

Applied Genetics in Sheep and Goats Workshop

Chair: Gesine Lühken, Department of Animal Breeding and Genetics, University of Giessen, Germany

Report on any business conducted

The workshop was held on July 26th 2010 from 13:30 to 17:30, and was divided in short oral presentations and discussion of conference posters related to applied genetics in sheep and goats, a short discussion about the actual situation of selection for *PRNP* variants in sheep, the presentation and discussion of sheep and goat comparison test results and the election of new committee members.

Presentations

The following posters were presented (presenting author in parentheses), focusing on defect mutations or resistance to parasite or prion infection and often using the newly available ovine 50k SNP chip:

- Microphthalmia in Texel sheep is associated with a missense mutation in the paired-like homeodomain 3 (*PITX3*) gene (Doreen Becker, Switzerland)
- Achondroplasia in UK Cheviots fine-mapped to 360 Kb Region of Chromosome 3 (James Kijas, Australia)
- Structural and functional characterization of ovine interferon gamma gene: Its role in nematode resistance in Rasa Aragonesa sheep breed (Elda Dervishi, Spain)
- The use of a high-density SNP array for identifying genetic regions controlling parasite resistance in sheep (Tracy Hadfield, USA)
- Whole-genome association analyses for identifying genomic regions related to scrapie in sheep (Chunhua Wu, USA)
- Identification of Single Nucleotide Polymorphisms (SNPs) and Linkage Disequilibrium (LD) analysis in *PRNP* gene of Brazilian locally adapted and commercial sheep breeds (Patrícia Ianella, Brazil)
- Prion protein genotypes in goats from Slovenian scrapie outbreak (Jelka Zabavnik, Slovenia)

The last presentation was followed by a short introduction about the actual situation of scrapie and of selection of sheep for *PRNP* variants in Germany (and the European Community) by Gesine Lühken as a start for discussing possible outcomes and failures of breeding sheep for scrapie resistance.

Sheep and Goats comparison tests

Daniela Iamartino presented the execution and Cecilia Penedo the results of the sheep comparison test. As some of the sheep markers were not as good as others, it was decided by acclamation to exclude three of the markers (these are ILSTS87, TGLA53 and HSC) from the next comparison test. Furthermore, as there were still 21 markers (plus 7 used by only two labs and 22 used by one single lab), it was decided to sort 10 or 12 of the markers into a core panel and the other markers into an additional panel in order to have at least 10 or 12 sheep markers which will be genotyped by all participating labs. The new duty lab was asked to communicate the sequences of the used primers as different primers may be the cause for some differences of marker results.

Cecilia Penedo presented the results of the goat comparison test. Here, the results were quite good over all participating labs, therefore no changes for the next test were decided.

The lists of markers for the next sheep and goats comparison test in 2011 will be published in the comparison test section of the ISAG homepage.

Celine Chantry-Darmon volunteered to serve as duty lab for the sheep comparison test and Clementine Rodellar as duty lab for the goat comparison test. Cecilia Penedo agreed to serve again as the computer lab, but maybe this will more centrally organized by ISAG in the future together with the organization of applications for participation on comparison tests.

Election of new committee members

Jill Maddox (Australia) and Allan Crawford (New Zealand) did not communicate that they would continue to serve as committee members. As new committee members, Gwenola Tosser-Klopp (France), Clemetine Rodellar (Spain), Stephen White (USA) and Celine Chantry-Darmon (France) were elected by acclamation. Gesine Lühken agreed to serve as chair of the committee for the next two years.

The current Applied Genetics in Sheep and Goats Committee members are:

Celine Chantry-Darmon (France)
Daniela Iamartino (Italy)
Gesine Lühken (Germany; Chair)
Cecilia Penedo (USA)
Clemetine Rodellar (Spain)
Gwenola Tosser-Klopp (France)
Stephen White (USA)

Amendment to the workshop report (4th of May 2011)

Current ovine and caprine marker panels to be used for the 2011 comparison test:

- new (revised) sheep marker list

CSRD247
D5S2 (ETH152)
INRA005
INRA006
INRA023
INRA063
INRA172
MAF65
McM042
McM527
OarFCB20
SPS113
AMEL (X-chromosome)

- old (and still valid) goat marker list

CSRD247
ILSTS008
ILSTS19
ILSTS87
INRA005
INRA006
INRA023
INRA063
MAF65
McM527
OarFCB020
SRCRSP23
SRCRSP5
SRCRSP8

For the sheep and goat comparison tests 2011, labs have to apply for participation until 29st of July 2011 and will have to resend genotyping results until 30th of March 2012.