

Applied Genetcs in Sheep and Goats

STANDING COMMITTEES / WORKSHOPS

Information will be posted online

Organised by a standing committee yes

Date and meeting time: July 19, 2012, 2-5:30p

Chair, name and contact email: Gesine Luehken, Gesine.Luehken@agrar.uni-giessen.de

On-Site Acting Chair: Stephen White, <u>Stephen.White@wsu.edu</u>

Agenda / programme attached

Number of participants at meeting: 60

Summary of the meeting including votes, decisions taken and plans for future conferences

1) Workshop Presentation List:

"The domestic sheep reference genome assembly" Brian Dalrymple (Yu Jiang could not attend)

"Identifying genomic regions associated with production traits in Rambouillet sheep using a 50K SNP array"

Tracy Hadfield

"Identification of SNPs associated to Red Massai x Dorper resistance to gastrointestinal parasite infections"

Magda Benavides

"Novel mutations controlling ovulation rate in sheep" Loys Bodin

"Comparison of potential traits for reducing methane emissions in sheep" Dorothy Robinson

"SNP based parentage assignment in sheep: Application in Australian flocks" James Kijas

"Update of the International Goat Genome Consortium projects" Brian Sayre

"A whole-genome radiation hybrid panel for goat and comparative genomics" Jianhua Cao

"Study on microRNAome associated with goat hair cycle" Zhihong Liu

"Execution of the sheep comparison test 2011/12" Lucie Genestout

"Summary of sheep and goat comparison test results 2012" Cecilia Penedo

2) Use of SNP for parentage testing and assignment for sheep

The possibility of extending the comparison test to include SNP-based parentage-testing and assignment was discussed.

During the workshop, James Kijas presented data on parentage exclusion using a set of SNP tested across multiple genotyping platforms. Those data shows a very good accuracy and efficiency for a set of 87 SNP for parentage verification on a large number of breeds. This panel can possibly be extended to 180 for parentage assignment purposes.

A possible inclusion of these SNP in the next comparison test was discussed during the workshop.

Some labs are not likely to adopt SNP-based testing at present largely due to cost, however, others will. Going forward, a SNP-based test would have advantages for integration into different genotyping platforms, and costs are projected to continue to fall.

In conclusion, there was a consensus that the next comparison test may include both microsatellite- and SNP-based tests, and laboratories may participate in either version.

Dr. Kijas was asked to submit a short written proposal on markers to consider for inclusion on the next comparison test.

3) Other Business

- Prior to the meeting, Daniela IaMartino requested to step down from service on the Committee. At
 the workshop, Cecilia Penedo asked to step down from Committee membership, but will continue to
 serve as computing lab for the next comparison test. The Committee thanks Daniela and Cecilia for
 their years of excellent service.
- Following a call for potential new members, Rosina Fossati was elected by acclamation. She represents Genia, a company involved in DNA and diagnostic tests for agricultural applications that has participated in comparison tests as an institutional ISAG member since 2003.

Committee members

Chair: Gesine Luehken term of service: 2014

E mail address: Gesine.Luehken@agrar.uni-giessen.de

Other members term of service:

Celine Chantry-Darmon (France) 2014 Clementine Rodellar (Spain) 2014 Gwenola Tosser-Klopp (France) 2014 Stephen White (USA) 2014

COMPARISON TEST

yes

If yes: Number of enquiries – Sheep=38 Goat=27

Number of participants receiving samples – Sheep=36 Goat=27

Number of samples- 20 each (SCT and GCT)

Number of participants reporting results: Sheep=28 Goat=17

Duty laboratories: Celine Chantry-Darmon (France)- (sheep) <u>celine.chantry@jouy.inra.fr</u>

Clementine Rodellar (Spain) - (goat) <u>rodellar@unizar.es</u>

Sheep comparison test organization presented by Lucie Genestout (representative of French duty laboratory)

Final list of 14 markers: AMEL, CSRD247, D5S2 (ETH152) , INRA005, INRA006, INRA023, INRA063, INRA172, MAF065, MAF214, McM042, MCM527, OarFCB20 and SPS113 Choice of the samples: 9 different French breeds, 20 samples, 20 μ l of DNAs at 50ng/ μ l, QiaSymphony® extractions

Participating laboratories: 38 laboratories (27 in 2010), Out of 6 labs with customs problems (Brazil), 2 didn't receive their samples, 2 labs asked for more DNA sample

Duty Lab representative for goat did not attend conference. Problems with shipment of samples to Brazilian labs were reported.

Computing Laboratory: Cecilia Penedo <u>mctorrespenedo@ucdavis.edu</u>

Comments: Reports were received in requested format and within deadline. Absolute and relative accuracies of labs for the ISAG panel were overall high for both sheep and goat tests. Most genotype discrepancies occurred in few laboratories and were more a result of poor adjustment to standard nomenclature than in detection of alleles. Answers to parentage questions were 93% concordant for sheep and 100% for goat test. Lab performance evaluation is summarized below.

Sheep CT – Genotyping Accuracy (20 labs)				Goat CT – Genotyping Accuracy (15 labs)			
Absolute		Relative		Absolute		Relative	
Rate	# Labs	Rate	# Labs	Rate	# Labs	Rate	# Labs
1 : 100 – 98%	7	1 : 100 – 98%	12	1:100 - 98%	7	1 : 100 – 98%	9
2: 98 – 95%	3	2: 98 – 95%	4	2: 98 – 95%	3	2: 98 – 95%	5
3: 95 – 90%	6	3: 95 – 90%	3	3: 95 – 90%	1	3: 95 – 90%	1
4: 90 – 80%	2	4: 90 – 80%	1	4: 90 – 80%	1	4: 90 – 80%	
5: 80 - 70%	2	5: 80 - 70%	0	5: 80 - 70%	3	5: 80 - 70%	

Decisions: Based on sequence results, it was proposed and approved for sheep marker INRA172. Previous allele "122" was renamed "126".

List of recommended markers

Sheep: CSRD247, ETH152, INRA005, INRA006, INRA023, INRA063, INRA172, MAF065, MAF214, McM42, McM527, OarFCB20. AME

Note: SPS113 can be an additional marker of the panel.

Goat: CSRD247, ILSTS008, ILSTS019, ILSTS087, INRA005, INRA006, INRA023, INRA063, MAF065, McM527, OarFCB20, SRCRSP05, SRCRSP08, SRCRSP23.

4) Next comparison test

A discussion was engaged on the opportunity to have a comparison test for goat. This discussion concluded that no comparison test will be organised next time on STR for goat.

There is still interest to have a comparison test for sheep on STR and SNP.

As no duty lab for next sheep comparison test was defined during the workshop, a call is made for volunteers. Interested laboratories are encouraged to contact soon Gesine Luehken (Gesine.Luehken@agrar.uni-giessen.de)

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SIGNATURES

Stephen White /s/ Lucie Genestout (sheep duty lab)

Chair Duty laboratory Computing laboratory

PLEASE HAND IN TO THE ISAG BOOTH OR MAIL (PREFERABLY) THIS REPORT PRIOR TO THE BUSINESS MEETING DURING THE CONFERENCE TO:

ISAG SECRETARY: Ingrid Olsaker ISAGsecretary@assochq.org

FASS: Jenna Stoia JennaS@assochq.org