Provisional Book of Abstract

ASPA 26th Congress
Turin (ITALY), June 17–20, 2025

#ASPA2025
ASPA 26th Congress Book of Abstract
The 26th congress of the Animal Science and Production Association
***"Innovations in animal sciences: shaping the way for a sustainable future is under patronage* of**

Turin (ITALY),
June 17–20, 2025

Venue
Campus SAMEV (Scuola di Agraria e medicina Veterinaria)
Largo Braccini 2, Grugliasco (TO)– ITALY

P379

Simulation of mating plans by optimal contribution selection in Camosciata delle Alpi goats

Paola Crepaldi[1], Alessio Negro[1,2], Arianna Bionda[1], Johanna Ramirez-Diaz[3], Federica Turri[3], Silverio Grande[2], Stefano Biffani[3]

[1] *Dipartimento di Scienze Agrarie ed ambientali,, Università di Milano, 20133 Milan, Italy*
[2] *Ufficio Studi, Associazione Nazionale della Pastorizia, 00187 Rome, Italy*
[3] *Istituto di Biologia e Biotecnologia Agraria - IBBA, Consiglio Nazionale delle Ricerche, 20133 Milan, Italy*

Corresponding author: paola.crepaldi@unimi.it

The selection strategies in Italian small ruminant breeds focus on estimating breeding values and managing matings. Optimal contribution selection (OCS) method allows to elaborate mating plans effectively, balancing genetic gain while controlling inbreeding and preserving genetic variation. Developing a new mating plan is one of the aims of SHEEP&GOAT project, managed by the Italian Sheep and Goat Breeders Association (Asso.Na.Pa.). This study presents the results of applying OCS using EVA software on data from 18 farms, with more than 1,200 Camosciata delle Alpi goats. The farms were selected for their participation in the artificial insemination (AI) program managed by Asso.Na.Pa. over the past 5 years. We hypothesized three simulated scenarios: i) 100% natural mating (NM100), ii) 100% AI with French bucks (AI100), and iii) a combination of 50% natural mating and 50% AI (NM50AI50). For NM100 scenario, it was assumed that Asso.Na.Pa. centralized male management, allowing males to be shared among farmers. The analyses were conducted twice for each scenario, testing two different mating plans: one aimed at maximizing genetic merit and the other at minimizing the genetic relatedness in the offspring. The mating plans were formulated using the official pedigree data and the selection index (Quality Index composed of protein-kg and fat-kg with 4:1 weight). We compared the results in terms of average ± SD of estimated breeding value (EBV), genetic relatedness (REL), and inbreeding coefficient (INB) in the offspring. When prioritizing genetic merit, the results showed similar EBV values, across the three scenarios, ranging from 203 ± 41 for AI100 to 231 ± 40 for NM100. However, AI100 exhibited higher REL (0.033 ± 0.006) and INB (0.015 ± 0.01) compared to NM100 and NM50AI50. Conversely, when minimizing relatedness was prioritized, NM100 produced higher average values for EBV (144 ± 10), REL (0.016 ± 0.002), and INB (0.008 ± 0.004) than AI100 and NM50AI50. This could be attributed to the higher genetic relatedness between NM males and females compared to AI males, as well as the different selection strategies applied for AI bucks. These findings emphasize the importance of tailoring mating strategies for a specific population structure and of harmonizing data collection and sharing among countries to achieve a sustainable improvement of goat breeding.
Research supported by National Rural Development Plan (PSRN) – sub measure 10.2 – biodiversity.