

Slovenian Gene Bank of maize



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Slovenian Plant Gene Bank – historical overview

Early projects to collect Slovenian autochthonous populations, ecotypes and landraces of agricultural species were initiated about 65 years ago, **the first accessions of maize were collected 1955.**

In 1996 the Ministry of Agriculture, Forestry and Food started financing the Slovenian Plant Genetic Resources Programme with the goal to:

- maintain,
- evaluate,
- regenerate and
- preserve

Slovenian autochthonous species, ecotypes, populations and landraces of agricultural, medicinal and aromatic plants.

Slovenian Plant Gene Bank of Agricultural Crop Species was established and the programme was active until the end of 2017.

Since 2018 the programme on Plant Genetic Resources in Slovenia operates and is financed through Public Service on Plant Genetic Resources.

Slovenian Plant Gene Bank (SPGB)

MINISTRY OF AGRICULTURE, FORESTRY AND FOOD

Financial support

&

AGRICULTURAL INSTITUTE OF SLOVENIA

Coordination

**Biotechnical Faculty,
University of Ljubljana**

- cereals: **maize**, etc.
- forage crops
- fruit plants
- medicine and aromatic plants

**Agricultural Institute
of Slovenia, Ljubljana**

- cereals: **maize**, etc.
- forage crops
- potatoes
- vegetables
- berry fruit
- grape vine



**Slovenian Institute for
Hop Research and Brewing,
Žalec**

- hops
- medicine and aromatic plants

NGO

Urban Furrows,
botanical gardens, schools, ...

**Faculty of Agriculture and
Life Sciences,
University of Maribor**

- fruit plants
- berry fruit
- grape vine

Size - number of accessions and species in the SPGB

Biotechnical Faculty (BF)

- maize: 615
- other cereals: 471
- forage crops: 228
- fruit plants: 184
- medicinal and aromatic plants: 151

Agricultural Institute of Slovenia (KIS)

- maize: 20
- other cereals: 88
- vegetables: 1501
- forage crops: 1033
- berry fruit: 169
- grape vine: 90
- fruit plants: 310

Slovenian Institute for Hop Research and Brewing (IHPS)

- hops: 203
- medicinal and aromatic plants: 119

Faculty of Agriculture and Life Sciences (FKBV)

- fruit plants: 236
- berry fruit: 39
- grape vine: 290

Total number of accessions in the SPGB: 5741

Represented by total of 279 species:

- BF: 31
- KIS: 204
- IHPS: 36
- FKBV: 8

Size - number of maize accessions in the SPGB

Biotechnical Faculty

total number of maize accessions:

78 foreign and

615 local populations:

241 inbreds with different levels of homozygosity, originate from Slovenia and

374 populations:

- 37 (1955-1959)
- 62 (1960-1967)
- 124 (1980-1989)
- 151 (after 1990)

coordinator of maize collection:

Igor Šantavec

Agricultural Institute of Slovenia

total number of maize accessions:

2 foreign and

14 local populations, collected after 2006

4 inbreds

coordinator of maize collection:

Andrej Zemljič

Status and availability of the national collection

For most species we maintain:

- a basic sample and
- an exchange sample with few numbers of seeds


For maize accessions we maintain:

- a larger basic sample and
- a few smaller ones per 100 seeds for exchange.


Documentation level of the collection

- National database: multicrop passport data available for all the accessions in SPGB
Each institution has its own database and the central – national database is kept by the Agricultural Institute of Slovenia and Ministry of Agriculture, Forestry and Food
- EURISCO: we need to update and in AEGIS: we don't have any accessions

The image displays a complex database interface. On the left, a large table lists numerous accessions with columns for accession number, name, origin, and other identifiers. The table is sorted by accession number. On the right, a detailed view of a specific accession is shown, including fields for description, origin, and other characteristics. The interface is designed for data management and reporting.



Agricultural Institute of Slovenia



Constraints to efficient conservation

The maize accessions are stored in the medium term (at temp. 4-6 °C, with up to 8 % moisture in the seeds), which maintains good germination for about 20 years.

In order to maintain viability and sufficient amount of seeds, we are permanently multiplying genotypes on field, based on hand isolation and pollination.

At the same time, we are also characterising and evaluation the materials according to the descriptors.

Existing use and its valorization

In the past, some of the accessions were included in the different breeding and research programs.

Ongoing projects (national and international level)

Rural Development Program – Public order 2019:

- Analysis of the current situation of the cultivation of old rare species or local varieties;
- Development of two models of PGR monitoring and warning systems against the loss of PGR important for food and agriculture;
- Conduction of two one-year pilot monitorings.

Research funds (national, H2020...)

- H2020: ECCOBREED: Increasing the efficiency and competitiveness of organic crop breeding (coordinator: V. Meglič);
- ARIMNet: MedVitis - Protecting the Diversity of Mediterranean Vitis in a Changing Environment.
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Legislation

- Regulation on the public service of the tasks of the plant gene bank (Official Gazette of the Republic of Slovenia No. 60/2017);
- Rules on Criteria, Procedures and Methods for the Conservation and Sustainable Use of Plant Gene Resources for Food and Agriculture and on the Conditions for the Performing Public Service of the Plant Genetic Bank (Official Gazette of the Republic of Slovenia No. 62/2017);
- Public Service Program tasks of the Plant Gene Bank for the period 2018-2024.

Thank you for your attention

