MALANIRS: CONTRIBUTION BY MBG-CSIC, SPAIN

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Misión Biológica de Galicia -CSIC

EVA Maize – Malanirs Kickoff

26-27 February, 2025

Bergamo, Italy

Misión Biológica de Galicia – CSIC

- MBG belongs to Spanish National Research Council (CSIC)
- CSIC is the most important public research body in Spain. Investigates in all areas of knowledge
- MBG is in the area of Agricultural Sciences
- MBG is in the province of Pontevedra, Galician autonomous region, NW Spain

The MBG specializes in **plant genetics**, **crop improvement**, and sustainable agricultural practices. Its research aims to enhance **food security, biodiversity conservation, and environmental sustainability**

Current projects at the Maize Research group of MBG-CSIC

Spanish Projects:
1. Genetic improvement of **resistance** and defense mechanisms of maize against **biotic stresses**. IP: RA Malvar and A Butrón. 2022-2025.
2. Development of **maize varieties with dual use** in a **climate change scenario**. IP: A Butrón and R Santiago. 2022-2025
3. Improvement of **maize for quality and tolerance to stresses associated with climate change**. IP Revilla. 2023-2026.

International project:
4. Mining allelic diversity of **maize landraces for tolerance to abiotic and biotic stresses** (MineLandDiv). Coordinated by S Nicolas and led by A Butrón at MBG. 2022-2025.
5. Promoting a **Plant Genetic Resource Community for Europe**. Coordinated by G Giuliano and led by RA Malvar at MBG. 2023-2025.

Project with companies
6. Development of a digital environment and living laboratories to **valorize plant genetic resources of agricultural interest**. coordinated by Celltibec led by RA Malvar at MBG. 2022-2025.
7. **Biofunctionalization** of strategic crops to improve their competitiveness in the market (BIODIF). Coordinated by Celltibec led by P Revilla at MBG. 2022-2025

Others: REGEN Hub (P Revilla Coordinator). PTI AGRO4FOOD (RA Malvar Coordinator)

ECP/GR

MBG's maize collection

241 populations

- Maize for grain: 198 populations
  - 177 Spanish populations
    - 43 races
    - 93 open-pollinated Galician varieties
    - 41 varieties from the rest of Spain
  - 17 populations from the North American Corn Belt
  - 4 populations from other American countries
- Sweet corn: 16 populations
- Popcorn: 27 populations
  - 25 Spanish populations
    - 4 races,
    - 5 Galician varieties
    - 16 varieties from the rest of Spain
  - 2 synthetic populations from US Corn Belt.

The collection is currently maintained in a perfect state of conservation

Availability of phenotypic and genotypic data (EVA and MineLandDiv project)

Seeds availability for sharing based on SMTA

Malanirs - MBG

1. **100 varieties of the MBG germplasm bank** are being analyzed in our NIRs. The conservation masses, obtained with manual fertilization are used, so there is no problem with the xenia effect.
2. **MineLandDiv: 300 varieties** from one trial (Code E24MB26) at the MBG-CSIC will be analyzed. 100-200 g of dry grain sample were taken from each plot. > 1 kg of grain was taken from the check hybrids PH207 x F252, PH207 x B73, B73 x Mo17 for standardization of measurements between teams.
3. **16-20 varieties from CREA** teams analyzed with our NIRs to homogenize the analyses.

NIRS: Spectrophotometer FOSS NIRSystems DS2500

Nutritional composition of the maize kernel analyzed by NIR: moisture, starch, protein, fat, fiber, and ash