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P551: Sheep

Development Of A Low Density SNP Panel For Parentage And Traceability Testing In Brazilian Sheep Breeds For Optimization Of Breeding And Conservation Programs.

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Current Brazilian sheep production systems involve low technology practices activity when compared with cattle, pig and poultry farming. The development and application of methods to aid traceability, parentage and individual identification are highly desired. A panel of low density SNP (Single Nucleotide Polymorphism) markers was identified from a group of 49,034 SNPs markers genotyped with the Illumina SheepSNP50 Bead Chip (Illumina Inc., San Diego, CA) in three Brazilian breeds (Brazilian Creole, Morada Nova and Santa Ines), which were included in the International Sheep Genome Consortium. The main SNP selection criteria were: (1) Minor Allele Frequency higher than 0.4; (2) genomic distance higher than 3 Mbp and (3) agreement with Hardy-Weinberg expectations. A total of 118 highly informative SNP markers were selected which allowed for a combined power of exclusion of 99.9999% with 43 and 42 SNPs for Brazilian Creole/Morada Nova and Santa Ines breeds, respectively. For traceability purposes, and considering a population of 20 million animals (Brazil's sheep herd), only 20 and 21 SNPs are necessary to identify individuals with 99.9999% precision, in Brazilian Creole/Morada Nova and Santa Ines breeds, respectively. The present panel was first validated in

the trios of hapmap samples and will be validated and used in several herds and breeds to improve breeding and animal genetic conservation programs.

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