



# Examples of transboundary projects

Coralie DANCHIN, IDELE, France



ERFP - WG – Madrid – Tuesday, May 21st 2019

An example of collaboration  
across Europe:

**The Merino network**



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# The Merino network

- First contacts in 2017 by F. Pilla (Università del Molise, Italy) and B. Moiola (CREA, Italy)
- Objectives:
  - ✓ Connect the scientific and the breeders association dealing with the European merino breeds;
  - ✓ In order to enhance the knowledge on the genetics, performance and history of this breeds
  - ✓ To improve their exploitation and preservation
- First meeting at the University of Cordoba, november 2018
  - ⇒ In situ: focus on wool
  - ⇒ Genotype characterization
  - ⇒ No ex situ... IMAGE survey ???

# The Merino network

- **Italy:** F. Pilla (università del Molise), E. Lasagna, S.Ceccobelli (Università di Perugia), E. Ciani (Università di Bari), Marco Antonini (ENEA)
- **Spain:** J. Vincente Delgado, V. Landi, A. Martinez Martinez (University of Cordoba), B. Lopez (EA Group), M. Calderón (Comercial Ovinos, Spain)
- **Portugal:** N. Carolino (Iniav), P. Tiago Perlorio, A. Carrasco (Ancorme)
- **Romania:** V. Balteanu
- **France:** Breeders association for the Arles Merino, Württemberg and Rambouillet + IDELE (Précoce) + Bergerie Nationale

# The Merino network

⇒ extending the survey of the genetic relationships among Merino and Merino-derived populations

Following tables:  
P = published  
nP = not published

**RESEARCH ARTICLE** **Open Access**

## Merino and Merino-derived sheep breeds: a genome-wide intercontinental study

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**Abstract**

**Background:** Merino and Merino-derived sheep breeds have been widely distributed across the world, both as purebred and admixed populations. They represent an economically and historically important genetic resource which over time has been used as the basis for the development of new breeds. In order to examine the genetic influence of Merino in the context of a global collection of domestic sheep breeds, we analyzed genotype data that were obtained with the OvineSNP50 BeadChip (Illumina) for 671 individuals from 37 populations, including a subset of breeds from the Sheep HapMap dataset.

**Results:** Based on a multi-dimensional scaling analysis, we highlighted four main clusters in this dataset, which corresponded to wild sheep, mouflon, primitive North European breeds and modern sheep (including Merino), respectively. The neighbor-network analysis further differentiated North-European and Mediterranean domestic breeds, with subclusters of Merino and Merino-derived breeds, other Spanish breeds and other Italian breeds. Model-based clustering, migration analysis and haplotype sharing indicated that genetic exchange occurred between archaic populations and also that a more recent Merino-mediated gene flow to several Merino-derived populations around the world took place. The close relationship between Spanish Merino and other Spanish breeds was consistent with an Iberian origin for the Merino breed, with possible earlier contributions from other Mediterranean stocks. The Merino populations from Australia, New Zealand and China were clearly separated from

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# The Merino network

## List of contacts / European country

Other countries included: Australia – China - New Zealand -  
South Africa – Uruguay - USA

| Breed Origin | Breed Name         | N  | P/nP | Contact                                  |
|--------------|--------------------|----|------|------------------------------------------|
| Croatia      | Paska sheep        | 24 | nP   | M. Spehar (Croatian Agricultural Agency) |
| Germany      | Merinofleischschaf | 24 | nP   | G. Luehken (Justus-Liebig-Universität)   |
|              | Merinolandschaf    | 21 | P    | <i>Ciani et al., 2015</i>                |
| Hungary      | Hungarian merino   | 24 | nP   | I. Komlosi (University of Debrecen)      |

| Breed Origin | Breed Name        | N  | P/nP | Contact                                                  |
|--------------|-------------------|----|------|----------------------------------------------------------|
| France       | Arles Merino      | 18 | nP   | B. Servin (INRA), C. Danchin (IDELE)                     |
|              | Rambouillet       | 31 | nP   |                                                          |
|              | East Merino       | ?  | nP   |                                                          |
|              | Merino Précoce    | ?  | nP   |                                                          |
| Italy        | Gentile di Puglia | 24 | P    | <i>Ciani et al., 2015</i>                                |
|              | Merinizzata       | 20 | P    |                                                          |
|              | Sopravissana      | 24 | P    |                                                          |
| Poland       | Polish Merino     | 24 | nP   | M. Świątek (Warsaw University of Life Sciences)          |
| Portugal     | Merina Branca     | 24 | nP   | Instituto Nacional de Investigação Agrária e Veterinária |
|              | Merino Preta      | 24 | nP   | T. Pereiro - Portuguese Breeders Association             |

| Breed Origin | Breed Name                   | N  | P/nP | Contact                                                                                      |
|--------------|------------------------------|----|------|----------------------------------------------------------------------------------------------|
| Romania      | Romanian Merino              | 24 | nP   | V. Adrian Balteanu (University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca) |
| Russia       | Groznensk                    | 13 | P    | N. Zinovieva, T. Deniskova (L.K. Ernst Federal Science Center for Animal Husbandry)          |
|              | Salsk                        | 16 | P    |                                                                                              |
|              | Soviet Merino                | 14 | P    |                                                                                              |
|              | Stavropol                    | 14 | P    |                                                                                              |
| Spain        | Spanish Merino (Andalusia)   | 7  | P    | <i>Ciani et al., 2015</i>                                                                    |
|              | Spanish Merino (Estremadura) | 13 | P    |                                                                                              |
| Turkey       | Turkish Merino               | 24 | nP   | T. Karslı (Akdeniz University)                                                               |





## An example of collaboration between France and Belgium:

The “ Bleue du Nord ”, “Bleue de Wallonie” or “van  
Vlaanderen” cattle

## Two INTERREG projects

- **BlueSel (ending in 2013)**

### Main outcomes

- ✓ **Better data integration by sharing pedigrees and genetic evaluations**
- ✓ **In situ:**
  - Setting up of a breeders' network
  - On farm evaluation of sire dams (15 farms visited)
    - list of sire dams available
  - Creation of a common product, the cheese “Pavé bleu”
- ✓ **Ex situ: 8 AI bulls selected**

## Two INTERREG projects

- **BlueSter (starting in 2018)**
  - ✓ **Inventing new dairy and meat products**
  - ✓ **Setting up marketing chains – mostly direct selling**
  - ✓ **Finding new ways to promote the breed: ecotourism – ecosystem services**







# A last example...

**Fabio Pilla, Italy**



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