [1]D.P.A., 56124 Pisa, Italy; [2]D.P.A.P.I.A., 56124 Pisa, Italy; [3]I.Z.S.U.M., 06126 Perugia, Italy. [4]I.Z.S.L.T., 52100 Arezzo, Italy

The study was conducted in a single herd of Appenninica sheep breed situated in Tuscany (Italy) from April to November 2004 on 108 sheep with the aim to identify the most resistant subjects to *Coccidia*. Moreover, the presence of gastro-intestinal *Strongylids*, *Dicrocoelium* sp, *Moniezia* spp, *Strongyloides* sp. and *Trichuris* sp. was also evaluated. Sheep selection may be based on OPG in adult animals, as it appears to be an indicator of sheep resistance to *Coccidia*. Before incorporating the parameter into breeding programmes, however it is necessary to better appraise the degree of infestation of the other parasites as it may be difficult to select simultaneously for resistance to *Coccidia* and *Strongylids* unless the genetic correlation between these two traits is calculated and a selection index approach is used.

Communication 15-28

GENETIC VARIABILITY OF THE RESISTANCE TO EPIZOOTIC RABBIT ENTEROPATHY (ERE) : NEW RESULTS. H. Garreau*, D. Licois, R. Rupp. H. de Rochambeau. INRA, Station d'Amélioration Génétique des Animaux, 31326 Castanet-Tolosan, France.

Genetic variability of resistance to epizootic rabbit enteropathy (ERE) was analysed from a sample of 22 sires, which produced two batches of 330 young rabbits, inoculated after weaning using the inoculum INRA TEC3. Four indexes were defined - mortality, diarrhoea, abnormal growth, resilience - to assess individual response of the young rabbits from day D5 to day D33. The application of a logistic regression highlighted a significant effect of the sire for the diarrhoea, abnormal growth and resilience indexes but not for mortality index. The genetic parameters of these indexes were estimated using a threshold model and REML methodology. Heritability estimates for mortality, diarrhoea, abnormal growth and resilience indexes were respectively 0.05, 0.21, 0.38 and 0.08.

Communication 15-29

IDENTIFICATION OF PRP GENE POLYMORPHISMS IN ALPINE AND SAANEN FRENCH GOATS ASSOCIATED WITH SUSCEPTIBILITY TO SCRAPIE. D. Mariat, O. Andreoletti, C. Perrin-Chauvineau, F. Corbière, A. Piacère, C. Lacroux, S. Chadi, E.P. Cribiu, C. Chartier, F. Schelcher, F. Barillet*. INRA- SAGA, BP 52627, 31326 Castanet-Tolosan Cedex, France.

Susceptibility to scrapie in sheep is strongly modulated by allelic polymorphism at codons 136, 154 and 171 of the prion protein *PrP* gene, whereas no strong association between *PrP* polymorphism and scrapie has been established in goats yet, except Methionine mutation at codon 142. A case-control study was conducted in an outbreak involving 272 Alpine and Saanen goats (95 cases) within a flock. Compared to the wild allele $I_{142}R_{211}Q_{222}S_{240}$, mutations at codon 211 ($I_{142}\mathbf{Q}_{211}Q_{222}S_{240}$ allele) and at codon 222 ($I_{142}R_{211}\mathbf{K}_{222}S_{240}$ allele) gave respectively 7 and 20 times significantly more protection against scrapie, while simultaneous mutations at codons 142 and 240 ($\mathbf{M}_{142}R_{211}Q_{222}\mathbf{P}_{240}$ allele) increased resistance 5-fold.

**QUANTITATIVE ANALY
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Coutinho, L.C.A. Regitano.**
235, São Carlos – S.P. 13.565
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**A QTL FOR RESIST
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Martinez, M.A. Machado**
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Communication 02-14

AN INVESTIGATION ON THE GENETIC RESISTANCE TO PARASITICAL FAUNA IN APPENNINICA SHEEP. G. Filippini[1], F. Aloisio[1] F. Cecchi[2], M. Biagetti[1], F. Macchioni[3], R. Ciampolini[2], G. Venditti[1], E. Ciani[2], E. Mazzanti[2] C. Sebastiani[1], D. Cianci[4]. [1]IZS UM, 06126 Perugia, Italy; [2]Dip. Prod. Anim., 56124 Pisa, Italy; [3]Dip. Pat. Anim., Profilassi Igiene Alim., 56124 Pisa, Italy; [4]Dip. Fis. Gen. Amb., 70124 Bari, Italy.

The study was conducted in a single herd of Appenninica sheep breed situated in Tuscany (Italy) from April to Novembre 2004 on 108 sheep with the aim to estimate the hereditary transmissibility of resistance. The samples were processed four times for coprological (*Coccidia*, gastro-intestinal *Strongylids* including *Nematodirus*, *Dicrocoelium* spp, *Moniezia*, *Strongyloides* and *Trichuris*) and haematological (PCV) examinations. The heritability coefficients were rather low but not different from values reported elsewhere, ranging from the value of zero (*Dicrocoelium*, *Strongyloides* and *Trichuris*) to 0.29 (*Coccidia*). On the contrary high repeatability values were observed ranging from 0.04 for *Trichuris* to 0.66 for *Strongylids*.

Communication 02-15

ASSOCIATION OF CSN3 AND CSN1S2 GENES WITH LITTER SIZE IN CHINESE XINONG SAANEN DAIRY GOAT. H. Chen[1,2*], X.Y. Lan[1*], C.Z. Lei[1], C.Y. Pan[1], R.F. Zhang[1], Y.D. Zhang[1], R.B. Li[1.] [1]College of Animal Science and Technology, Northwest A& F University, Shaanxi Key Laboratory of Agricultural Molecular Biology, Yangling, Shaanxi 712100, P. R. China. [2]Institute of Biotechnology, College of Life Science, Xuzhou Normal University, Xuzhou 221116, P. R. China. (* Corresponding Author: Tel: +86-029-87091379, E-mail: chenhong1212@263.net and lan342@126.com)

Xinong Saanen dairy goat breed in China who characterized by large body size, high milk yield, strong adaptation. However, few know that Xinong Saanen dairy goat is also one of breeds with high litter size, with a kidding rate of 200% (Zheng, 1988). High litter size contributes to goat production (meat and velvet). Hence, increase of litter size contributes to improve productivity in the goat industry. Research on litter size of Xinong Saanen goat is important to improve productivity of the goat industry and to get new knowledge on the...

Communication 02-16

LACTATION CURVE IN A HERD OF SAANEN GOATS: BAYESIAN APPROACH OF WOOD'S FUNCTION. J.S. Laranjo, T.M. Gonçalves, F.F. Silva, A.L.L. Costa, M.A. P. Rodriguez, G.F. Rebouças. FEDERAL UNIVERSITY OF LAVRAS, PO Box 3037, Lavras, MG, Brazil.

The objective of this study is to use Bayesian approach to fit the Wood's model for milk yield of Saanen goats. Data were 127 first, 49 second and 19 third lactation records of Saanen goats, with respective average age at kidding of 17, 36 and 49 months. The posterior marginal were obtained by Gibbs Sampler and parameter functions were calculated from posteriori means of these parameters. The results showed differences in the curve indicating that animals in second lactation were the most persistent. The Bayesian method was implemented successfully and was efficient in the study of the different lactation curves. The behavior of the lactation curve for different lactation number depended on initial production, the rate of production until peak, peak milk yield and persistency of lactation.

Communication 01-67

REPRODUCTIVE PERFORMANCE OF CROSSBRED COWS WITH DIFFERENT PERCENTAGES OF *BOS TAURUS* GENES IN TROPICAL CONDITIONS OF MEXICO **M. Díaz*, J.G. García, R. Núñez, R. López, P.A. Martínez.** Universidad Autónoma Chapingo, Carretera México-Texcoco, km 38.5, 56230, Chapingo, Méx., México.

The objective was to determine the optimum percentage of *Bos taurus* (BT) genes on age at first-calving (AFC), days to first postpartum service (DFPS), days open (DO), and calving interval (CI) of Zebu cows and their crosses with European breeds. Calving records (n = 1,704) from 570 cows with percentage of BT genes ranging from zero to 100, were collected from a commercial farm in tropical Mexico. The cows' AFC had a quadratic effect ($P<0.05$) as the percentage of BT genes increased and reached a minimum (31 mo) at 49% of BT genes. The cow's DFPS (143 d), DO (196 d), and CI (15.7 months) reached a minimum at 0% of BT genes and increased linearly ($P<0.05$) as the percentage of BT increased. The inclusion of BT genes at around 50% improved AFC; however, any percentage of BT genes beyond 0% increased...

Communication 01-68

GENETIC DIFFERENCES FOR LIFE-TIME PRODUCTION AND RATE OF MATURITY IN MILK OF JAPANESE HOLSTEINS. M. Suzuki, Y. Masuda S. Ohashi, T. Kawahara. Obihiro University of A & VM. Holstein Cattle Association of Japan.

In Japan, bulls whose daughters are in early maturity may be selected than that of daughters in late maturity. An approximate 100,000 lactation records were sampled by randomly using herd code from the dataset for the estimation of genetic parameters using random regression method (RRM). RRM with similar animal model used that of estimation in genetic parameter was applied for the whole dataset to predict breeding value in life-time production. Heritabilities declined gradually from 0.41 to 0.26 according to age of calving advancing. A random regression model applied to 305d lactation yield by age at calving was effective to express maturity in milk production from life-time production function using gamma-type curve. The results show that recent sire selection by daughter's first lactation come to early maturity in sire's breeding value in milk production.

Communication 01-69

MORPHOMETRIC CHARACTERISTICS OF MILK FAT GLOBULES IN ITALIAN FRIESIAN DAIRY COW. M. Martini[1], F. Cecchi[1], C. Scolozzi[1], F. Salari[1], F. Chiatti[2], S. Chessa[2], A. Caroli[3]. [1]Dip. PA, Università di Pisa, 56124 Pisa, Italy; [2]Dip. VSA, Università di Milano, 20134 Milano, Italy; [3]Dip. SBB, Università di Brescia, 25123 Brescia, Italy.

The influence of k-casein *(CSN3)* genotype on morphometric characteristics of milk fat globules was evaluated in 89 Italian Friesian pluriparous cows. Significant effects of *CSN3* genotypes were observed for the size distribution of fat globules. The percentage of the number of fat globules in the 1st (1.5-3μm) and 2nd class (3-4.5μm) was significantly higher in the *BB* genotype than in *AB*. An opposite trend was found in the 5th (7.5-9μm), 6th (9-10.5μm) and 9th class (>13.5μm), with a higher percentage associated with the *AB* genotype. The *CSN3*BB* genotype showed a higher percentage of fat globules with diameter ranging from 1.5 to 6μm: it could improve milk digestibility and fatty acid composition since associated to smaller milk fat globules size, resulting in a favorable effect for human health.