European Cooperative Programme for Plant Genetic Resources
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EVA
European Evaluation Network

Schweizerische Eidgenossenschaft
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SWISS MAIZE COLLECTION

Beate Schierscher
Agroscope

EVA Maize – Malanirs Kickoff
26-27 February, 2025
Bergamo, Italy

Short presentation of Agroscope

Schweizerische Eidgenossenschaft
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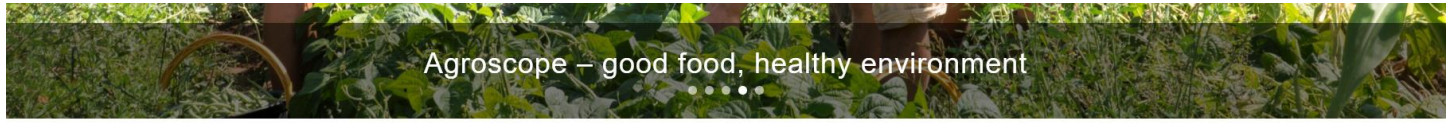
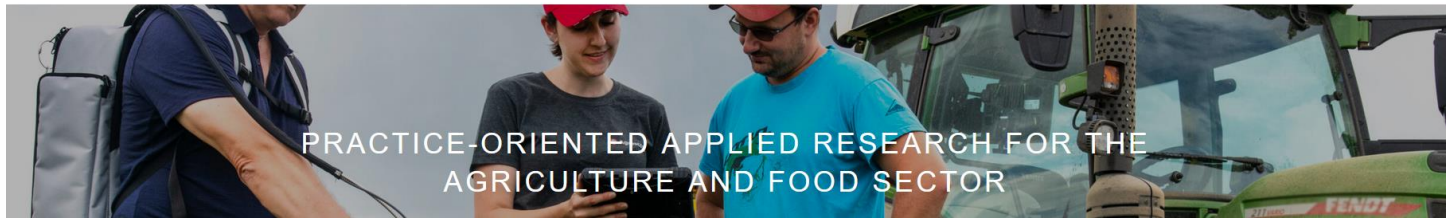


RESEARCHING TOGETHER
FOR THE FUTURE

1115	947	48
Employees	Full-time posts	% women

33	37	62	43
Trainees	Interns	PhD candidates	Postdocs



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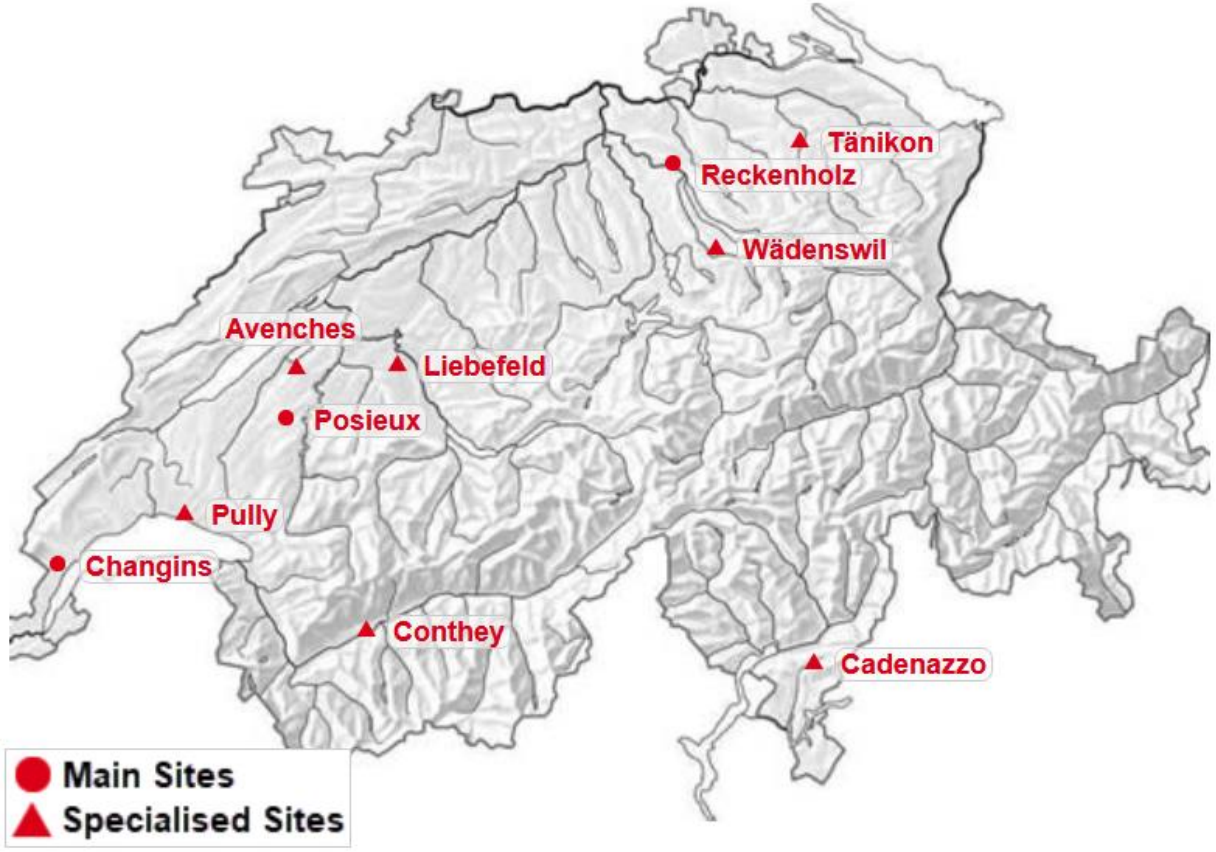
Short presentation of Agroscope: locations



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Short presentation of Agroscope: research objectives

Agroscope is characterised by its combination of **research, policy advice, enforcement, knowledge exchange and technology transfer**, as well as by its coupling of application-oriented basic research and practical relevance.

Agroscope deals with issues in the following spheres:

- Plant Breeding, Plant Production, Plant Protection and Plant Products;
- Livestock, Feed and Products of Animal Origin;
- Food and Nutrition;
- Cropping Systems, Protection of Natural Resources, Agricultural Economics and Agricultural Engineering.

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Swiss maize collection

Historical background :

- 1571 first mention of maize in the Rhine-Valley
- 1941-1942: 106 accessions were collected and intergrated into the Genebank
- 1960: 43 accessions from the Graubünden and Wallis
- 2000 – 2019: 76 accessions from the Wallis, Tessin, Rhinvalley and Linth
- **Today** : 209 local varieties were conserved in the Swiss Genebank and 223 inbreed lines

→ All accessions available with a SMTA

Stammkolbe Gr 7.2
From Sagogn 1942,
Photo 10.03.1943

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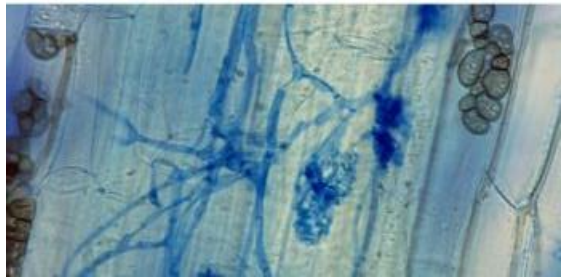
Projects on Swiss Maize collection

- New research project going on, titled "Breeding for beneficial microbial associations“
- They are interested in comparing the microbial association between ancient maize varieties and new varieties used by farmers.

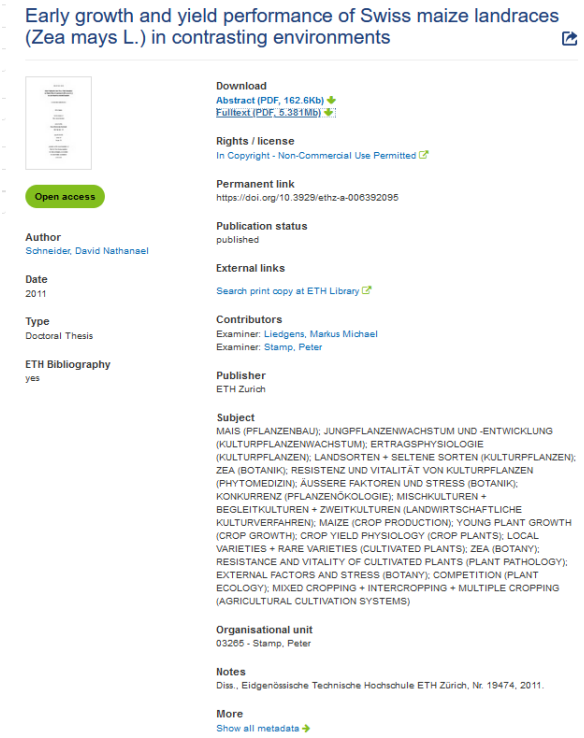
Marcel van der Heijden's group in Reckenholz, ’Plant-Soil Interactions’ Research Group



Projects on Swiss Maize collection

Several doctoral thesis

8 landraces



Early growth and yield performance of Swiss maize landraces (Zea mays L.) in contrasting environments

Open access

Author
Schneider, David Nathanael

Date
2011

Type
Doctoral Thesis

ETH Bibliography
yes

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Organisational unit
03265 - Stamp, Peter

Notes
Diss., Eidgenössische Technische Hochschule ETH Zürich, Nr. 19474, 2011.

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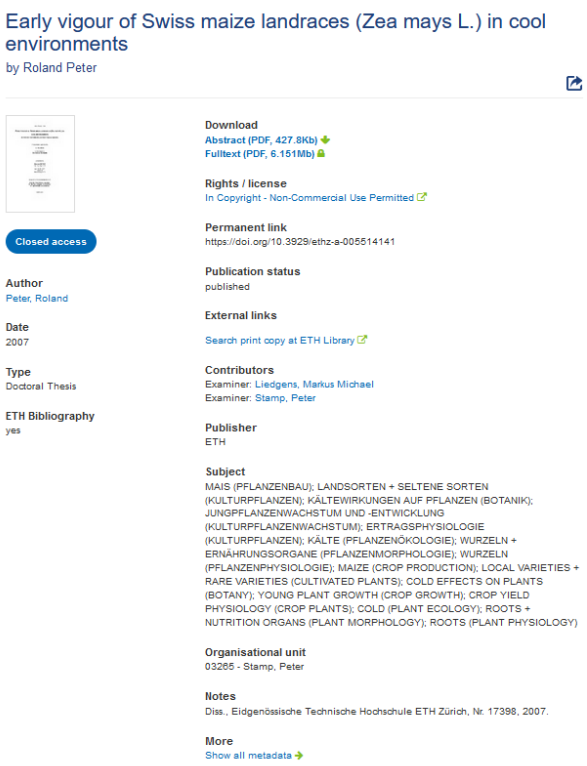
sub-sample of 60 accessions



Early vigour of Swiss maize landraces (Zea mays L.) in cool environments

by Roland Peter

Closed access

Author
Peter, Roland

Date
2007

Type
Doctoral Thesis

ETH Bibliography
yes

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Organisational unit
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Notes
Diss., Eidgenössische Technische Hochschule ETH Zürich, Nr. 17398, 2007.

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Projects on Swiss Maize collection

Several doctoral thesis

defined set of Swiss maize landraces (core collection), containing 35 of a total of 168 maize landraces (accessions) (35 SSR Marker).

The Swiss core set of maize landraces and its genetic and phenotypic diversity

Closed access

Author
Freitag, Niclas Marcus

Date
2011

Type
Doctoral Thesis

ETH Bibliography
yes

Download
Abstract (PDF, 307.5Kb)
Fulltext (PDF, 920.5Kb)

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Notes
Diss., Eidgenössische Technische Hochschule ETH Zürich, Nr. 19477, 2011.

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Genetic diversity and relationships of Swiss Flint maize (Zea mays L. ssp. mays) landraces

Open access

Author
Eschholz, Tobias Wilhelm

Date
2008

Type
Doctoral Thesis

ETH Bibliography
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Download
Abstract (PDF, 138.5Kb)
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Organisational unit
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Notes
Diss., Eidgenössische Technische Hochschule ETH Zürich, Nr. 17715, 2008.

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Use of maize in Switzerland

Utilization:

- Polenta in the south
- Ribel: in the Rhinvalley
- Bread, in mixture with Rye-flour

The two landraces currently in commercial use – ***Rheintaler Ribelmais*** and ***Rote Tessiner Mais*** – require continuous breeding efforts. In particular, *Rheintaler Ribelmais* needs improvement, as it is susceptible to diseases that were not problematic under past cultivation conditions. This may seem contradictory to the common belief that landraces are naturally best adapted to their environment. **However, it highlights the need for traditional varieties to adjust to changing environmental and agricultural conditions.**

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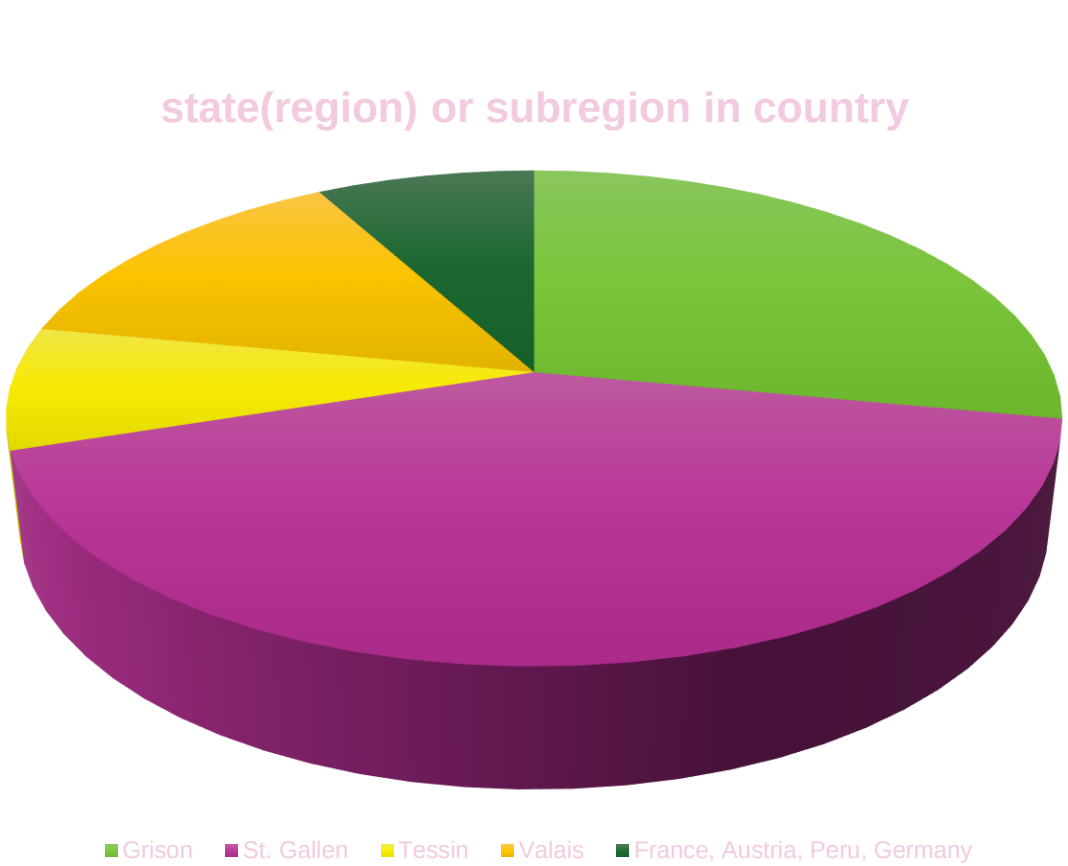
Use of maize in Switzerland

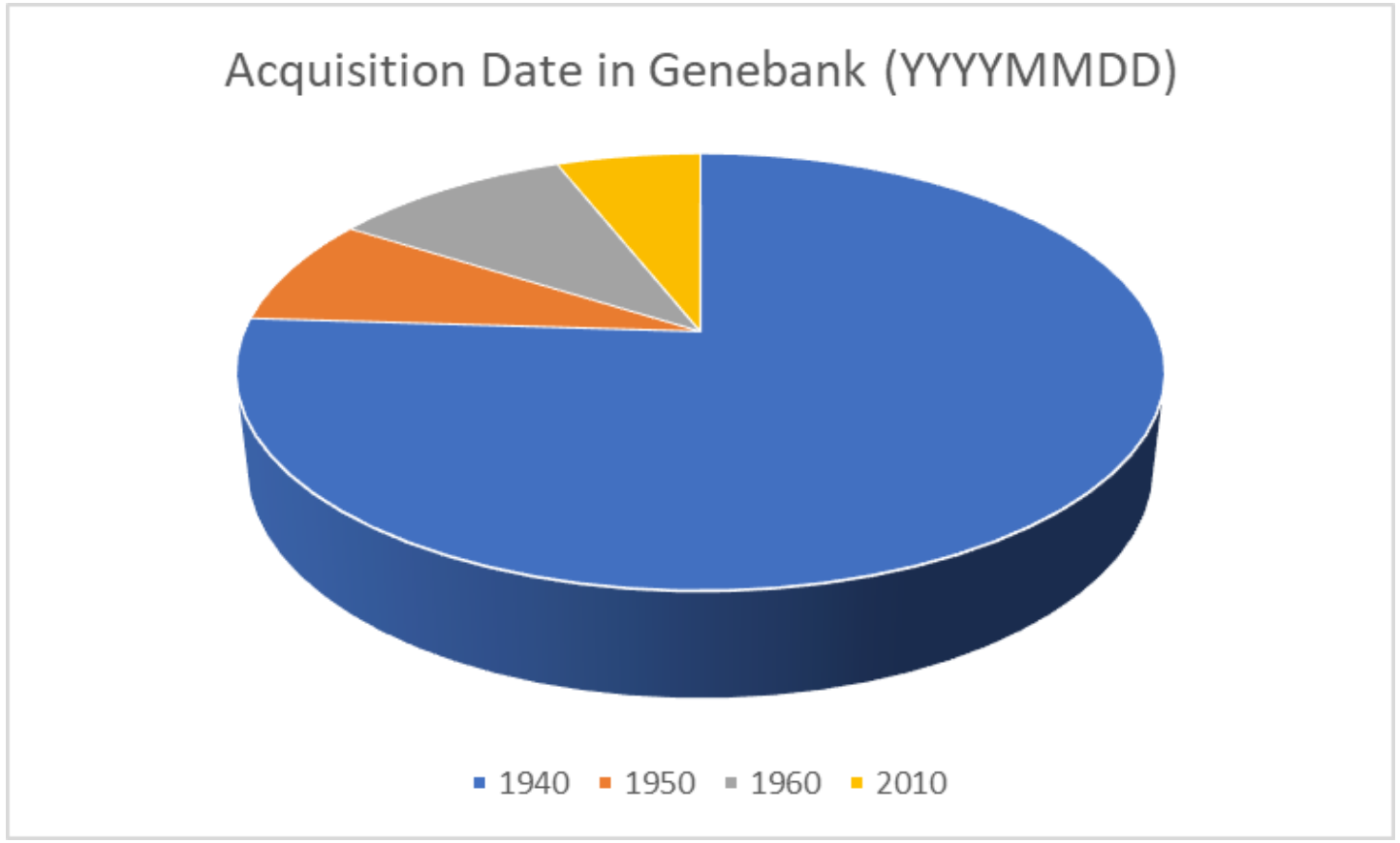
Cultivation areas :

- Polenta : 200 t (2023), 15 farmers
- Ribel: 65 ha

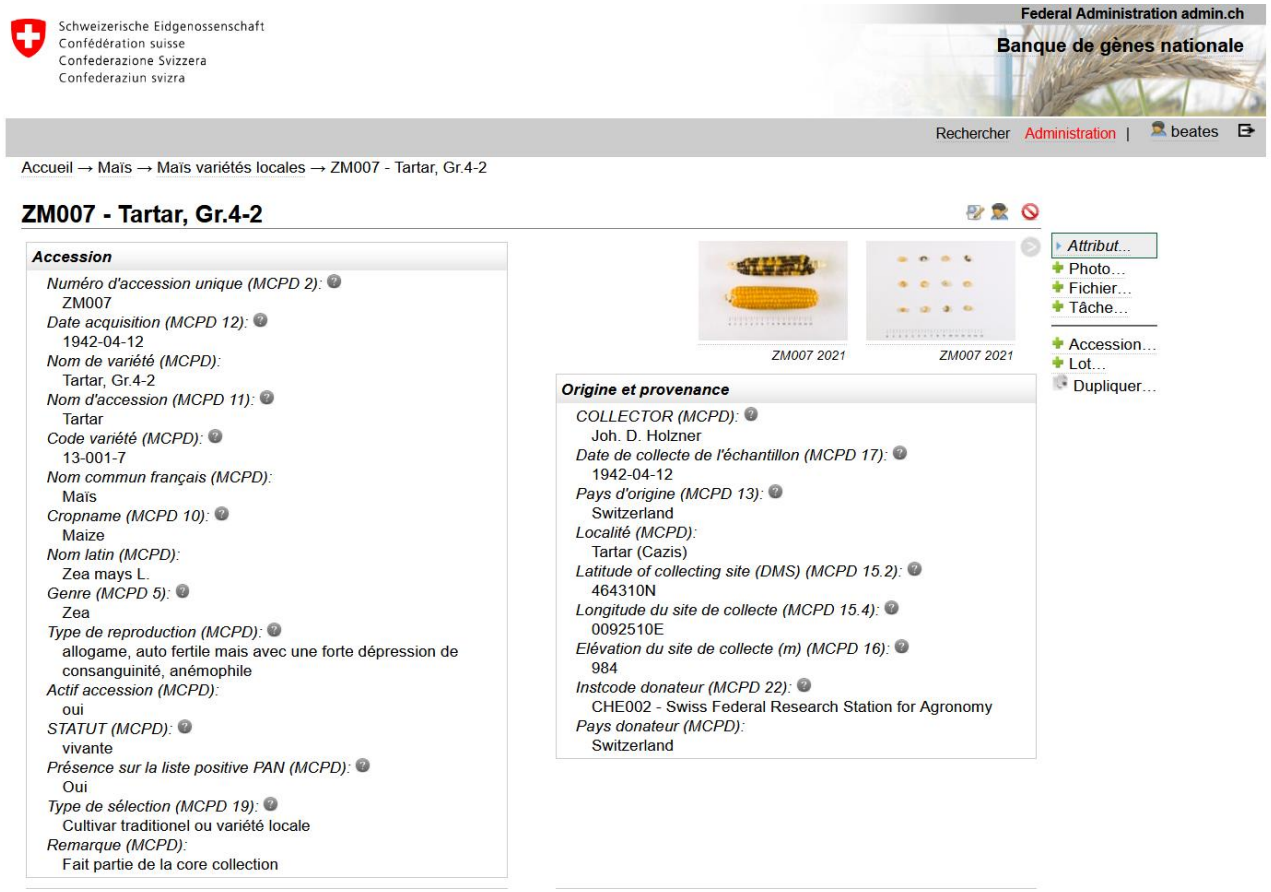
Swiss accessions in Malanirs



Swiss accessions in Malanirs

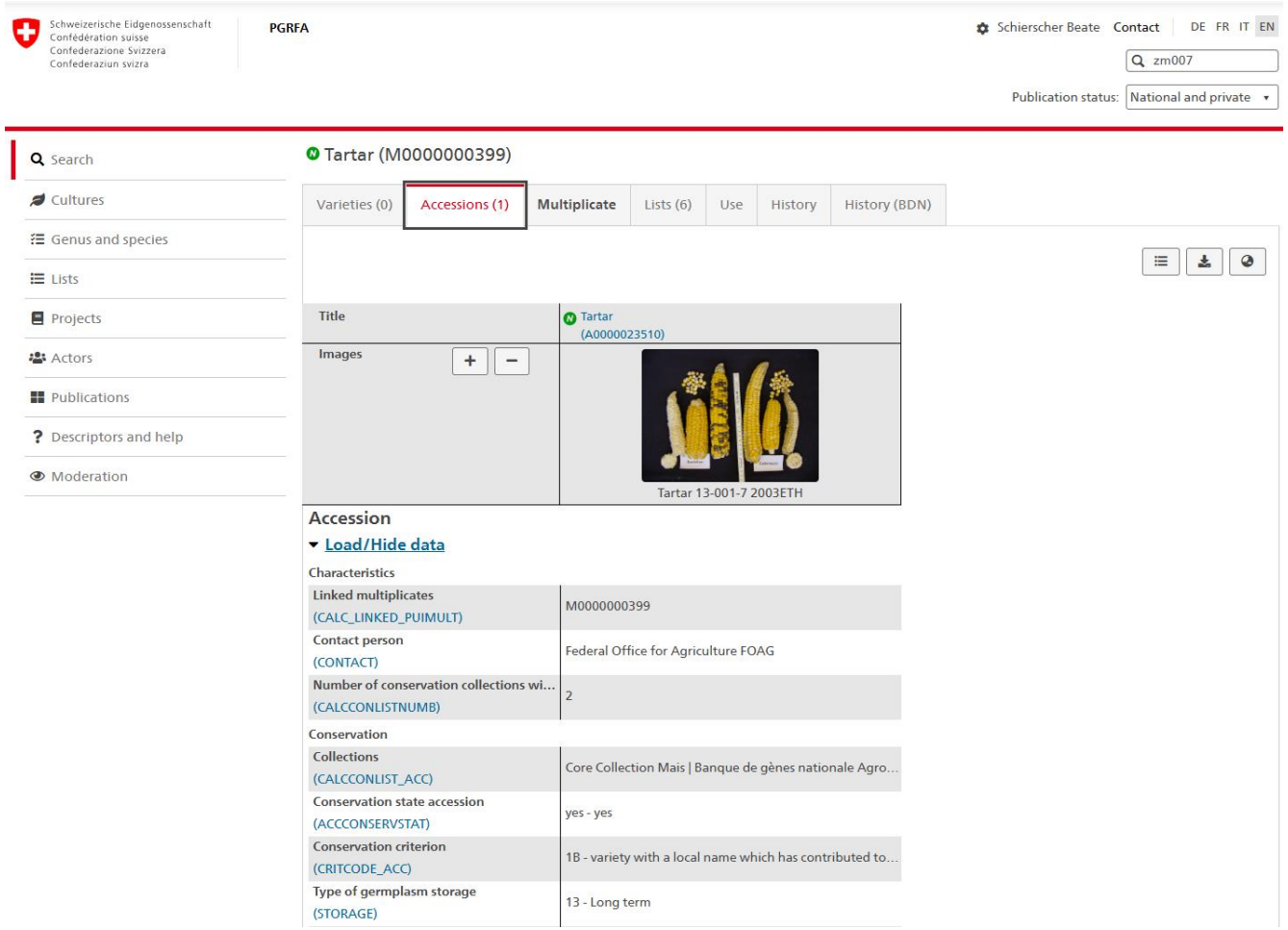


Availability of phenotypic and genotypic data



www.swissgenebank.ch

Availability of phenotypic and genotypic data



www.pgrel.admin.ch

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Expectations from EVA Maize/Malanirs

- We are interested in this project : an excellent opportunity to evaluate and characterize our maize collection
- It allow us to gain deeper insights into the genetic diversity, agronomic traits, and potential uses of our accessions

→ ultimately contributing to their conservation and effective utilization in breeding and research programs.