



ISAG
CONFERENCE 2017, Dublin, Ireland

<p>Livestock genomics for developing countries</p>

STANDING COMMITTEES / WORKSHOPS

Information will be posted online

Organised by a standing committee: **yes**

Date and meeting time: Thursday, July 20, 2:30 PM - 6:00 PM

Chair: Ntanganedzeni Mapholi, University of South Africa, Florida, South Africa
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Agenda / programme attached

The “Livestock genomics for developing countries standing committee” conducted a workshop as part of the ISAG Conference. This aim was to highlight the economic, social and environmental benefits that genetic and genomic technologies can deliver to improve livestock production in developing countries, and often-different approaches that are necessary to ensure the technologies are effective in the low-input systems of those countries. The workshop specifically focused on a number of issues and provided examples of applications from a range of livestock species relevant to developing countries under the following points:

1. Genomic applications to livestock breeding and improvement and conservation of scarce genetic resource – this included genomic selection, its potential in developing countries and challenges and progress to date;
2. Genomic applications to characterize indigenous livestock genetic resources;
3. The value of SNP chips for use in extensively raised indigenous populations in the developing world;
4. Opportunities to pool genomic resources, including funding and animal resource populations; and
5. Community-based breeding Programs (CBBPs).

Oral presentations were as follows:

Invited speakers (25 min each):

F.F. Cardoso “Development of genomic tools to select for economic traits in tropical adapted cattle breeds” The speaker focused on the use of genomic as a tools to enhance beef cattle productivity in tropical adaptation using Brazilian Braford and Hereford cattle herds as a case study.

R Mrode “Genomic selection (GS) Based On Current Status In Developing Countries” Mrode addressed the important of Genomic selection (GS) which opened new opportunities in animal breeding in developed countries resulting in rapid rates of genetic progress and detection of genomic regions associated with QTLs. These tools can be used to investigate genomic diversity and genome-wide selection sweeps in developing countries.

J. Sölkner “Community-based sheep breeding programs in Ethiopia resulted in substantial genetic gains” the speaker give the insight information on Community-based breeding Programs (CBBPs). CBBPs suggested as an alternative and have been implemented in a few pilot studies in developing countries. For an example, a team of international and national scientists designed and implemented sheep CBBPs in Ethiopia. The team developed an innovative methodological framework on how to design, implement and sustain CBBPs.

F. C. Muchadeyi “Can genomics be used in the smallholder livestock sector? Case studies from South Africa” Using South African case studies, her talk was focused on dissecting of livestock genome structures particularly in the marginalized smallholder sector which is increasingly turning to SNP genotypes. Emphasizing that the value of these genomic tools to smallholder livestock populations of diverse non- descript phenotypes, limited breeding records because of random and unmonitored mating systems is of importance.

Other presentations (15 min each)

P. J. N. Ema “Genetic admixture and identity by descent in Senegalese dairy cattle”

Abdulfatai Tijjani “Towards the unravelling of the genomic basis of milk production traits in African dairy zebu cattle”

F. D. N. Mujibi “Matching breeds to production clusters using High Density SNP arrays: The case of East Africa”

ZE Bedada “Genomic signatures for ecological adaptation in Ethiopian sheep populations”

Gregório M. F. de Camargo “Prospecting genes for fat production traits in dairy buffaloes”

Number of participants at meeting: 76

Summary of the meeting

We believe that developing countries have great potential to help supply increasing demands for livestock products. Therefore, addressing issues such genomic applications to improve livestock production is of importance. About 54 attendees remained after presentation for the discussion, and majority were from developing countries. Audience commended that the presentations were well structured and addressed the issues of important to improve livestock production in developing countries. It was suggested that researchers from developing countries are argued to participate by presenting their research studies in order to understand if genomics has been broadly implemented in developing countries. The lack of the participants from developing countries might be due to financial constraints. Students and early career researchers urged to apply for ISAG travel bursary for future conferences.

Raman Akinyanju tasked to implement and facilitate the discussion forum as platform to share the ideas and knowledge in livestock genomics to improve food security. The forum aimed to bring current issues and future development plans to the fore for consideration by all members using modern technological advances available today.

Comments: Many thanks to the workshop committee and conference coordinators for the outstanding support. The workshop was successful and addressed relevant issues. The current committee member remain active with four additional new members.

Committee members

Chair: Ntanganedzeni Mapholi (UNISA, South Africa)

Other members

Raman Akinyanju (University of Nottingham, UK)

Farai C Muchadeyi (ARC- South Africa)

Heather Burrow (CSIRO, UNE Armidale)

Paul Boettcher (FAO)

Max Rothschild (ISU)

Victor Okoro (UNISA)

Olivier Hanotte (University of Nottingham)

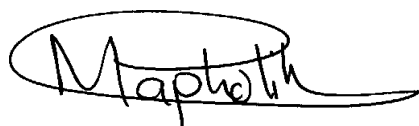
Raphael Mrode (ILRI, Kenya)

Everestus Akanno (University of Alberta, Canada)

Mostafa Nassar (Cairo University, Egypt)

SIGNATURES

Chair, Ntanganedzeni Mapholi:

A handwritten signature in black ink, appearing to read "Mapholi", enclosed within a hand-drawn oval shape.