SNP-based genetic diversity in Pag sheep preliminary results

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Introduction

- Pag sheep local breed (Pag island)
 - Extensive (outdoor) management system
 - Main products cheese & suckling lamb meat
 - Aim is to improve milk production via selection
- The study aimed determine the genetic profile using molecular genomic markers

Materials and Methods

- 10 flocks 10 genotyped animals per flock
- Ovine SNP50 BeadChip \rightarrow quality control:
 - SNP call rate > 0.9, individual genotype call rate > 0.9, MAF> 0.05
 - Autosomal SNPs
- Data set 100 individuals and 45,224 SNPs



Picture 1 Pag sheep



Software – PLINK, R ("snpReady" and "ggplot")

Results

- Observed heterozygosity = 0.3760•
- Expected heterozygosity = 0.3764
- Inbreeding coefficient = -0.01 ullet
- $PCA \rightarrow Between and within flock variability$
- Substantial amount of genetic variability

Conclusion

- Results imply that breeders take care of mating to minimize inbreeding in their flocks
- To prevent genetic erosion of the breed with future more intensive selection work, systematic optimal contribution selection should be applied

Picture 2 Sampling area (location of flocks)



Figure 1 First two principal components (colored by flock)

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