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Session 21. Beef production, supply and quality from farm to fork

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Chairperson: J.F. Hocquette/K. De Roest

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Estimation of genetic parameters for reproductive traits in alpacasA. Cruz¹, I. Cervantes², A. Burgos¹, R. Morante¹ and J.P. Gutiérrez²¹Fundo Pacamarca – INCA TOPS S.A., Miguel Forga 348, Arequipa, Spain, ²Dpto. de Producción Animal, Universidad Complutense de Madrid, 28040 Madrid, Spain; gutgar@vet.ucm.es

One of the main deficiencies affecting animal breeding programs in Peruvian alpacas is the low reproductive performance leading to low number of animals available to select strongly decreasing selection intensity. Leaving aside management issues, some reproductive traits could in turn be improved by artificial selection, but very few information about genetic parameters exist for these traits. The aim of this study was to estimate genetic parameters for six reproductive traits in alpacas both in Suri and Huacaya ecotypes, as well as their genetic relationship with fiber and morphological traits. Dataset belonging to Pacamarca experimental farm collected between 2000 and 2014 were used. Number of records for age at first service (AFS), age at first calving (AFC), intercourse time (IT), pregnancy diagnosis (PD), gestation length (GL), and calving interval (CI) were respectively 1,704, 854, 19,770, 5,874, 4,290 and 934. Pedigree consisted of 7,742 animals. Estimated heritabilities, respectively for HU and SU were 0.19 and 0.09 for AFS, 0.45 and 0.59 for AFC, 0.04 and 0.05 for IT, 0.07 and 0.05 for PD, 0.12 and 0.20 for GL, and 0.14 and 0.09 for CI. Genetic correlations between them ranged from -0.96 to 0.70. No important genetic correlations were found between reproductive traits and fiber or morphological traits, in HU being the highest 0.24 between AFS and DE. However several favorable genetic correlations higher than 0.34 in absolute value were found in SU, being AFS and IT the trait more related to productive traits and AFC, IT and GL that more related to Morphological traits. Reproductive performance would be indirectly selected in SU but some reproductive traits could be included as selection objectives in HU.

Inbreeding in Swiss dairy cattle populationsA. Burren¹, A. Kreis¹, J. Kneubuehler², E. Barras³, A. Bigler², U. Schnyder⁴, M. Rust⁵, U. Witschi², H. Joerg¹ and F. Schmitz-Hsu²¹Bern University of Applied Sciences BFH, School of Agricultural, Forest and Food Sciences HAFL, Länggasse 85, 3052 Zollikofen, Switzerland, ²Swissgenetics, Meienfeldweg 12, 3052 Zollikofen, Switzerland, ³Holstein Association of Switzerland, Route de Grangeneuve 27, 1725 Posieux, Switzerland, ⁴Swissherdbook, Schützenstrasse 10, 3052 Zollikofen, Switzerland, ⁵Braunvieh Schweiz, Chamerstrasse 56, 6300 Zug, Switzerland; alexander.burren@bfh.ch

In recent years, many studies have shown that increasing inbreeding results in declining performance, fertility and health of dairy cattle, resulting in inbreeding depression. In this context, the inbreeding development of seven dairy cattle populations was studied: Brown Swiss (BS), Original Braunvieh (OB), Holstein (HO), Red Holstein (RH), Red-Factor-Carrier (RFC), Swiss Fleckvieh (SF=RH × SI) and Simmental (SI). All herd book animals with birth years from 1990 to 2012 and their ancestors were included. The mean pedigree completeness, considering 1 to 6 generations, varied between 83% to 99% (OB=99%, SI=95%, BS=92%, SF=91%, RH=89%, RF=85%, HO=83%). In the HO, RH and RFC animals, the mean pedigree completeness is lower than for the other populations, which is why the inbreeding coefficients are less meaningful. This finding is not surprising as sires from other No-Swiss populations with low pedigree information is still common today. For all seven breeds average inbreeding coefficients showed a varying increasing trend, and were found at 4.7% (BS), 4.2% (HO), 3.7% (SI), 3.5% (OB), 3.1% (RH), 2.6% (RFC) and 2.4% (SF) for the year 2012. The increase in the mean inbreeding coefficient (ΔF) was found in the period 1990-2012 in the following populations: SI (2.8%), HO (2.7%), BS (2.5%), OB (2.3%), RH (1.8%), RFC (1.5%) and SF (1.3%). For all seven breeds no specific management measures are required but a regular monitoring of inbreeding coefficients is proposed.