P0581 **Validation of a Low Density SNP Panel for Breed Certification Testing in Brazilian Sheep (*Ovis aries*) Breeds as a Tool for Flock Genetic Management**

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Sheep production activities are growing rapidly in Brazil and are based on locally adapted breeds in addition to commercial breeds available internationally. Contemporary methods for genetic management of flocks are in high demand and motivated the work for development of a SNP-based marker panel useful for breed certification, parentage testing and individual identification purposes. A total of 17 markers, derived from a group of 49,034 SNPs genotyped with the Illumina SheepSNP50 Bead Chip (Illumina Inc., San Diego, CA) in three Brazilian breeds (Brazilian Creole, Morada Nova and Santa Ines) by the International Sheep Genome Consortium, were used to produce a GoldenGate™ VeraCode™ assay. The criteria used for selecting markers were as follows: fixation confidence ≥0.9; genomic distance >3 Mbp; and no deviation from Hardy-Weinberg equilibrium. A total of 467 samples from six different breeds were tested (Creole, n=300; Bergamacia, n=24; Corridale, n=28; Pantaneira, n=50; Rabo Largo, n=20; Santa Ines, n=45) to validate the assay. Two SNPs did not produce consistent genotyping results in the tested platform and were excluded from further analysis. The remaining markers were used to perform an allocation test using the program Structure where five repetitions were performed using a total of 250k permutations each. Results indicate the marker panel is efficient in distinguishing five of the tested breeds. All samples were correctly assigned to the respective groups with the exception of the Pantaneira and Creole samples, which were grouped together. Other studies suggest these two groups are highly related and should probably be classified as two ecoptypes of the same breed. Therefore, the proposed reduced panel represents a useful tool for breed-certification of live animals and derived products.

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