GENETIC DIVERSITY IN ISTRIAN SHEEP – PRELIMINARY RESULTS

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Introduction

- Istrian sheep
 - Local sheep breed ightarrow milk-meat production ightarrow under selection for dairy traits
 - Decreasing population size (problem: \uparrow inbreeding & \downarrow genetic diversity)
 - The aim \rightarrow to estimate genetic population parameters

Material and Methods

- 84 individuals from 12 flocks \rightarrow genotyped with Ovine SNP50 BeadChip
- Quality control
 - SNP call rate > 0.9, individual genotype call rate > 0.9, minor allele frequency > 0.01
 - Autosomal SNPs were analysed
- Data set \rightarrow 84 individuals and 45,806 SNPs
- Software → PLINK, R package "ggplot"

Results

Observed heterozygosity = 0.351



- Expected heterozygosity = 0.365
- Inbreeding coefficient = 0.04
- Principal Component Analysis (PCA)
 - Contribution to genetic variation
 PC1 (6.54%) and PC2 (5.08%)

Figure 1 PCA plot of the genetic diversity between 12 flocks (different colored dots) of Istrian sheep

Conclusion

- Moderate level of inbreeding requires attention in breeding and matting schemes
- Preliminary results \rightarrow importance of monitoring genetic composition & further analysis needed

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