

EURISCO – A central information system for European germplasm holdings

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Introduction

The **European Search Catalogue for Plant Genetic Resources** (EURISCO) provides information about **1.9 million accessions** of crop plants and their wild relatives, preserved *ex situ* by almost **400 institutes** in Europe and beyond [1]. It is based on a network of National Inventories of **43 member countries** and represents an important effort for the preservation of world's agrobiological diversity by providing information about the large genetic diversity kept by the collaborating institutions. EURISCO is being maintained at IPK since 2014 on behalf of the European Cooperative Programme for Plant Genetic Resources.

The central goal of EURISCO is to provide a one-stop-shop for this information for the **scientific community and for plant breeders**. Since it maintains information about 233,905 crop wild relative accessions as well as about 252,130 landrace accessions, EURISCO can provide important impulses for sustainable breeding. In total, the germplasm accessions documented in EURISCO comprise **6,331 genera** and **42,922 species names** (including synonyms and spelling variants). The major crops contained are listed in Tab. 1.

EURISCO contains both **passport data** and **phenotypic data**.

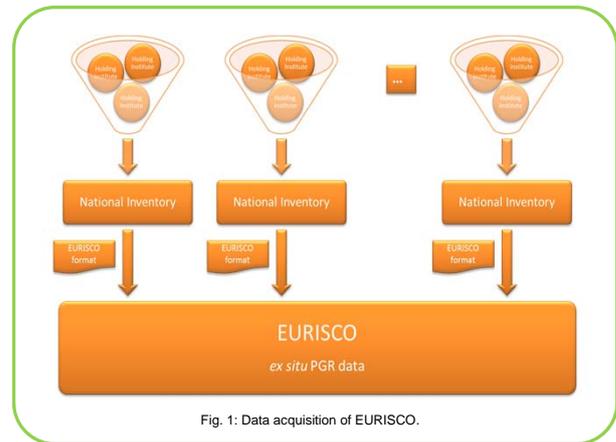


Fig. 1: Data acquisition of EURISCO.

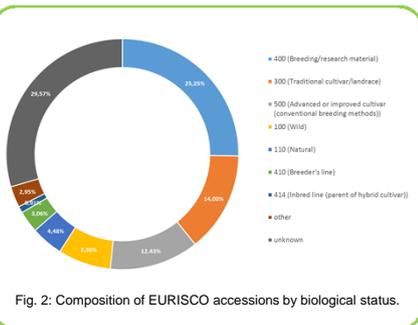


Fig. 2: Composition of EURISCO accessions by biological status.

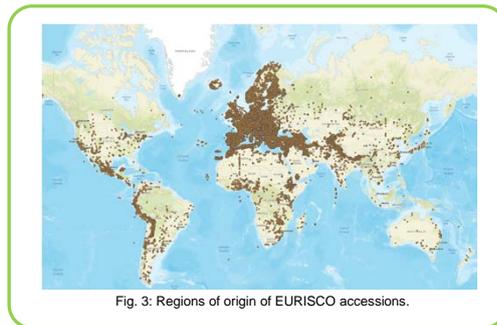


Fig. 3: Regions of origin of EURISCO accessions.



Fig. 4: EURISCO web interface.

Genus	Species	No. accs.	Total
<i>Arabidopsis</i>	<i>thaliana</i>	669,381	669,587
	<i>others</i>	206	
	<i>truncata</i>	120	
<i>Triticum</i> (wheat)	<i>aestivum</i>	134,934	186,040
	<i>durum</i>	16,103	
	<i>turgidum</i>	8,726	
	<i>monococcum</i>	3,311	
	<i>spelta</i>	2,803	
	<i>others</i>	20,163	
<i>Hordeum</i> (barley)	<i>vulgare</i>	103,597	123,255
	<i>spontaneum</i>	8,278	
	<i>others</i>	11,380	
<i>Zea</i> (maize)	<i>mays</i>	61,781	61,914
	<i>others</i>	133	
<i>Phaseolus</i> (garden bean)	<i>vulgaris</i>	44,302	49,744
	<i>coccineus</i>	2,940	
	<i>others</i>	2,502	
<i>Solanum</i> (tomato, potato, eggplant, etc.)	<i>lycopersicum</i>	18,375	48,898
	<i>tuberosum</i>	16,866	
	<i>melongena</i>	1,975	
	<i>others</i>	11,682	
	<i>peruvianum</i>	1,000	
<i>Avena</i> (oat)	<i>sativa</i>	32,116	39,976
	<i>sterilis</i>	2,119	
	<i>byzantina</i>	1,946	
	<i>others</i>	3,795	
<i>Malus</i> (apple)	<i>domestica</i>	24,058	31,089
	<i>others</i>	7,031	
<i>Pisum</i> (pea)	<i>sativum</i>	26,747	29,953
	<i>others</i>	3,206	
<i>Vitis</i> (grape)	<i>vinifera</i>	25,235	29,170
	<i>others</i>	3,935	
		654,680	
		Total	1,924,306

Tab. 1: Taxonomic composition of EURISCO.

Future steps and challenges

The EURISCO dataset is updated regularly whereas the correctness of scientific plant names poses one of the most important challenges [2]. The German Federal Office of Agriculture and Food (BLE) is funding a sub-project, which started in May 2017 and which aims at significantly improving the search functionality of EURISCO with regard to the scientific names of the documented germplasm accessions. It will enable the users to retrieve information on the material of interest, irrespectively of the taxonomic systems used by the original data providers.

Moreover, EURISCO will be continuously developed at IPK, based on the requirements expressed by the European PGRFA community, and with the aim of establishing EURISCO as a central repository on PGRFA at European level. Important objectives are to connect EURISCO with information systems managing molecular data as well as to increase its attractiveness for modern crop plant research and breeding.

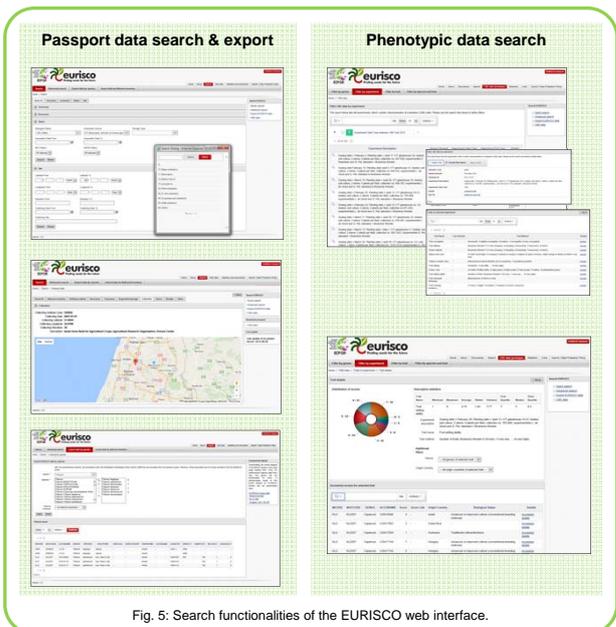


Fig. 5: Search functionalities of the EURISCO web interface.

- [1] S. Weise, M. Oppermann, L. Maggioni, T. van Hintum and H. Knüpfper (2017). EURISCO: The European Search Catalogue for Plant Genetic Resources. *Nucleic Acids Research*, 45(D1):D1003-1008.
- [2] T. van Hintum and H. Knüpfper (2010). Current taxonomic composition of European genebank material documented in EURISCO. *Plant Genet. Resources*, 8, 182-188.