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Skills for sustainable, resilient, and socially fair communities

EUROPEAN YEAR OF SKILLS

9
June
2023

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI
SCIENZE E TECNOLOGIE AGRO-ALIMENTARI

3-11 June 2023
#EUGreenWeek
PARTNER EVENT

Sustainable animal breeding: Genomic analysis to design conservation and selection program in pig and rabbit breeds(supervisor: Luca Fontanesi and Mohamad Ballan)

Background and Objectives

➢ Pigs and rabbits are economically important with diverse breeds, making them suitable for sustainable breeding programs.

➢ Sustainable animal breeding maintains genetic diversity and ensures the long-term viability of animal populations

➢ The application of genomic analysis in designing conservation and selection programs for pig and rabbit breeds.

Experimental approach and main results

Dataset and methods:

✓ Porcine 60K SNP Array (60,000 SNPs) for <u>detection of deleterious alleles</u> in 10,352 samples from three Italian pig breeds.

✓ Affymetrix Axiom OrcunSNP Array (199,692 SNPs) to analyse genomic regions under <u>selection signatures</u> in 645 samples from 10 fancy and three meat rabbit breeds.

Main results :

➤ Four putative deleterious genetic markers were detected in pigs.

➤ Candidate genes were identified for coat color, body size, and meat production in rabbits.
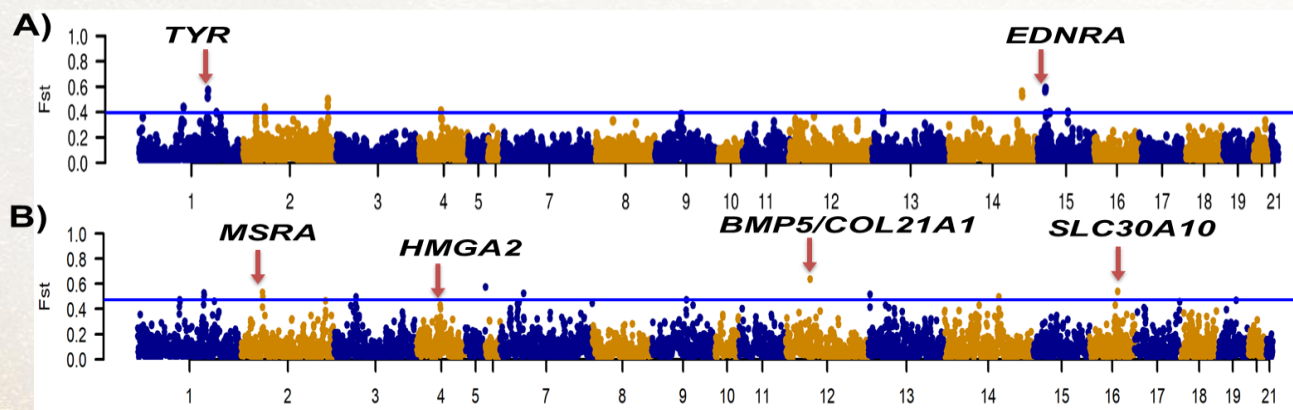
Expected outcomes (what for?)

➢ Utilizing Genetic Markers and Candidate Genes for Sustainable Animal Breeding.

➢ Exclude individuals carrying deleterious markers in pig breeding to ensure herd health and genetic integrity.

➢ Incorporate candidate genes for coat color, body size, and meat production in rabbit breeding to enhance desired traits.

➢ Promote sustainable breeding practices by balancing genetic improvement with the preservation of genetic diversity.