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DOCUMENT ID	D 1.2 Putative collection of each target species identified

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INTRODUCTION

Organic agriculture is the agricultural system respecting the natural life-cycle. For the organic farmers, the crucial importance is the respect for the environment, humans and animals as well as for maintaining a healthy and fertile soil. It reduces soil damage and widely supports biodiversity in the countryside. It is based, among other things, on agricultural production excluding artificial agrochemicals (industrial pesticides and mineral fertilizers) and genetically modified organisms (GMOs). Organic agriculture is globally perceived as an essential alternative to the agricultural production of the future and is an integral part of the EU agricultural policy (Figure 1 & 2).

Legal framework

There are several valid regulations and directives on organic production and labelling of organic products in the EU. These rules are obligatory for all organic farmers and producers. These are Council Regulation (EC) No 834/2007, Commission Regulation (EC) No 889/2008 and No 1235/2008. From 1st of January 2021 the new Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007 will come into force. One of the most important parts regarding organic seed production is preamble 105 mentioning the intent of the EU to phase out the derogations for using the non-organic plant reproductive material in the near future. The new regulation, also for the first time, defined the varieties suitable for organic production as well as the organic breeding activities which shall be conducted under organic conditions.

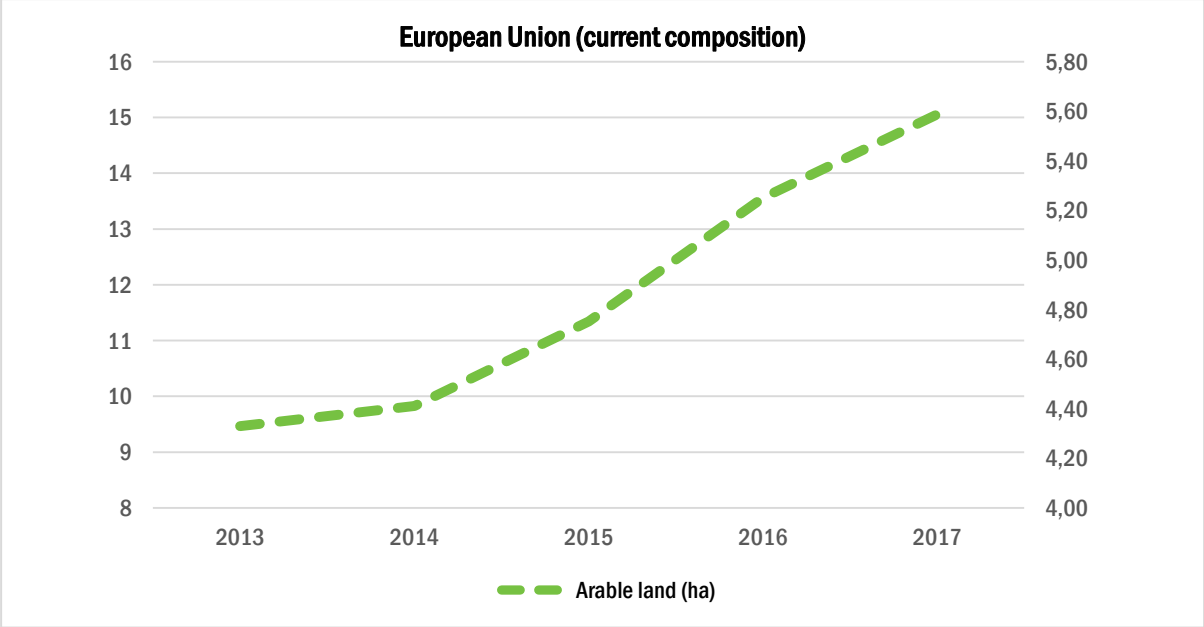

Figure 1 Developing trend of OA in the EU (in million ha)

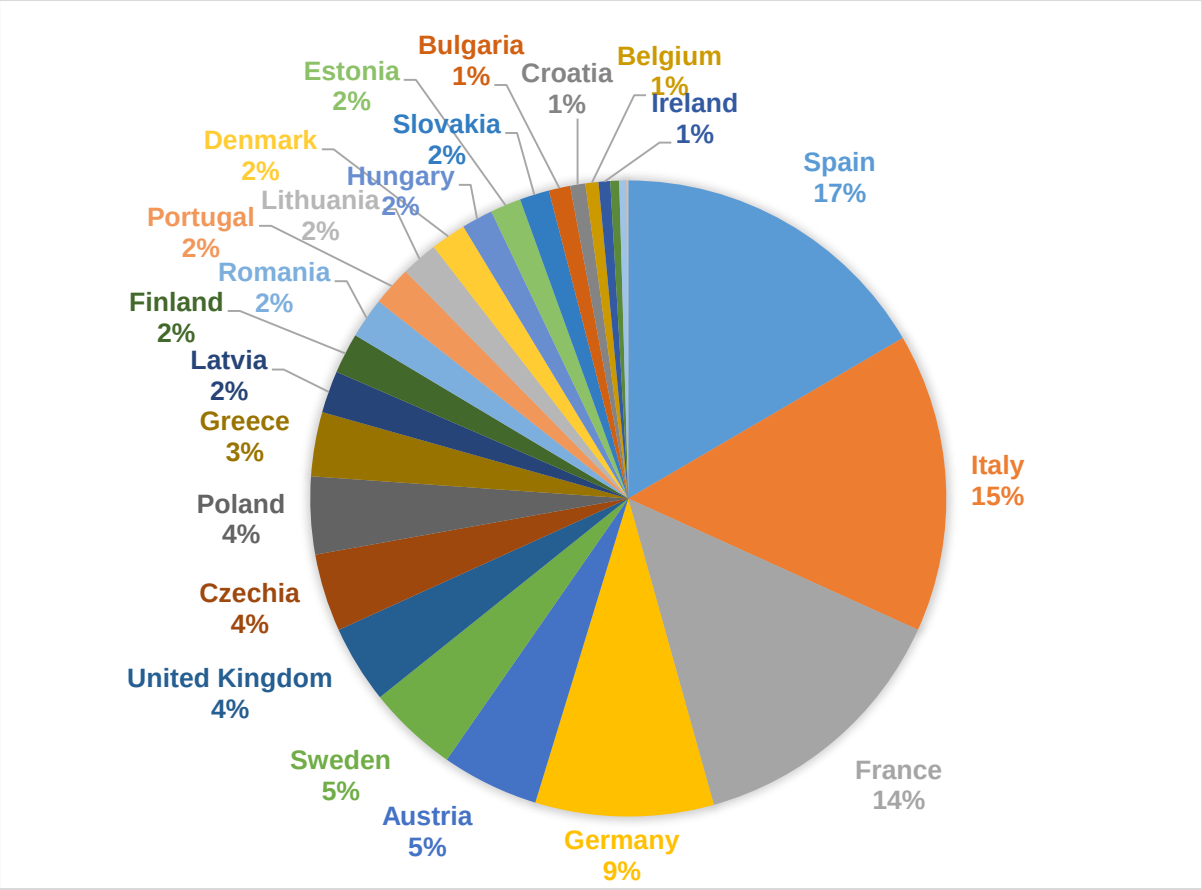

Figure 2 Share of the total organic area in EU countries in 2017 (EUROSTAT, 2019)

Organic plant breeding is laid down based on the IFOAM standards. It is still a niche sector, and the varieties in organic agriculture are mainly derived from conventional plant breeding. As a result, many varieties used for the organic farming are quite old and not suitable for low input farming. An important contribution to increased competitiveness of organic farming will have specific organic plant breeding programmes, offering new and improved varieties that are able to meet the modern challenges of the organic food sector.

For the efficient and sustainable organic food production, it is important to use optimal crop rotation and technologies. Since most of the available varieties have been developed for conventional farming, their potential for organic farming has not been fully exploited. Some traits that are key to the organic farming, such as resistance to the seed transmissible diseases, weed control or the nutrient efficiency (NUE), are not the main selection parameters for varieties where these deficiencies are dealt by using pesticides and mineral fertilizers.

Therefore, breeders are starting to focus on breeding varieties in the organic production conditions to stabilize yields and quality of the organic food. Since organic farming means high genetic diversity, it is necessary to cultivate a wide range of crops and their varieties in order to achieve quality production depending on heterogeneous environmental conditions, crop rotation, planti production and marketing of the products. For this reason, it is important to have varieties that are adapted to the different regional conditions for organic production. These varieties

must meet the high yield requirements for high quality production regarding the nutritional and technological characteristics of organic food as well as to meet the hygienic requirements of production.

In principle, the conventional and organic breeding have many procedures in common. A fundamental principle in organic production is the use of seeds produced organically. The EU member states maintain an online database in order to facilitate the acquisition of such seeds. Suppliers can enter organically produced seeds and seed potatoes that are available for purchase from this list.

However, several issues are overlooked in the conventional breeding. The traits that are more important for organic farming include the following:

- resistance to soil pathogens and seedborne diseases;
- fast juvenile growth;
- good weed suppression;
- resistance to lodging in tall varieties;
- qualitative traits and many others.

The new European Innovation Partnership (EIP) and future agricultural research supported by the Horizon 2020 programme for investment in research and innovation will definitely pay specific attention to the organic farming.

1. Implementing putative collections of plant genetic resources in ECOBREED project

Resource of plant genetic resources

Plant genetic resources refer to the genetic material of actual or future value. For the future utilization, a lot of genetic resources are stored and preserved in the genebanks around world. The seed propagated species are stored as seeds while vegetative propagated species are conserved in *in vitro* or cryobank collections. In the last century, Otto Frankel suggested that forming core collections was a way to meet the challenge of the growing size and number of collections of plant genetic resources (Frankel 1984).

What is a core collection?

The collections of plant genetic resources might include thousands of accessions of one species as in the case of common wheat. Therefore, the so-called "core collection" is created. A core collection consists of a limited set of accessions derived from a germplasm collection, chosen to represent the genetic spectrum in the whole collection, and including as much as possible of its genetic diversity. The core collection provides a focus for effort that is for the combined benefit of breeders and other researchers with the purpose to attract multiple use and users.

Four elements are basic to the concept of a core collection:

- the parent whole collection is a large entity (from the standpoint of management or use of many accessions) with taxonomic integrity,
- the core from this large collection has a restricted size,
- the core is a representative sample of the collection, and

- it is diverse.

The creation of putative collections under the ECOBREED project

Procedure for the selection of and creation of putative collections:

a) Defining the collection to be represented and identification of genotypes (collection) that will represent the biotic stress tolerance/resistance according to significant diseases and qualitative characters used in organic breeding.
b) Choosing the entries and determination of the size of the putative collection and decision on the number of entries per group for wheat, potato, soybean, and buckwheat. According to the project ~200 accessions for each species with ~100 for potato.
c) Managing the core set and selection of the entries/accessions from each species of wheat, potato, soybean and buckwheat that will be included in the putative collection. The selected entries should be those that best represent the group and best serve the function and purposes of the project aims.

With these procedures a pragmatic approach has been used i.e. reliability of classification, amount of additional information such as evaluation data by significant diseases and qualitative characters, year registration, status of accessions according to passport descriptors (i.e. by ECPGR or Bioversity International), country of origin, breeder, heading and selected traits which are most important for organic production, accessions with a high reputation which plays an important role in breeding history, availability of material (important to have relatively large quantities of material available for entries in the core collection) and policy driven by the project aims of ECOBREED.

All exchanges of plant material among partners as well as genebanks will be carried out according to the rules of the Nagoya Protocol if any party controls the access to their plant genetic resources. The genebanks involved in ECOBREED will use Standard Material Transfer Agreements.

2. A putative collection for wheat

Bread wheat (*Triticum aestivum* L.) is the most important organic cereal in the European Union (Figures 3 to 5) due to its multiple use for human nutrition (David et al. 2012). Organic, low-input and conventional wheat trials have revealed significant genotype by environment interaction (Spanakakis 1990, Oberforster et al. 2000, Kempf 2003, Przystalski et al. 2008, Reid et al. 2009). Therefore, specific organic VCU (value for cultivation and use) tests were launched in a few European countries, e.g. Austria, Germany and the Czech Republic (Löschenberger et al. 2008, Pedersen 2012). Organic VCU tests stimulated also conventional breeding companies to establish an organic wheat breeding programme (Kempf 2003, Fontaine et al. 2008, Löschenberger et al. 2008) besides small breeding initiatives started within the organic movement (Müller et al. 2000, Kunz et al. 2006a,b).

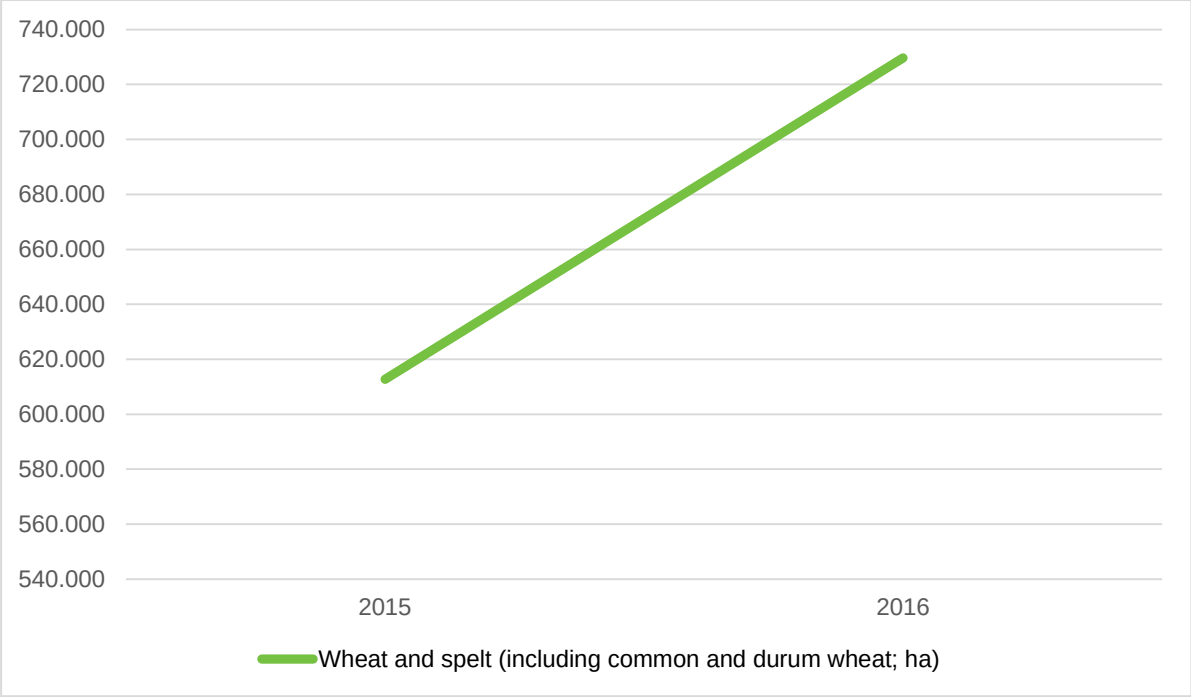

Figure 3 Organic wheat (bread and durum wheat) and spelt production in the EU (EUROSTAT, 2019)

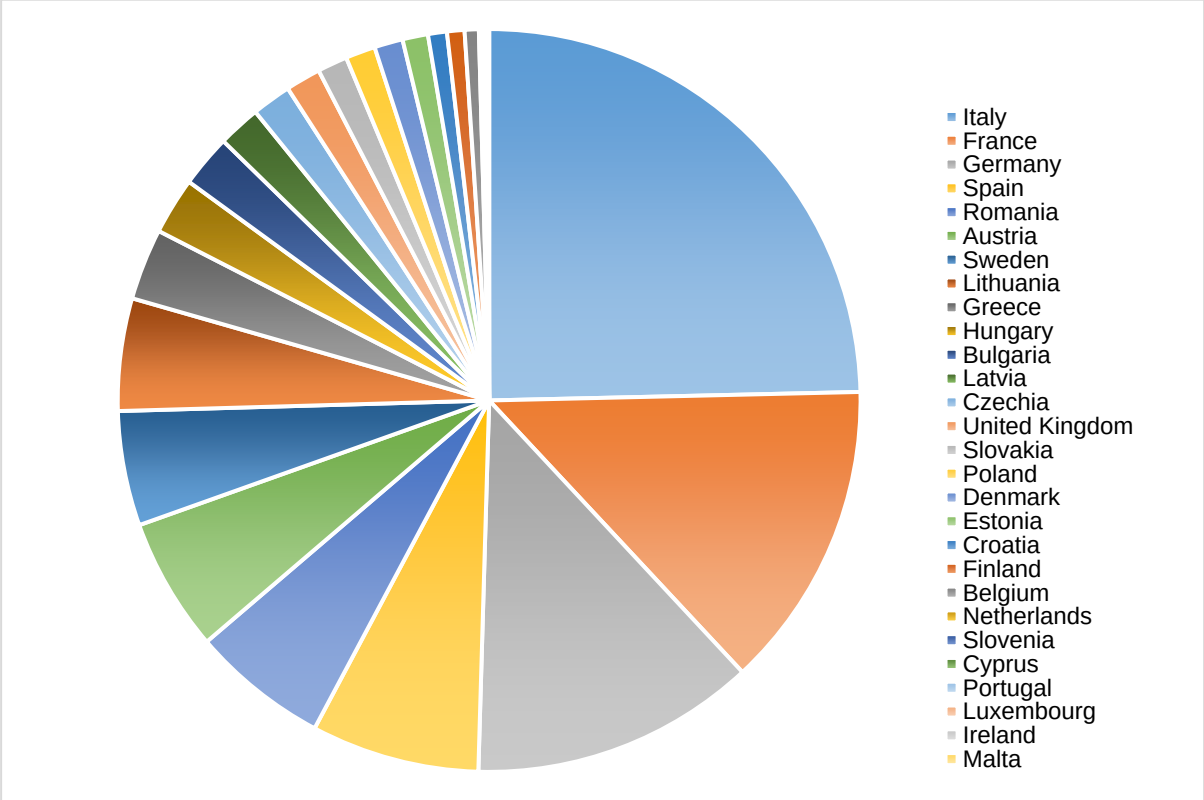

Figure 4 Share of organic wheat and spelt acreage (ha) in the EU in 2016 (EUROSTAT, 2019)

The selection of wheat accessions/varieties for the ECOBREED wheat putative collection was based on information which was gained in previous European research

projects such as COBRA (Core Organic II), SUSVAR (COST 860), national projects and national testing carried out either by breeders or within national organic VCU trials. Each involved partner selected at least 20 genotypes which are included in the ECOBREED wheat core collection. Thereby, the collection includes a broad range of diversity, including both old landraces and recently released cultivars. The selected wheat genotypes originate from 12 different European countries; the majority of the material has its origin in Germany (Table 1).

The majority of the material (83%) represents cultivars which were released in the last two decades and are still included in either the European list or national lists. The rest of the material includes landraces and old varieties as well as modern breeding lines which are at the moment subject to national organic VCU tests and/or internal organic trials. It is worth to mention that the putative collection includes also three cross composite populations (CCPs) and that >10% of the genotypes are from bio-dynamic breeding programmes in Germany and Switzerland, i.e. Getreidezüchtungsforschung Darzau (Dr. K.-J. Müller), Dottenfelderhof (Dr. H. Spieß) and Getreidezüchtung Peter Kunz. Moreover, the core collection includes several cultivars which were developed within so-called BFOA (breeding for organic agriculture) programs (Wolfe et al. 2008, Löschenberger et al. 2008), e.g. at Saatzucht Donau, Austria, Secobra, Germany or INRA Le Rheu, France, and passed organic VCU trials in the respective countries.

Table 1: Geographic origin of the winter wheat genotypes selected for the ECOBREED core collection

Country of origin	Number of genotypes
Austria	21
Croatia	3
Czech Republic	19
France	17
Germany	40
Hungary	22
Romania	20
Serbia	10
Slovakia	23
Slovenia	4
Switzerland	18
United Kingdom	3

2.1. Revised descriptors list for wheat (*Triticum* spp.) according to IBPGR Secretariat

A revised descriptor list for wheat is developed according to the IBPGR (International Board for Plant Genetic Resources) Secretariat, Rome (1985) and the CEC (Commission of European Communities) Secretariat, Brussels (1985).

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- **Accession number**

This number serves as a unique identifier for accessions and is assigned by the curator when an accession is entered into his collection. Once assigned this number should never be reassigned to another accession in the collection. Even if an accession is lost, its assigned number is still not available for re-use. Letters should occur before the number to. Identify the gene bank of the national system (e.g. MG indicates an accession comes from the gene bank at Bari, Italy; PI indicates an accession within the USA system).

- **Scientific name**

Taxonomic information should be provided at least for the genus and species level. Information on subspecies and botanical variety (convariety) should be included if available.

- **Sowing & harvest date**

Sowing and harvest date should be provided in a DD.MM.YYYY format.

- **Plant height**

Height of plant at maturity, measured in cm from ground to top of spike, excluding awns.

- **Days to flower**

Counted as days from sowing to 50% of plants in flower. However, when planting in dry soils in dryland areas it is counted from the first day of rainfall or irrigation which is sufficient for germination.

- **Spike density**

A visual measure of the density of a spike measured on a 1-9 scale (Figure 6). (NB. Spike density is not the same as spike shape.)

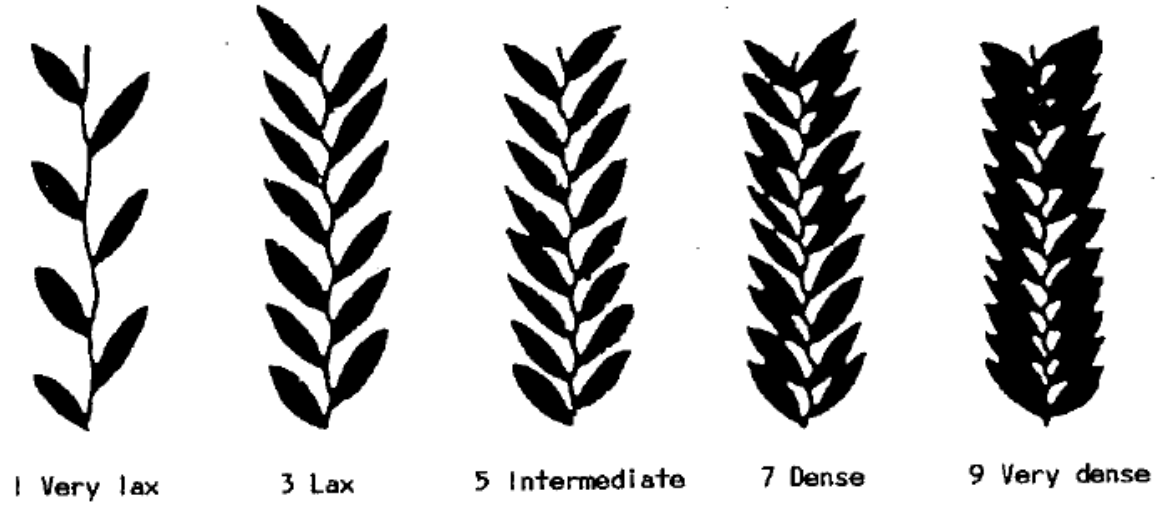

Figure 5 Scoring scheme for spike density

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- **Glume colour**

Observed on the outer glume and scored on a 1 to 3 scale: 1=white; 2=red to brown; 3=purple to black

- **Number of spikelets per spike**

The average number of spikelets per spike based on the measurements of five typical spikes selected from a growing accession.

- **Seed colour**

Scored on a 1 to 3 scale: 1=white; 2=red; 3=purple; if a visual scoring is difficult, then the sodium hydroxide test can be used. Place grains in a petri-dish and add 25 ml of a 5% solution of NaOH for 60-90 minutes. Original red grains will be dark brownish orange, and white grains will be straw yellow.

- **Pre-harvest sprouting tendency**

Tendency of grains to sprout in the ear as a result of high moisture near harvest; scored on a 1 to 9 scale: 1=no sprouting; 3=low sprouting; 5=intermediate sprouting; 7=high sprouting; 9=spike completely sprouted.

- **Percentage protein content**

Measured as percentage of dry weight (seed moisture equal to or less than 12%) by standard methods (Kjeldahl, Dumas, NIRS). Indicate the conversion factor used.

- **Stress susceptibility**

The reaction is cored on a 1-9 scale where 3=low susceptibility, 5=medium susceptibility and 7=high susceptibility. Indicate the type of stress which is scored:

Low temperature:

Winter damage is measured as the loss of plants after winter

Cold susceptibility (frost damage) indicates the damage caused by cold to aerial parts of plants

which is not associated with the death of plants during winter

High temperature:

Drought

- **Pest and disease susceptibility**

In each case it is important to state the origin of the infestation or infection, i.e., natural, field inoculation, laboratory test (specify). Indicate: if information on physiological specialization is available. Record such information in the NOTES descriptor. Other organisms may be added using a similar coding system.
The scoring is carried out on a 1-9 scale, where: 1=no symptoms; 3=low susceptibility; 5=medium susceptibility; 7=high susceptibility; 9=disease symptoms on >90% of the plant

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2.2. Descriptors list genus *TRITICUM L.* (according to NPPC-VURV)

Standardized descriptors and characterization information for wheat putative collection:

MORPHOLOGICAL / VARIETIES / CHARACTERS / EXAMPLE

Plant - height (Stem - spike excluding awns and scurs) (at ripeness)		
<35 cm	1 - dwarf	(Courtot, Briscard)
35-50	2 -	
51-65	3 - short	(Konsul, Remus)
66-80	4 -	
81-95	5 - medium	(Sideral, Ventura)
96-110	6 -	
111-125	7 - tall	(Boxer, Adonis)
126-140	8 -	
>140	9 - very tall	(Aladin, Vitus)

Flag leaf – length (at anthesis)	
<10,0 cm	1 - very short
10,0-12,5	2 -
12,6-15,0	3 - short
15,1-17,5	4 -
17,6-20,0	5 - medium
20,1-22,5	6 -
22,6-25,0	7 - long
25,1-27,5	8 -
>27,5	9 - very long

Flag leaf – width (at anthesis)	
<1,0 cm	1 - very narrow
1,0-1,2	2 -
1,3-1,5	3 - narrow
1,6-1,7	4 -
1,8-2,0	5 - medium
2,1-2,2	6 -
2,3-2,5	7 - broad
2,6-2,8	8 -
>2,8	9 - very broad

Leaf - length of auricles (at anthesis)
3 - short
5 - medium
7 - long

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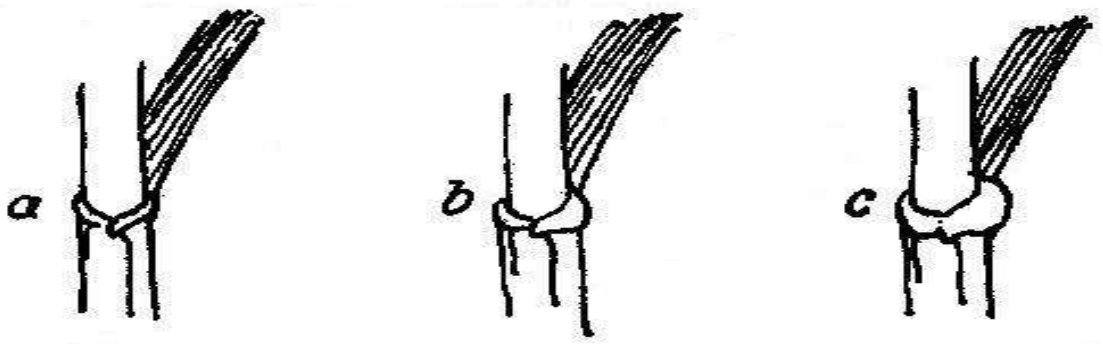

Spike colour (at heading)	
1	Yellow - green
2	light green
3	green
4	dark green
5	gray-green (light gray blue-weak waxy bloom)
6	blue green (silver grey blue, dense waxy bloom)
7	light violet (sparse anthocyan)
8	Violet (medium with strong anthocyan)
9	others

Spike – length (excluding awns and scurs) (at ripeness)		
<3,0 cm	1 - very short	
3,0-4,5	2 -	
4,6-6,0	3 - short	(Carat)
6,1-7,5	4 -	
7,6-9,0	5 - medium	(Ritmo, Arkas)
9,1-10,5	6 -	
10,6-12,0	7 - long	(Forby, Prinqual)
12,1-13,5	8 -	
>13,5	9 - very long	(Amifort)

Spike - awns or scurs (at ripeness)	
1 - both absent	(Futur, Axona)
2 - scurs present	(Festival, Furio)
3 - awns present	(Soissons, Ventura)

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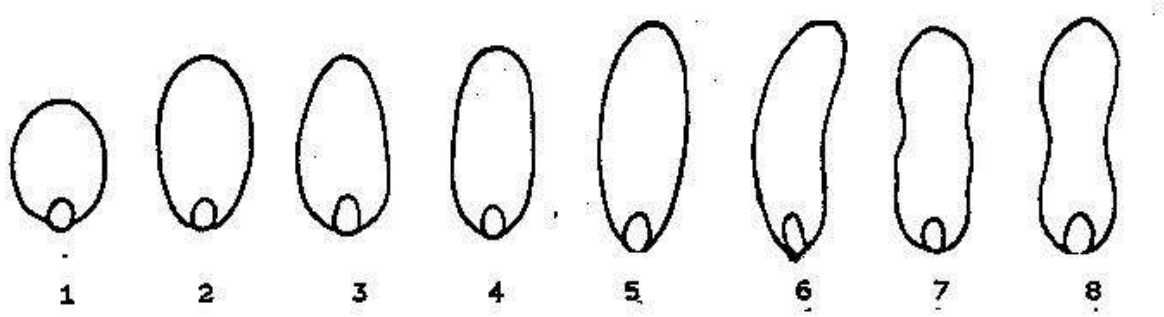
Caryopsis - shape (at ripeness)
1 - spherical
2 - rounded
3 - egg-shaped
4 - elongated
5 - very elongated
6 - falcate
7 - humpbacked
8 - flat (compressed on each side)
9 - other



Caryopsis – colour (at ripeness)
1 - light-yellow
2 - yellow
3 - amber-yellow
4 - light-brown
5 - brown
6 - amber-brown
7 - green
8 - violet
9 – other

BIOLOGICAL CHARACTERS

Vegetation - character	
1 - winter	(Slejpner)
2 - alternative - (ripens when spring sowed, but tuft typically decembent)	(Fidel
3 - spring	(Nandu)

Vegetation period - cultivar (to standard)	
<-8	1 - extremely early
-8-6	2 - very early
-5-4	3 - early
-3-2	4 - semi-early
-1+1	5 - intermediate
+2-3	6 - middle-late

+4-5	7 - late
+6-8	8 - very late
>+8	9 - extremely late

Winter – hardiness (% of survival in field conditions)	
<20 %	1 - very low
20-30	2 -
31-40	3 - low
41-50	4 -
51-60	5 - intermediate
61-70	6 -
71-80	7 - high
81-90	8 -
>90	9 - very high

Lodging - resistance (repeatedly after storm)
1 - very low
2 -
3 - low
4 -
5 - intermediate
6 -
7 - high
8 -
9 - very high

Diseases and pests

Scale of resistance
1 - very low
2 -
3 - low
4 -
5 - medium
6 -
7 -high
8 -
9 - very high

- Powdery mildew (*Erysiphe graminis* D.C.) - plant - resistance (emergence - ripeness) - leaf
- Powdery mildew (*Erysiphe graminis* D.C.) - spike – resistance (emergence - ripeness) - spike
- Stripe rust - resistance (*Puccinia striiformis* WEST) - from the beginning of stem elongation
- Brown rust – resistance triticina /ERIKS./ (*Puccinia persistens* PLOW-var -leaf - (after stem elongation)

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- Stem rust – resistance (*Puccinia graminis* PERS. subsp. graminis) - Leaf - (from the beginning of stem elongation)
- Septoria disease - resistance (*Septoria nodorum* BERK.) - leaf - spike (emergence - harvest)
- Septoria leaf lzotch of wheat - resistance (*Septoria tritici* ROB.), leaf - (from tillering stage)
- Cercosporella foot rot - resistance (*Pseudocercosporella herpotrichoides* /FRON/ DEIGTON) (end of tillering - beginning of stem elongation)
- Fusarium head blight (*Fusarium sp.*) – resistance (during whole vegetation)
- Loose smut of wheat (*Ustilago tritici* /PERS./ JENS.) – resistance (after heading)
- Head smut (*Tilletia caries* /DE CAND/ TUL.) – resistance (after heading)
- Hessian fly (Mayetiola BECK. destructor S.)

ECONOMIC CHARACTERS

Stand - number of spikes (befor harvest)	
<150 m^2	1 - very small
150-250	2 -
251-350	3 - small
351-450	4 -
451-550	5 - medium
551-650	6 -
651-750	7 - high
751-850	8 -
>850	9 - very high

Stand - grain yield preliminary (not repeated evaluation to the standard cv.)	
<65 %	1 - very low
65-75	2 -
76-85	3 - low
86-95	4 -
96-105	5 - medium
106-115	6 -
116-125	7 - high
126-135	8 -
>135	9 - very high

Stand - grain yield preliminary (not repeated evaluation to the average)	
<65 %	1 - very low
65-75	2 -
76-85	3 - low
86-95	4 -
96-105	5 - medium
106-115	6 -
116-125	7 -high
126-135	8 -
>135	9 - very high

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1000 grain mass	
<27 g	1 - very low
27-30	2 -
31-34	3 - low
35-38	4 -
39-42	5 - medium
43-46	6 -
47-50	7 - high
51-54	8 -
>55	9 - very high

Spike - grain mass	
<0,6 g	1 - very low
0,6-0,8	2 -
0,9-1,1	3 - low
1,2-1,4	4 -
1,5-1,7	5 - medium
1,8-2,0	6 -
2,1-2,3	7 - high
2,4-2,6	8 -
>2,6	9 - very high

Spike - number of grains	
<11	1 - very small
11-15	2 -
16-20	3 - small
21-25	4 -
26-30	5 - medium
31-35	6 -
36-42	7 - high
43-55	8 -
>55	9 - very high

Spike - number of spikelets	
<12	1 - very small
12-13	2 -
14-15	3 - small
16-17	4 -
18-19	5 - medium
20-21	6 -
22-23	7 - high
24-25	8 -
>25	9 - very high

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Spikelet - number of grains	
<1,1	1 - very small
1,1-1,5	2 -
1,6-2,0	3 - small
2,1-2,5	4 -
2,5-3,0	5 - medium
3,1-3,5	6 -
3,6-4,0	7 - high
4,1-4,5	8 -
>4,5	9 - very high

Grain - crude protein content	
<9,0 %	1 - very low
9,0-10,2	2 -
10,3-11,4	3 - low
11,5-12,6	4 -
12,7-13,8	5 - medium
13,9-15,0	6 -
15,1-16,2	7 - high
16,3-18,0	8 -
>18,0	9 - very high

Flour - wet gluten content	
<15,0 %	1 - very low
15,0-20,0	2 -
20,1-25,0	3 -low
25,1-30,0	4 -
30,1-35,0	5 - medium
35,1-40,0	6 -
40,0-45,1	7 - high
45,1-50,0	8 -
>50,0	9 - very high

Gluten swelling (Berliner method)	
0	1 - very low
1-3	2 -
4-6	3 - low
7-8	4 -
9-11	5 - medium
12-13	6 -
14-16	7 - high
17-19	8 -
>19	9 - very high

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Flour - baking quality (Prugar method)	
<20,0	1 - very low
20,0-30,0	2 -
30,1-40,0	3 - low
40,1-50,0	4 -
50,1-60,0	5 - medium
60,1-70,0	6 -
70,1-80,0	7 - high
80,1-90,0	8 -
>90,0	9 - very high

Flour - sedimentation test	
<15 ml	1 - very poor
15-30	3 - poor
31-45	5 - medium
46-60	7 - good
>60	9 - very good

Flour - valorimetric number (farinograph)	
<20,0	1 - very low
20,0-30,0	2 -
30,1-40,0	3 - low
40,1-50,0	4 -
50,1-60,0	5 - medium
60,1-70,0	6 -
70,1-80,0	7 - high
80,1-90,0	8 -
>90,0	9 - very high

Main utilization
1 - baker's product
2 - special pasta (e.g. macaroni)
3 - feed product
4 - for baker and food purposes

3. A putative collection for potato

Since 1995, the yield of potato has been erratic from year to year, though showing an overall slight increase. Potatoes were cultivated in 2016 over a harvested area of 19.25 million hectares with a global production of 376.82 million tonnes (figure 5 & 6).

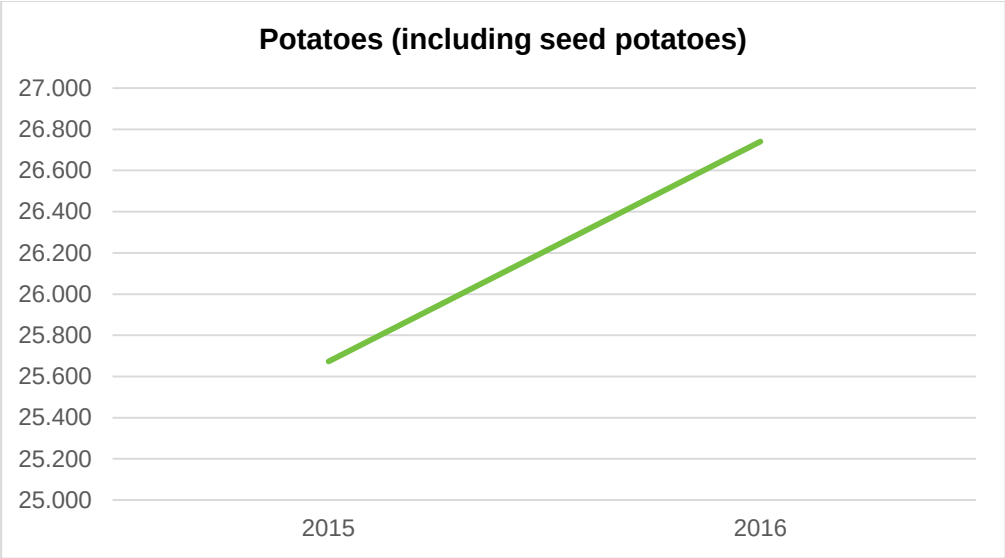


Figure 5 Organic potatoes production in the EU (EUROSTAT, 2019)

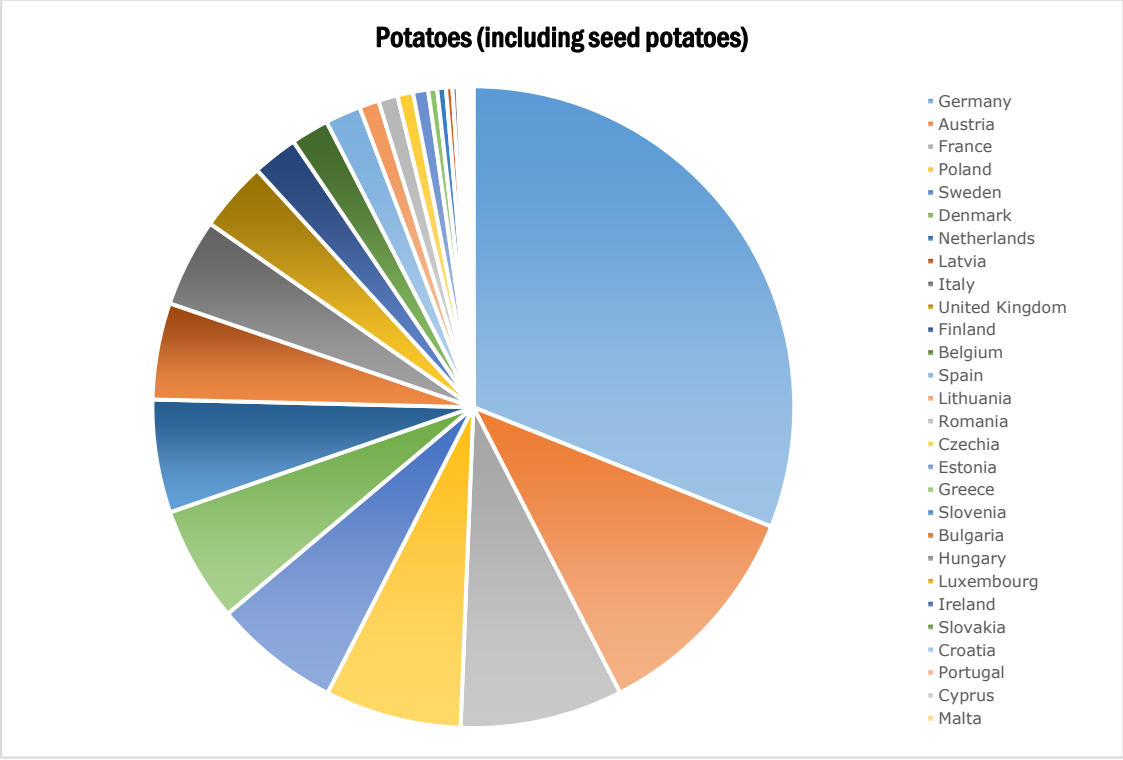


Figure 6 Organic potatoes producers in the EU in 2016 (EUROSTAT, 2019)

D 1.2 Putative Collection of Each Target Species Identified

The gene pool can be divided into four types of germplasm:

1. Modern cultivars (and old varieties) of the common potato (*Solanum tuberosum* subsp. *tuberosum*), the most cultivated potato subspecies in the world;
2. Native cultivars, including local potato cultivars occurring in the centre of diversity;
3. Wild relatives, consisting of wild tuber-bearing species and a few non tuber-producing species, occurring in the centre of diversity;
4. Other germplasm or research material; all types of genetic stocks e.g., interspecific hybrids, breeding clones, genetically enhanced stocks, etc.

Globally, about 98,000 accessions can be found *ex situ*, 80 percent of which are maintained in 30 key collections. Accessions are conserved as botanical seeds or vegetatively as tubers and *in vitro* plantlets. Latin American collections contain many native cultivars and wild relatives and the collections in Europe and North America contain modern cultivars and breeding materials, as well as wild relatives. National collection databases are incomplete and not accessible. Efforts to document and characterize *in situ* collections of wild and cultivated species and their inherent intraspecific diversity are needed as a baseline for future research on genetic erosion, species loss, genetic drift and integrity.

Identification of potato accessions

Accessions of potato were identified by all four partners in the project (KIS, IHAR, UP, UNEW - based on their data on potato varieties), databases such as The European Cultivated Potato Database, World Catalogue of Potato Varieties, ADHB Potato Variety Database, ARVALIS database on potato varieties, SASA database on organic seed lots in Scotland produced in 2017, Data on organic seed produced in 2017 in Austria, data on organic potato varieties tested in FiBL, Switzerland (data for the last 10 years), data on organic potato varieties from Bioland, Germany, Descriptive List for Potato Bundessortenamt BSA for Potato for 2017, Breeders variety cathalogues (Netherlands: Agrico, HZPC, Meijer, Den Hartigh, Stet Holland, Agroplant; Germany: Europlant, Norika, Solana; France: Germicopa, Grocep, Bretagne Plants, Comite Nord, Austria: NOES, UK: Sarpo Potatoes Ltd, James Hutton Institute), personal contacts with other partners involved in the project.

Altogether 197 varieties from 10 European countries and the USA and Canada were selected grown in diverse environments across Europe i.e. from N to S and W to E, late blight resistant and presently popular in organic farming and early commercial conventional varieties. Potato is a specific crop with low multiplication rate; therefore only commercial varieties can be used in the first couple of years of the project. Therefore, mainly those with known seed source or maintainer were selected. In general, it corresponds to the number and development of breeding programmes in EU. In most of EU breeding programmes resistances to diseases are high on the priority list.

D 1.2 Putative Collection of Each Target Species Identified

Table 2: Geographic origin of the potato genotypes selected for the ECOBREED core collection

Country of origin	Number of genotypes
Austria	4
Canada	2
Denmark	1
France	18
Germany	38
Hungary	5
Ireland	12
Netherlands	56
Poland	13
Slovenia	5
United Kingdom	40
USA	1

Due to specific needs of organic production, varieties were selected according to resistance/susceptibility to late blight (LB), at LB susceptible varieties time of maturity (very early and early varieties), suitability for organic production (practical and cathalogue data), utilization traits (mainly quality table, some processing and starch, some *S. phureja* varieties), resistance (important for possibility for further multiplication of seed) and according to the country of origin. Most of the criteria determine also value for further breeding purposes (LB and PVY resistances, earliness).

On the list, there are 13 varieties with a very high resistance to the late blight and 36 with high resistance, there is also 45 varieties with extreme or high resistance against PVY. According to the available data, there are 15 very early and 28 early varieties, 55 second early varieties, 81 late ones (mainly LB resistant) and 8 very late varieties (LB resistant).
Varieties from countries such as Ukraine and Russia and overseas were not considered as appropriate due to the quarantine reasons and no possibilities of seed delivery on time.
From these accessions, the core collection for further assessment will be selected.

3.1. Descriptors list for potato

3.1.1. Data on experiment management collected before planting and during growth

3.1.1.1 Classical soil analysis

- mineral nitrogen in soil
- soil phosphorous content
- soil potassium content
- pH
- organic matter in soil

3.1.1.2 Manuring and fertilization
- type, quantity and date of application of manure
- type date and quantity of other organic fertilizer

3.1.1.3 Weed control
- measures applied on weed control

3.1.1.4 Insect control
- colorado potato beetle control
- other pest control

3.1.1.5 Disease control (early and late blight...)
- use of copper
- use of any other organically allowed mean of control

3.1.1.6 All dates of technology measures recorded (planting, cultivations, harvesting)

3.1.2. Variety descriptions

3.1.2.1 Catalogue or DUS description of all varieties in the experiment will be prepared

3.1.3. Field observations of the plants (visual assessment)

Growth and development observation (using BBCH scale where applicable)

- Emergence date (50 % plants emerged)
- Date of rows closed
- Plant vigor (1 -5 scale, 5 more vigorous)
- Flowering dates
  - start of flowering (10 % inflorescens blossomed)
  - full flowering (50 % inflorescences blossomed)
  - end of flowering (10 % inflorescences still blossomed)
- Flowers colours
- Flowering abundance (1 - 5 scale, 5 most abundant)
- Maturity estimation
  - senescence estimation weekly (dates from yellowing to dried plants)

3.1.4. Pests and diseases observations

3.1.4.1 Late blight observations (using Henfling scale 1- 9)

% of leaf surface infected	Score	Descriptions of symptoms
0	1	No symptoms of late blight
0,1-1	1	Very small number of plants with lesions on large plots. No more than 2 lesions per 10 m row (+- 30 plants).

1,1-3	2	Up to 10 small lesions per plant.
3,1-10	3	Up to 30 small lesions per plant, no more than 1 of 20 leaves with symptoms.
10,1-24	4	Most of the plants is infected, every third leaf show symptoms. Only some leaves with multiple inifections.
25-49	5	Almost every leaf with lesions. Multiple infections are more often. Field or plot looks green, but all plants are infected.
50-74	6	All plants are infected and half of leaf mass is destroyed due to late blight. Plot looks mixed green/brown, presence of late blight is obvious.
75-90	7	All plants are infected, thre quarters of leaf area is destroyed. Lower leaves are dead and fallen off, the only green leaves (if they are) are at the top of the plants. The shape of the plants become curled. Plot looks nor green nor brown.
91-97	8	Some leaves and most of stems is still green. Plot is brown with some green patches.
97,1-99,9	9	Only some green leaves remained, all with lesins of late blight. Multiple infections of stems. Plot looks brown.
100	9	All leaves and stems are dead.

Henfling JW. 1982. Field screening procedures to evaluate resistance to late blight. CIP Technology Evaluation Series No. 1982: 5.

3.1.4.2 Early blight observations (Henfling (1982) scale 1 - 9, but colour adapted)
3.1.4.3 Rhisoctonia (% of plants with symptoms)
3.1.4.4 Black leg (all species together - % of plants with symptoms)
3.1.4.5 Virus diseases (% of plants with symptoms)

- mild mosaics
- severe mosaics
- leafroll symptoms
- other symptoms

3.1.4.6 Colorado potato beetle damage (% of defoliation)
3.1.4.7 Other pests on foliage recorded

3.1.5. Evaluation after harvest

- Tuber yield and its characteristics
  Tuber yield
  Marketable yield
  Number of tubers per plant
  Average tuber weight
  Dry matter content (sample of 5 kg of tubers over 45 mm)

6 Quality traits of tubers

6.1 Tuber shape (round, round oval, oval, long oval, long, kidney shape)
6.2 Uniformity of tuber shape (scale 1-9)
6.3 Depth of eyes (scale 1 - 9)
6.4 Skin finish

6.5 Skin colour
6.6 Flesh Colour
6.7 Tuber defects (% of tubers from 30 tubers)
- secondary growth
- tuber cracks
- hollow heart
- internal heat necroses

6. 8 Scoring of disease and pest symptoms
- rotten tubers
- rhisoctonia symptoms
- silver scurf
- other

7 Utilization

7.1 Table quality (boiling on the steam using EAPR scale)
- Surface colour of flesh (1 white, 2 creamy, 3 light yellow, 6 dark yellow)
- Uniformity of colour of cut surface (1 uniform, 4 uninform)
- Disintegration (1 none, 4 heavy)
- Consistency (1 firm, 4 soft)
- Mealyness (1 not mealy, 4 mealy)
- Moisture (1 moist, 4 dry)
- Structure (1 fine, 4 coarse)
- Taste (1 excellent, 2 very good, 3 good, 4 acceptable, 5 worse, 6 unsuitable)
- Other tastes (1 none, 4 heavy strange tastes)
- Stickiness (1 none, 4 sticky)
- General impression (1 excellent, 10 unsuitable)
- Cooking type (A, B, C, D)

7.2 After cooking darkening (5 tubers after 10 minutes, 1 hour and 24 hours, scale 1-9, 1 no darkening - 9 black tubers)
7.3 Optional -french fry estimations (only varieties that are suitable for french fry)
- Appearance (1 good, 4 bad)
- Fry colour (000 to 4, 4 unsuitable)
- Uniformity of colour (1 uniform, 4 ununiform)
- Taste (1 excellent, 4 unsuitable)
- Texture (1 too hard, 2 optimal, 3 tot soft, 4 soak)
- Oil content (1 low, 4 high)
- Crunchiness (1 good, 4 none)
- General impression (1 excellent, 10 unsuitable)

7.4 Storability (1 - 9 scale)

4. A putative collection for soybean

Organic soy foods have experienced fast growth of all consumer food segments during the past 10 years. Its coverage in the EU is contributed mainly from France, Austria, Romania and Italy (Figure 7).

It is first attempt to create putative collection intended to use for breeding soybean for organic and low input production. Due to specificity and different demands in organic and low input production, different criteria took into account for developing of such putative collection. Multiple selection criteria were considered agronomic performances, environmental benefits and farmer socio-economic wellbeing.

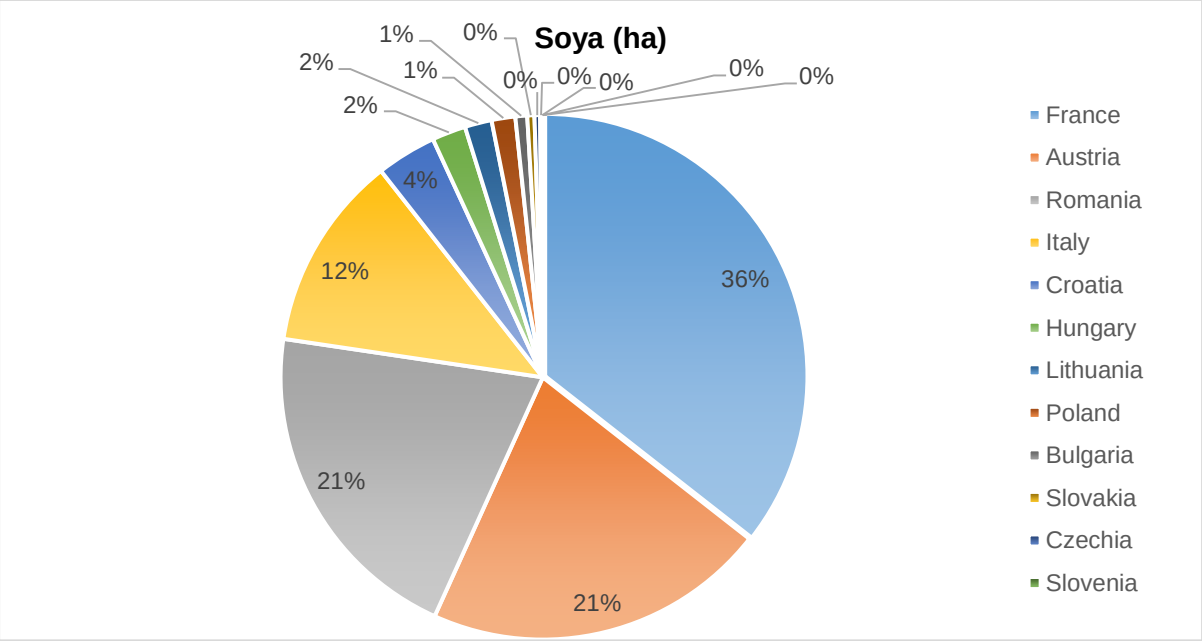


Figure 7 Organic soya coverage in the EU in 2016 (EUROSTAT, 2019)

Soybean breeding and selection is a continual process designed to increase yield levels and improve resistance to biotic and abiotic stresses. Conventional soybean yield has increased over time in response to improved genetics and agronomic practices. Specht et al. (1999) summarized a number of previous genetic gain studies, and based on these studies, reported that the average annual increase in soybean yield due to genetic improvements ranged from 10 to 30 kg ha^{-1} yr^{-1} and today the yield potential of many modern conventional cultivars is greater than 6,700 kg ha^{-1} (Cooper, 2003),Various studies have shown that genetic improvement for yield potential of soybean has been achieved through increased lodging resistance, increased stability across a wide range of environments, increased tolerance to water stress, adaptation of improved cultivars and production methods, increase in atmospheric CO_2 concentration, greater nitrogen fixation, supplying more assimilates during seed filling period, better tolerance to stress of high plant populations, and increased resistance to major pathogens (Pathan and Sleper 2008), or even adjusted planting date (Rowntree et al., 2013).

D 1.2 Putative Collection of Each Target Species Identified

Identification of soybean accessions suitable for organic and low-input production and breeding were sought through core collection. Accession list contains 200 numbers originated all around the world. The accessions were selected according to the value for further breeding purposes using several criteria: diverse germplasm, popular organic variety, conventional variety and landraces, special traits germplasm and biotic and abiotic resistance and tolerance. Popular organic varieties, old varieties, general type varieties and divergent germplasm in this putative collection should provide genetic base in breeding programs for yield increasing and wider adaptability.

Drought tolerance and drought tolerant biological nitrogen fixation are important trait that should face with global climate changes. Also, disease resistance is essential for successful organic production, due to limitation in crop protection. Several diseases (Stem cancer, Pythium root rot, SMV) were identified as future potential problems and source of resistance were included in this putative collection. Another important trait, beneficially for farmers and processing industry is grain quality. High protein, large/small seed, coloured test, low Kunitz inhibitor, allergen free accessions represent a genetic base for developing special type variety that can satisfied divers demand of processing industry while farmers can face economic benefits growing that type of variety. Based on this list, some of the accessions will be tested in the field. Detailed information of accession origin, maintainer and criteria are listed in the Table 3 in the annex.

4.1. Descriptors list for soybean

Descriptor: **FLOWERDATE**
Date that 50% of the plants have begun to flower;
expressed as month (1 or 2 digits) and day (2 digits).
Descriptor is a numeric field. Blank value means no data.
Ex: 806

Descriptor: **FLWRCOLOR**
Flower colour.

Code	Definition
Dp	Dark purple
Lp	Light purple
M	Magenta
Nw	Near white
P	Purple
Pth	Dilute purple (purple throat)
W	White

Descriptor: **HEIGHT**
Plant height from ground to stem tip in centimetres measured at maturity.

D 1.2 Putative Collection of Each Target Species Identified

Descriptor: **HILUMCOLOR**
Hilum colour.
Combination or intermediate color

Code	Definition
Bf	Buff
Bl	Black
Blbr	Black hilum with brown outer ring
Br	Brown
D	Dark shade (prefix)
G	Gray
Gn	Green
Ib	Imperfect black
Ig	Imperfect gray
L	Light shade (prefix)
Rbf	Reddish buff
Rbl	Reddish black
Rbr	Reddish brown
Tn	Tan
Y	Yellow

Descriptor: **LODGING**
Tendency of plant to lodge, measured at maturity.

Descriptor: **MATDATE**
Date that 95% of the pods have reached final color; expressed as month (1 or 2 digits) and day (2 digits).
Blank value means no data. Ex: 1009

Descriptor: **MATGROUP**
Maturity evaluation. 000 = earliest, X = latest.

Code	Definition
0	MATURITY GROUP 0
00	MATURITY GROUP 00
000	MATURITY GROUP 000
I	MATURITY GROUP I
II	MATURITY GROUP II
III	MATURITY GROUP III
IV	MATURITY GROUP IV
IX	MATURITY GROUP IX
V	MATURITY GROUP V

D 1.2 Putative Collection of Each Target Species Identified

VI	MATURITY GROUP VI
VII	MATURITY GROUP VII
VIII	MATURITY GROUP VIII
X	MATURITY GROUP X

Descriptor: **MOTTLING**
Estimated percent of seed with dark pigmentation, hilum or saddle excluded.

Descriptor: **OIL**
Oil percent of dry weight of seed. Descriptor is a numeric field. Blank value means no data. Ex: 16.4, 19.2

Descriptor: **PROTEIN**
Protein percent of dry weight of seed. This descriptor is a numeric field. Blank value means no data. Ex: 26.8, 49.9

Descriptor: **PUBCOLOR**
Pubescence colour at middle part of main stem.

Code	Definition
G	Gray
Lt	Light tawny
Ng	Near gray
T	Tawny

Descriptor: **SCOATCOLOR**
Seed coat colour.
Combination or intermediate colour

Code	Definition
Bf	Buff
Bl	Black
Br	Brown
BrBl	Brownish black
D	Denotes dark shade (prefix)
G	Gray
Ggn	Grayish green
Gn	Green
Gnbl	Greenish black
Gnbr	Greenish brown
Ib	Imperfect black
L	Denotes light shade (prefix)
Rbf	Reddish buff

Rbl	Reddish black
Rbr	Reddish brown
Tn	Tan
Y	Yellow

Descriptor: **SEEDWEIGHT**
Weight of 100 seeds in grams (g). Blank value means no data.

Descriptor**: SMV**
Reaction to soybean mosaic virus caused by Soja virus
Blank value means no data.

Code	Definition
1	Moderately resistant
2	(1 = MODERATELY RESISTANT, 5 = HIGHLY SUSCEPTIBLE)
3	(1 = MODERATELY RESISTANT, 5 = HIGHLY SUSCEPTIBLE)
4	(1 = MODERATELY RESISTANT, 5 = HIGHLY SUSCEPTIBLE)
5	Highly susceptible

Descriptor: **STEMCANKER**
Reaction to stem canker caused by *Diaporthe caulivora*.

Code	Definition
R	Resistant
S	Susceptible

Descriptor: **STEMTERM**
Evaluation of stem growth habit, coded for determinate to indeterminate.

Code	Definition
D	Determinate (stem abruptly terminating)
N	Indeterminate (stem tapering gradually toward tip)
S	Semi-determinate (intermediate between determinate and indeterminate)

Descriptor: **YIELD**
Yield in megagrams per hectare (Mg/ha) at 13% seed moisture. Descriptor is a numeric field. Blank value means no data. Ex: 2.21, 3.05

D 1.2 Putative Collection of Each Target Species Identified

5. A putative collection for buckwheat

Common buckwheat (*Fagopyrum esculentum* Moench.) is a plant originated in China and mainly cultivated for its grain-like fruits and as a cover and melliferous crop. Related and a more bitter species, *Fagopyrum tataricum* (L.) Gaertn., a domesticated food plant common in Asia mainly in the higher attitudes of the Himalaya, but not as common in Europe or North America, is also referred to as buckwheat. Common buckwheat was grown as a traditional staple food in several regions of Europe, however, its cultivation declined sharply in the 20th century with the adoption of nitrogen fertilizer that increased the productivity of other staple crops. At present, buckwheat is still grown in many countries such as China, Russia, Ukraine, Brazil, Japan, the USA etc. but also in France, Slovenia, the Czech Republic, Poland, Slovakia etc. Annual world production (2017) is about 3.83 million t from 3.94 million ha (FAOSTAT, 2019). Unfortunately, there are no statistical data regarding the buckwheat organic production and organic production of its seeds.

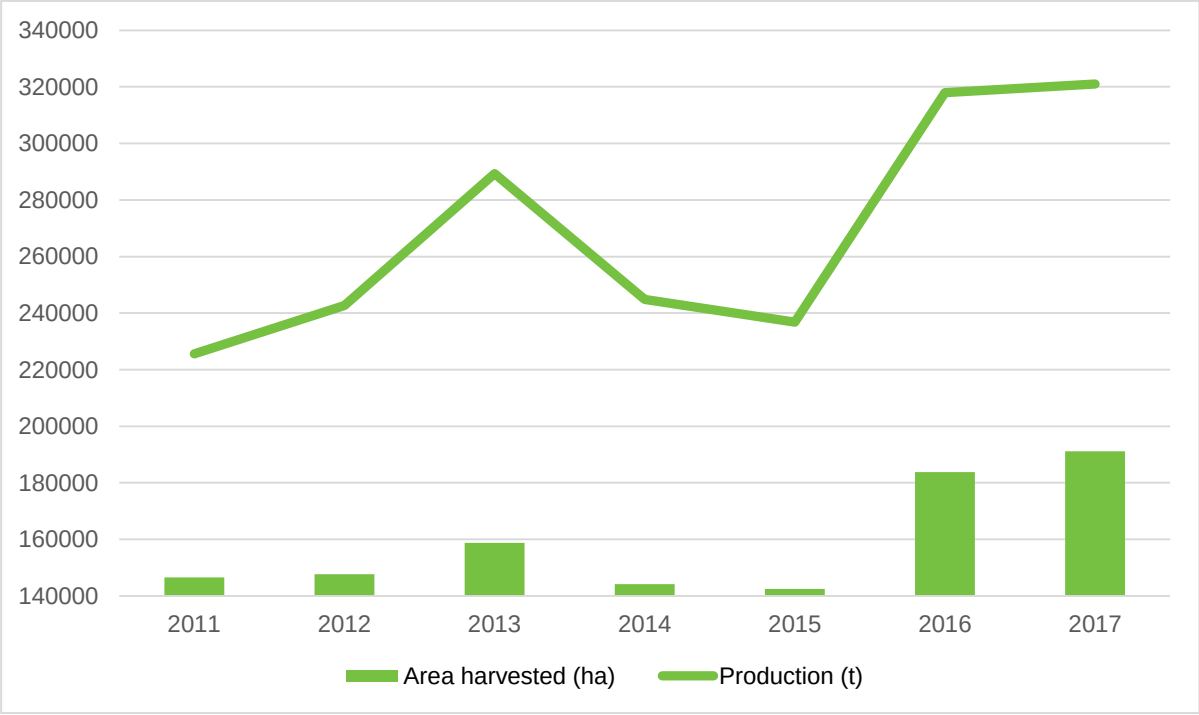


Figure 8 Trend of buckwheat production in the EU (FAOSTAT, 2019)

Buckwheat belongs to the healthy food grains where the consumer's demand has been increasing. It is naturally gluten-free with a high content of rutin which positively influences blood circulation and vessels etc. Buckwheat has a big potential in organic agriculture due to the lower demands on the soil conditions and its capability to improve the accessibility of phosphorus for the next crop. The

phosphorus deficiency might be a big problem in crop production not only in the organic environment in the future.

The main breeding programmes are in China, Korea, Japan, Poland, Russia, and Ukraine. In these countries, there are numerous landraces and many of them have been collected and used for selection and even variety testing. Thousands of buckwheat accessions are stored in gene banks worldwide. For better handling of the accessions, the core collection has been created for further breeding by partners SZG, KIS and RGA and evaluation of selected traits (CRI, UViGO). According to the international agreements, countries may regulate access to their genetic resources, which may cause a limited access to the genebank accessions. In the case of the buckwheat, the biggest buckwheat collections are in China and in Russia. However, China regulates access to their genetic resources and Russian access is limited. For that reason, the accessions only from the free access sites were used as a source of buckwheat accessions.

Although buckwheat has been a traditional crop for a lot of countries within the EU (Poland, Slovakia, Slovenia, the Czech Republic, France etc.) it has received relatively little attention from the breeding companies. In the past, there were several breeding activities in the Czech Republic, Poland, and Slovakia etc. However, nowadays, the knowledge of the current situation is limited. The most problematic characters of the crop are lodging, seed shattering, and low yields. These handicaps might partly be solved by improved cropping techniques and a proper breeding programme.

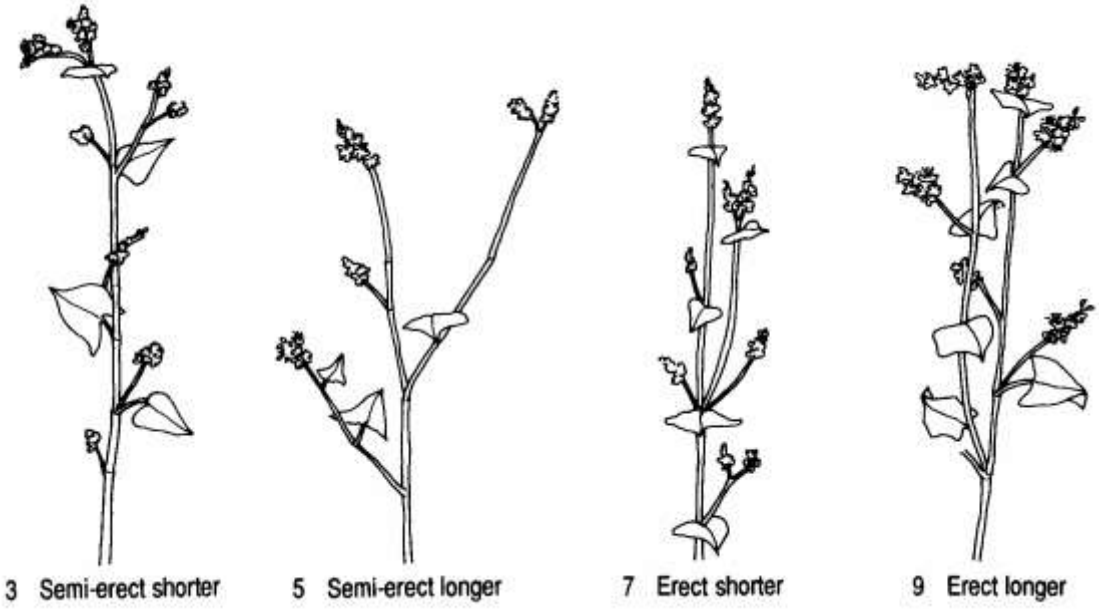
5.1. Descriptors list for common and tatary buckwheat (according to the Buckwheat descriptors list by IPGRI 1994)

Growth and branch shoot habit

Angle of branch shoot and the highest tip branch longer or shorter than main shoot. At flowering stage

3	Semi-erect shorter
5	Semi-erect longer
7	Erect shorter
9	Erect longer

D 1.2 Putative Collection of Each Target Species Identified



1. Plant height (cm)

Mean height measured from the ground level to the highest tip of shoots of at least 10 randomly chosen plants at physiological maturity

2. Plant branching

Average number of primary branches taken from randomly chosen plants at physiological maturity

1	Very weak (no branch)
3	Weak (2 branches)
5	Intermediate (4 branches)
7	Strong (6 branches)
9	Very strong (≥8 branches)

3. Stem colour

Recorded when 100% of plants have flowers, from middle part of main the main stem of 10 randomly chosen plants

3	Green	134B, 140B, 140C, 141D, 143D) (RGB codes – 91,177,100; 120,179,81; 150,203,126; 68,109,55; 168,187,129)
5	Pink	(38A, 38B, 39B) (RGB codes – 243,145,137; 240,170,161; 218,115,107)
7	Red	(40D, 41C, 41D) (RGB codes – 243,117,96; 242,120,110; 239,142,133)

D 1.2 Putative Collection of Each Target Species Identified

4. Leaf colour

Recorded when 100% of plants have flowers, from leaves of the middle part of the main stem

3	Green	(134B, 140B, 140C, 141D, 143D) (RGB codes – 91,177,100; 120,179,81; 150,203,126; 68,109,55; 168,187,129)
5	Pink	(38A, 38B, 39B) (RGB codes – 243,145,137; 240,170,161; 218,115,107)
7	Red	(40D, 41C, 41D) (RGB codes – 243,117,96; 242,120,110; 239,142,133)

5. Leaf number

Mean number of leaves on main stem of 10 randomly chosen plants counted when 75% of seeds turned brown

6. Petiole colour

Recorded on petioles from middle part of the main stem, at flowering stage

3	Green	(134B, 140B, 140C, 141D, 143D) (RGB codes – 91,177,100; 120,179,81; 150,203,126; 68,109,55; 168,187,129)
5	Pink	(38A, 38B, 39B) (RGB codes – 243,145,137; 240,170,161; 218,115,107)
7	Red	(40D, 41C, 41D) (RGB codes – 243,117,96; 242,120,110; 239,142,133)

7. Leaf blade length (cm)

Average length of 5 randomly chosen representative leaves from the middle part of the main stem at the widest part of leaf measured when 75% of seeds turned brown

8. Leaf blade width (cm)

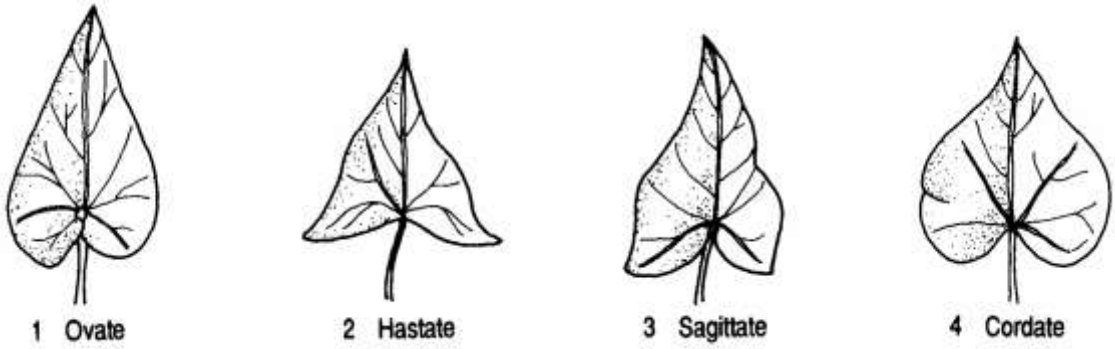
Average width of 5 randomly chosen representative leaves measured when 75% of seeds turned brown

9. Leaf blade shape

Scored on leaves from the middle part of the main stem, when 75% of seeds turned brown

1	Ovate
2	Hastate
3	Sagittate(Intermediate)
4	Cordate
5	Other(specify in the notes)

D 1.2 Putative Collection of Each Target Species Identified



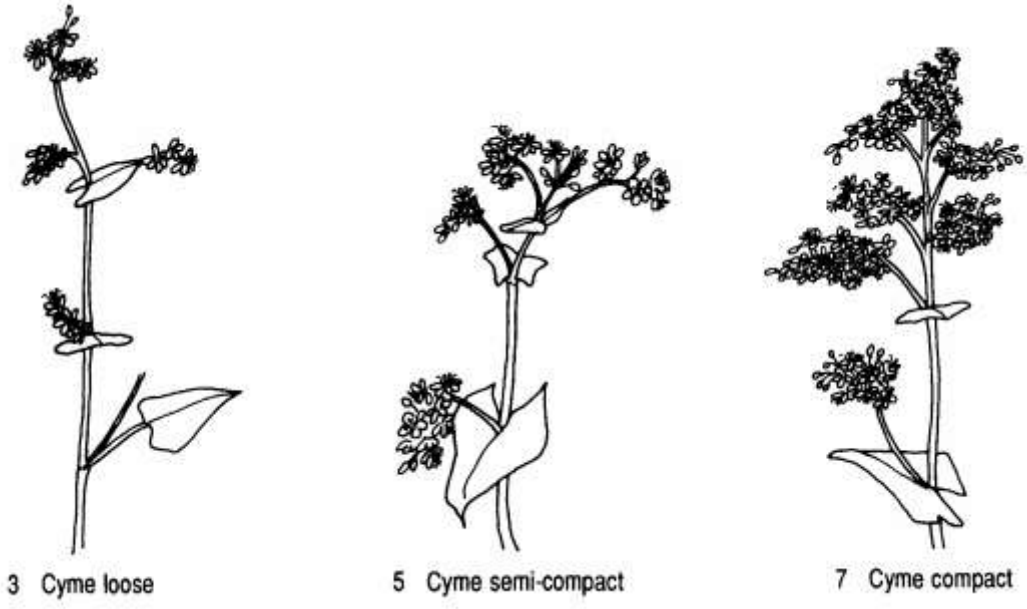
10. <u>Days to flowering</u>

Number of days from sowing to 50% of plants having fully open flowers

11. <u>Compactness of inflorescence</u>

Average of 10 randomly chosen plants

3	Cyme loose
5	Cyme semi-compact
7	Cyme compact



12. <u>Colour of inflorescence stalk</u>

Recorded when 75% of seeds turned brown

3	Green	(134B, 140B, 140C, 141D, 143D) (RGB codes – 91,177,100; 120,179,81; 150,203,126; 68,109,55; 168,187,129)
5	Pink	(38A, 38B, 39B) (RGB codes – 243,145,137; 240,170,161; 218,115,107)
7	Red	(40D, 41C, 41D) (RGB codes – 243,117,96; 242,120,110; 239,142,133)

D 1.2 Putative Collection of Each Target Species Identified

13. Number of flowers clusters per cyme

Average number of flowers clusters of two representative cymes from five representative plants. Recorded when 75% of seeds turned brown

14. Flower colour

Recorded at the active flowering stage

1	White	
3	Greenish-yellow	(149B, 149C, 150B, 150C) (RGB codes – 198,212,102; 204,221,125; 219,212,85; 223,221,112)
5		
7	Pink	(38A, 38B, 39B) (RGB codes – 243,145,137; 240,170,161; 218,115,107)
9	Red	(40D, 41C, 41D, 42B, 42C) (RGB codes – 243,117,96; 242,120,110; 239,142,133; 193,75,63; 210,86,72)

15. Days to maturity

Actual number of days between sowing and physiological maturity (75% of seeds turned brown)

1	Very early (<60 days)
2	Early (60-75 days)
3	Intermediate (76-90 days)
4	Late (91-105 days)
5	Very late (> 106 days)

16. Number of seeds per cyme

Average number of seeds per two representative cymes each from five different plants. Recorded when 75%.

17. Seed colour

3	Grey	(199C, 199D) (RGB codes – 164,138,107; 176,151,123)
5	Brown	(200D) (RGB codes – 114,80,65)
7	Black	(202B) (RGB codes – 112,116,118)
9	Mottled	

18. Seed shape

1	Triangular
2	Ovate (Intermediate)
3	Conoidal
4	Other (specify in the notes)

D 1.2 Putative Collection of Each Target Species Identified

1 Triangular

2 Ovate

3 Conoidal

19. Seed surface

1	Smooth
2	Irregular or wrinkled
3	Other (specify in the notes)

20. Seed coat colour

Degree of green of seed coat, husked achenes

1	Greenish-yellow	(144C, 144D, 145B, 148D) (RGB codes – 172,173,78; 194,203,127;184,190,110; 170,172,136)
2	Light green	(128D, 129D, 130D) (RGB codes – 198,221,202; 178,216,191; 201,221,197)
3	Green	(134D, 140C, 141D, 143D) (RGB codes – 167,210,165; 150,203,126; 158,184,108; 168,187,129)

21. 1000-seed weight (g)

22. Crude protein content

23. Rutin content (achenes)

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ANNEX

Table 1: List of *winter wheat genotypes* included in the ECOBREED putative collection

Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
121-11z 2b 2	.	BL	DE, Secobra		
261-05z 1-2	.	BL	DE, Secobra	bunt resistance, mainly for crossings	
290-08 1 1a	.	BL	DE, Secobra	high yielding, low protein	
313-10z 2a 4 1	.	BL	DE, Secobra		
315-10 6a 23 14	.	BL	DE, Secobra		
A15	1933	old variety	RO, ICAR	main cultivar in the 1940s	
ACHAT	.	Deleted from List	AT, Probstdorfer Saatzucht	longterm check in German organic trials; good quality E despite 1B/1R translocation	http://www.probstdorfer.at/
ADELINA	2012	List: RO	RO, ARS Simnic	Relatively good results in organic yield trials	
AKTEUR	2004	List: DE, CZ, EE, LT, LU, NO, PL	DE, DSV	high baking quality E, good adaptability, recommended bio-variety Germany	https://www.dsv-saaten.de/getreide/winterweizen/sorten/akteur.html
ALESSIO	2016	List: AT	AT, Saatzucht Donau	baking quality 7	http://www.saatzucht-donau.at/
ALEX	1994	List: RO, HU	RO, ARS Lovrin	Relatively good results in organic yield trials	
ANAPURNA	2013	List: HU, RO, BG, IT	FR, Limagrain	good yellow rust tolerance	
ANNIE	2014	List: CZ	CZ, Selgen		https://selgen.cz/
ANTONIUS	2003	List: AT, FR, SI, HR,	AT, Saatzucht Donau	high quality; broad adaptation; BioNet longterm variety	http://www.saatzucht-donau.at/
ARGUMENT	2018	List: DE	DE, Streng- Engelen	long planthight	
ARISTARO	2016	List: DE	DE, Dottenfelderhof	organic variety; excellent quality; bunt resistance; excellent weed competitiveness	https://www.dottenfelderhof.de/

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Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
ARMINIUS	2016	List: AT	AT, Saatzucht Donau	organic VCU; baking quality 7	http://www.saatzucht-donau.at/
ARNOLD	2009	List: AT	AT, Saatzucht Donau	high protein content; unstable yield performance	http://www.saatzucht-donau.at/
ASORY	2018	List: DE	DE, Secobra	High baking volume at low protein content, drought resistance?	
ASTARDO	2003	List: AT	AT, Saatzucht Donau	baking quality 7; BioNet longterm variety	http://www.saatzucht-donau.at/
ASZITA	2005	List: DE	CH, Peter Kunz	organic variety; good quality	https://www.gzpk.ch/
ATARO	2004	List: CH	CH, Peter Kunz	organic variety; lodging tolerant; limited quality	https://www.gzpk.ch/
AURELIUS	2016	List: AT, HU, SK	AT, Saatzucht Donau	tall - excellent weed suppression, good tolerance to *S. nodorum, S. tritici* and *Fusarium* spp., high yields	http://www.saatzucht-donau.at/
AXIOMA	2014	List: DE, LU	DE, Secobra	Conventional variety with good yield, used in organic farming in France	https://www.secobra.de/
BÁNKÚTI-1201	1931	old variety	HU	old Hungarian variety, it is still grown in organic, very high protein content (15.8%), but: low yield, lodging	
BARETTA	2016	List: CH	CH, Agroscope/DSP	good disease resistance; limited resistance to *Fusarium*	https://www.agroscope.admin.ch/agroscope/de/home.html
BARRANCO	2016	List: DE, LU	DE, Secobra	Conventional variety with good results under organic conditions	https://www.secobra.de/
BC LIRA	2009	List: HR	HR, BC Institute Zagreb	medium tall - good yellow rust tolerance	
BERNSTEIN	2013	List: AT, DE, CZ, LU	DE, Syngenta	excellent weed suppression, good tolerance to *Septoria nodorum, Fusarium* spp., tolerance to *S. tritici*, resiliant to lodging, good baking quality	https://www.syngenta.de/
BERTOLD	2010	List: SK	SK, Hordeum Sládkovičovo	medium early cv., good resistance to fungal diseases, E quality	https://griss.vurv.sk/
BITOP	2006	List: AT, HU, IR	AT, Saatzucht Donau	organic VCU test; baking quality 7	http://www.saatzucht-donau.at/
BONA VITA	2011	List: SK	SK, Istropol Solary	Glu Score 8, high baking quality E, resistance	https://griss.vurv.sk/

Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
				to leaf rust	
BRANDEX	2016	List: DE	DE, Dottenfelderhof	organic CCP; yellow rust and bunt resistance	https://www.dottenfelderhof.de/
BUSSARD	1998	List: DE, LT, LU, LV	DE, KWS Lochow	long term organic check variety in Germany, baking quality E	https://www.kws.com/
BUTARO	2009	List: DE, LU	DE, Dottenfelderhof	organic variety; bunt resistance	https://www.dottenfelderhof.de/
BUTTERFLY	2017	List: CZ	CZ, Selgen		https://selgen.cz/
CAPO	1989	List: AT, HU	AT, Probstdorfer Saatzucht	good tolerance to leaf diseases-high protein content	http://www.probstdorfer.at/
CCB INGENIO	2005	List: ES	FR, CC Benoist (Syngenta)	tall - excellent weed suppression, good tolerance to *Septoria nodorum, Fusarium* spp., high yields	
CH CLARO	2007	List: CH	CH, Agroscope/DSP	high baking quality	https://www.agroscope.admin.ch/agroscope/de/home.html
COLONIA	2011	List: HU, BE, DE, LU	DE, Limagrain	best results in organic tests in Washington State (US)	
CURIER	.	BL - 3rd year VCU	DE, Dottenfelderhof	organic bred; high yield with excellent resistance to yellow rust and *Tilletia*	https://www.dottenfelderhof.de/
DACIA	1971	List: RO	RO, NARDI Fundulea	Tall, vigorous	http://www.incda-fundulea.ro/index_en.html
DAGMAR	2012	List: CZ, HU, BG, LT, RO, SK	FR, Limagrain		http://lc.lgseeds.cz/
DONNATO	2008	List: AT	AT, Saatzucht Piatti	organic variety, best weed competitiveness in Austrian organic VCU trial	
DROPIA	1993	List: RO	RO, NARDI Fundulea	High quality	http://www.incda-fundulea.ro/index_en.html
EDELMANN	2017	List: AT	AT, LFS Edelhof	organic VCU; baking quality 7	
EHOGOLD	2014	List: AT	AT, LFS Edelhof	baking quality 8; excellent test weight	
ELAN	2012	List: CZ	FR, RAGT Semences	medium tall - excellent weed suppression	

Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
ELIXER	2012	List: DE, LU, NL	DE, W. von Borries- Eckendorf	Recommended by Bavarian state institute for organic farming. Bad resistance to bunt.	
ERLA KOLBEN	1961	List: AT	AT, Kärntner Saatbau	old variety, highest baking quality (group 9)	
ESTEVAN	2005	List: AT, LU	AT, LFS Edelhof	good quality, stable yields under organic	
EVROPA 90	1990	List: RS	RS, IFVC	medium tall - good yellow rust tolerance	http://www.ifvcns.rs/
F 49	.	LR	SK, ŠS Sladkovičovo (Hordeum s.r.o.)	old Slovakian landrace, very tall, resistance to *Fusarium*	https://griss.vurv.sk/
FARINELLI	2006	List: FR, HR, IT	FR, KWS Momont SAS	medium tall - good rust tolerance	
FDL MIRANDA	2011	List: RO	RO, NARDI Fundulea	Relatively good results in organic yield trials; low protein content	http://www.incda-fundulea.ro/index_en.html
FDLGPC1	.	BL	RO, NARDI Fundulea	High protein content (*Gpc1 carrier)*	http://www.incda-fundulea.ro/index_en.html
FDLGPC2	.	BL	RO, NARDI Fundulea	High protein content (*Gpc1 carrier)*	http://www.incda-fundulea.ro/index_en.html
FLAMENKO	2010	List: FR	FR, Agri-Obtentions/INRA	good quality, resistance against *Septoria*; recommended bio-variety in France	
FLORIAN	2010	List: DE, LU	DE, Nordsaat	excellent quality (class E); recommended bio-variety Bavaria	
FOLKLOR	2010	List: FR	FR, Agri-Obtentions/INRA	organic programme	
FUNDULEA 4	1987	List: RO	RO, NARDI Fundulea	Better ground cover	http://www.incda-fundulea.ro/index_en.html
GENIUS	2010	List: DE, CZ, HU	DE, Nordsaat	conventional variety; high baking quality; good bunt resistance	
GENOVEVA	2006	List: SK	SK, Hordeum Sládkovičovo	late cv., higher plant height, long and wide leaves, good resistance to fungal diseases, A-B quality	https://griss.vurv.sk/
GHAYTA	2012	List: FR	FR, Agri-Obtentions/INRA	resistance against mosaic virus; recommended bio-variety in France	
GLOSA	2005	List: RO, HU	RO, NARDI Fundulea	Most widely grown by organic farmers	http://www.incda-

Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
					fundulea.ro/index_en.html
GOROLKA	1990s	List: SI	SI, Anton Tajnšek	tall - good weed supression, good yields and quality in low N environment	
GOVELINO	2015	List: DE, LU	DE, GZF Darzau	organic variety; resistance against *Ustilago*; high NUE and high gluten content	
GRAZIARO	2016	List: DE	DE, Dottenfelderhof	Highest bunt resistance in German listed varieties	https://www.dottenfelderhof.de/
HENDRIX	2011	List: FR	FR, Agri-Obtentions/INRA	high test weight, organic variety from INRA Le Rheu	
IBARRA	2017	List: SK	CZ, Selgen		https://selgen.cz/
ILLICO	2010	List: FR, HR, IT	FR, Syngenta	good tolerance to *Fusarium* spp., good tillering, high yields	
ILLUSION	?	?	CZ, Selgen		https://selgen.cz/
ILONA	1989	CV	SK, Selekt Bučany		https://griss.vurv.sk/
IS AGILIS	2017	List: SK	SK, Istropol Solary	extra early cv., medium resistance to powdery mildew and leaf spots, high resistance against wheat rust, good tolerance to viruses, quality E (8-9)	https://griss.vurv.sk/; http://istropol.sk/
IS CONDITOR	2012	List: SK	SK, Istropol Solary	medium late cv., high tillering and regeneration potential, low quality (feed)	https://griss.vurv.sk/; http://istropol.sk/
IS ESCORIA	2011	CV	SK, Istropol Solary		https://griss.vurv.sk/; http://istropol.sk/
IS GORDIUS	2012	List: SK	SK, Istropol Solary	medium late cv., good resistance to diseases, E/A quality	https://griss.vurv.sk/; http://istropol.sk/
IS LAUDIS	2015	List: SK	SK, Istropol Solary	high food quality, high winter-hardiness, good disease resistance, origin: Barroko x Capo	https://griss.vurv.sk/; http://istropol.sk/
IS MANDALA	2014	List: SK	SK, Istropol Solary	medium late cv., good disease resistance, high tillering, E quality (7-8)	https://griss.vurv.sk/; http://istropol.sk/
IS SOLARIS	2016	List: SK	SK, Istropol Solary	late cv., E quality (8), good disease resistance	https://griss.vurv.sk/; http://istropol.sk/
IULIA	1974	List: RO	RO, NARDI Fundulea	Relatively tall	http://www.incda-fundulea.ro/index_en.html

Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
IZALCO CS	2015	List: IT, FR, HR	FR, Caussade Semences	semi tall with good tillering - good weed suppression, good tolerance to *S. nodorum*, *Fusarium* spp., good tolerance to yellow rust, high yields	
IZVOR	2008	List: RO	RO, NARDI Fundulea	Relatively good results in organic yield trials; drought resistant	http://www.incda-fundulea.ro/index_en.html
JUGOSLAVIJA	1980	List: RS	RS, IFVC	medium tall - good yellow rust tolerance	http://www.ifvcns.rs/
JULARO	2011	List: DE	DE, Dottenfelderhof	organic variety; good quality; resistant to *Ustilago*, medium resistant to *Tilletia*	https://www.dottenfelderhof.de/
JUNO	2017	List:SK	SK, Selekt Bučany	early cv., high food quality	https://griss.vurv.sk/
KM1	.	BL	CZ, Agrotest		https://www.vukrom.cz/cz/agrotest-fyto-s-r-o.html
KM108	.	BL	CZ, Agrotest		https://www.vukrom.cz/cz/agrotest-fyto-s-r-o.html
KWS CRISPIN	2014	List: UK	UK, KWS UK	high yield in UK organic trials	http://www.kws-uk.com/
KWS MILANECO	2013	List: DE, LU	DE, KWS Lochow	high quality (class E); recommended in Bavaria	https://www.kws.com/
KWS SISKIN	2014	List: UK	UK, KWS UK	highest yield in UK in organic trials	http://www.kws-uk.com/
KWS ZYATT	2015	List: UK, DK	UK, KWS UK	highest protein content in UK organic trials, high yield	http://www.kws-uk.com/
LENNOX	2011	List: UK, FR, AT, DE, FI, LU	DE, Strube	baking quality 7; good adaptation; high yields in BioNet trials	https://www.strube.net/
LIOCHARLS	2016	List: DE	DE, Dottenfelderhof	organic CCP; good baking quality; good resistances	https://www.dottenfelderhof.de/
LISETA	2018	List: SK	CZ, Selgen		https://selgen.cz/
LITERA	2010	List: RO	RO, NARDI Fundulea	relatively good results in organic yield trials	http://www.incda-fundulea.ro/index_en.html
LORENZO	2011	List: CH	CH, Agroscope/DSP	high baking quality	https://www.agroscop

Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
					e.admin.ch/agroscope/de/home.html
LUDWIG	1997	List: AT, DE, CZ, HU, HR, PL, SI	AT, Probstdorfer Saatzucht	tall - excellent weed suppression	http://www.probstdorfer.at/
LUKULLUS	2008	List: AT, RO, SK	AT, Saatzucht Donau	tall - excellent weed suppression, good tolerance to *Septoria nodorum, Fusarium* spp.	http://www.saatzucht-donau.at/
MIDAS	2008	List: AT, HR, HU, SK, RS, UA, TR	AT, Saatzucht Donau	high adaptability, quality group 7	http://www.saatzucht-donau.at/
MOLINERA	2013	List: CH	CH, Agroscope/DSP	excellent quality, good weed competitiveness	https://www.agroscope.admin.ch/agroscope/de/home.html
MOSCHUS	2016	List: DE	DE, Hermann Strube	Conventional variety, New check in German org. trials	https://www.strube.net/
MULAN	2005	List: AT, BE, CZ, DE, EE, HU, LT, LU, PL, SE	DE, Nordsaat	high yielding, high adaptability to various European growing regions	https://www.saaten-union.de/
MV BÉRES	2003	List: HU	HU, MTA ATK	high grain protein content: 14,5% (mean of 46 data from the last 10 years, Kjeldahl method)	http://martongenetics.com/kalaszos-katalogus-2018/
MV BOJTÁR	2014	List: HU	HU, MTA ATK	good yield results in organic trials, GPC:12,2%	http://martongenetics.com/kalaszos-katalogus-2018/
MV EMESE	2000	List: HU	HU, MTA ATK	good *Fusarium* resistance	http://martongenetics.com/kalaszos-katalogus-2018/
MV KARÉJ	2011	List: HU	HU, MTA ATK	good baking quality, high protein content (13%), good adaptability to different growing conditions	http://martongenetics.com/kalaszos-katalogus-2018/
MV KARIZMA	2009	List: HU	HU, MTA ATK	high protein variety (GPC:13,7%), facultative type	http://martongenetics.com/kalaszos-katalogus-2018/
MV KEPE	2014	List: HU	HU, MTA ATK	good yield results in organic trials, GPC: 12,4%, leaf rust and yellow rust tolerance	http://martongenetics.com/kalaszos-katalogus-2018/
MV KOLO	2006	List: HU, HR, RO	HU, MTA ATK	high protein variety (GPC:13,7%)	http://martongenetics.

Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
					com/kalaszos-katalogus-2018/
MV KOLOMPOS	2009	List: HU, HR	HU, MTA ATK	high gluten content, good baking quality in extensive production, good results in organic yield trials, GPC: 13,3%	http://martongenetics.com/kalaszos-katalogus-2018/
MV LUCILLA	2007	List: HU	HU, MTA ATK	excellent adaptability, very good performance and yield in organic trials, GPC: 12,5%	http://martongenetics.com/kalaszos-katalogus-2018/
MV MAGDALÉNA	1996	List: HU	HU, MTA ATK	high protein content (13,7%), old variety, today it is recommended for extensive conditions	http://martongenetics.com/kalaszos-katalogus-2018/
MV MENROT	2014	List: HU	HU, MTA ATK	very good tolerance to leaf, yellow and stem rust, high yielding variety, GPC: 12,5 %	http://martongenetics.com/kalaszos-katalogus-2018/
MV MENUETT	2009	List: HU	HU, MTA ATK	high GPC: 13,8%, good adaptability	http://martongenetics.com/kalaszos-katalogus-2018/
MV NEMERE	2013	List: HU	HU, MTA ATK	high yielding, early variety with good quality, GPC: 12,6%	http://martongenetics.com/kalaszos-katalogus-2018/
MV PÁNTLIKA	2012	List: HU	HU, MTA ATK	very good tolerance to wheat diseases (fusarium, yellow rust), good quality, GPC: 12,6%	http://martongenetics.com/kalaszos-katalogus-2018/
MV SUBA	2002	List: HU, HR	HU, MTA ATK	high GPC: 13,9%, premium quality	http://martongenetics.com/kalaszos-katalogus-2018/
MV TALLER	2010	List: HU	HU, MTA ATK	grain size, good milling quality	http://martongenetics.com/kalaszos-katalogus-2018/
MV TOBORZÓ	2003	List: HU	HU, MTA ATK	very early variety, excellent baking quality, high grain protein content (13,8%)	http://martongenetics.com/kalaszos-katalogus-2018/
MV UNCIA	2017	List: HU	HU, MTA ATK	new variety with good protein content (13%), good performance in organic trials	http://martongenetics.com/kalaszos-katalogus-2018/

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MV VERBUNKOS	2001	List: HU	HU, MTA ATK	high grain protein content: 14,1 % (mean of 25 data from the last 10 years, Kjeldahl method)	http://martongenetics.com/kalaszos-katalogus-2018/
MV05-15	.	BL	HU, MTA ATK	variety candidate, high yield in organic trials, GPC: 12,3%	http://martongenetics.com/kalaszos-katalogus-2018/
MV-ELITE-CCP	.	BL	HU, MTA ATK	composite cross population produced by MTA ATK	http://martongenetics.com/kalaszos-katalogus-2018/
NATURASTAR	2002	Deleted from List	DE, Saatzucht Schweiger	Longlisting organic variety (2002- 2017)	http://saatzucht-schweiger.de/sorten/
NELSON	2011	List: DE, LU	DE, Saatzucht Schweiger	high quality, tall, good results in UK organic trials	http://saatzucht-schweiger.de/sorten/
NIC0017	.	BL	CZ, Limagrain		http://lgseeds.cz/
NIKOL	2008	List: CZ, RO, BG	FR, Limagrain Verneuil	medium tall - good yellow rust tolerance	
NOVY ZIVOT	.	LR	SK	old Slovakian landrace, resistance to *Fusarium*	https://griss.vurv.sk/
NS 40S	2006	List: RS	RS, IFVC	good tillering and yellow rust tolerance	http://www.ifvcns.rs/
NS EFROSINA	2015	List: RS	RS, IFVC	medium tall - good yellow rust tolerance	http://www.ifvcns.rs/
NS FRAJLA	2016	List: RS	RS, IFVC	good tillering - excellent weed suppression	http://www.ifvcns.rs/
NS ILINA	2010	List: RS	RS, IFVC	medium tall - excellent weed suppression	http://www.ifvcns.rs/
NS MILA	2014	List: RS	RS, IFVC	medium tall - good yellow rust tolerance	http://www.ifvcns.rs/
NS OBALA	2015	List: RS	RS, IFVC	good tillering - excellent weed suppression	http://www.ifvcns.rs/
PAJURA	2014	List: RO	RO, NARDI Fundulea	Relatively good results in organic yield trials	http://www.incda-fundulea.ro/index_en.html
PENELOPE	2016	List: CZ	CZ, Selgen		https://selgen.cz/
PEPPINO	2008	List: AT	AT, Saatzucht Donau	organic VCU test; baking quality 7	http://www.saatzucht-donau.at/
PHILARO	2016	List: DE	DE, Dottenfeldelderhof	organic variety with top quality; resistant to yellow rust and bunt	https://www.dottenfelderhof.de/
PIRENEO	2004	List: AT	AT, Saatzucht Donau	organic VCU test; baking quality 7	http://www.saatzucht-donau.at/

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Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
PIRUETA	?	?	CZ, Saaten Union		https://www.saaten-union.cz/
PITAR	2015	List: RO	RO, NARDI Fundulea	Higher grain protein content and bread making quality	http://www.incda-fundulea.ro/index_en.html
PIZZA	2012	List: CH	CH, Peter Kunz	organic variety, top quality	https://www.gzpk.ch/
POESIE	2015	List: CH	CH, Peter Kunz	organic variety, soft gluten quality	https://www.gzpk.ch/
PREMIO	2011	List: FR	FR, RAGT Semences	good yellow rust tolerance	
PRIM	2018	List: CH	CH, Peter Kunz	new organic variety	https://www.gzpk.ch/
PROFUND	.	BL	RO, NARDI Fundulea	High protein content; Consistent positive deviation from regression yield-protein	http://www.incda-fundulea.ro/index_en.html
PS DOBROMILA	2018	List: SK	SK, NPPC Vígľaš-Pstruša	high food quality, very good disease resistance	https://griss.vurv.sk/
PS JELDKA	2015	CV	SK, NPPC Vígľaš-Pstruša		https://griss.vurv.sk/
PS KVALITAS	2017	List: SK	SK, NPPC Vígľaš-Pstruša	Glu Score 10, high baking quality E, good resistance to powdery mildew and brown rust	https://griss.vurv.sk/
PS PUQA	2015	List: SK	SK, NPPC Vígľaš-Pstruša	A-E quality, good resistance to leaf and ear pathogens	https://griss.vurv.sk/
PURINO	2018	List: DE	DE, Secobra	Organic Variety, good resistance, good yield, good quality	https://www.secobra.de/
RADOSINSKA KAROLA	1938	old variety	SK, ŠS Radošina	RY: 1938-1960, obsolete cv., less rust resistant	https://griss.vurv.sk/
RADOSINSKA NORMA	1937	old variety	SK, ŠS Radošina	RY: 1937-1945, obsolete cv., less resistant to diseases, very tall	https://griss.vurv.sk/
RENAN	1989	List: FR, AT, BE, BG, DE, HR, RO, SI	FR, INRA Le Rheu, Rennes	high adaptability, high quality, popular under organic farmers, good resistance against diseases	
RESKA	1990s	List: SI	SI, Anton Tajnšek	tall - good weed supression, good yields and quality in low N environment	
RGT LAUROTT	2017	List: SK	CZ, RAGT		https://ragt-osivo.cz/cs-CZ/ragt-czech-sro

Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
RODERIK	2018	List: DE	DE, K.-J. Müller, Darzau	Organic variety (awns) very long, good groundcover and early vigour	
ROYAL	2015	List: CH	CH, Peter Kunz	organic variety, good NUE	https://www.gzpk.ch/
RUNAL	1995	List: CH, FR	CH, Agroscope/DSP	high quality; very high wet gluten content	https://www.agroscope.admin.ch/agroscope/de/home.html
SANDOMIR	2010	List: DE	DE, Karl- Josef Müller	organic variety, excellent baking quality (class E)	
SAVINJA	1990s	List: SI	SI, Anton Tajnšek	tall - good weed supression, good yields and quality in low N environment	
SCARO	2006	List: CH	CH, Peter Kunz	organic variety, top quality	https://www.gzpk.ch/
SEMNAL	2017	List: RO	RO, NARDI Fundulea	Apparent tolerance to low N	http://www.incda-fundulea.ro/index_en.html
SG-S1004-18	.	BL	CZ, Selgen		https://selgen.cz/
SG-S269-09	.	BL	CZ, Selgen		https://selgen.cz/
SIALA	2005	List: CH	CH, Agroscope/DSP	recommended bio-variety in Switzerland; limited weed competitiveness	https://www.agroscope.admin.ch/agroscope/de/home.html
SIMNIC 60	2017	List: RO	RO, ARS Simnic	Relatively good results in organic yield trials	
SKAGEN	2006	List: DE, EE, FI, LT, LU, LV, PL, NO, SK	DE, Borries-Eckendorf	high baking quality E, good adaptability, recommended bio-variety Germany	https://www.wvb-eckendorf.de/
SKERZZO	2011	List: FR	FR, Agri-Obtentions/INRA	excellent baking quality; high protein content; organic variety from INRA Le Rhe	
SLOVENSKA 200	1946	old variety	SK, Hordeum s.r.o.	1946-1967, medium rust resistance	https://griss.vurv.sk/
SOFRU	2002	List: FR, HR, IT	FR, Caussade Semences	good tillering - excellent weed suppression	
SOLEHIO	2006	List: FR, HR, IT	FR, KWS Momont SAS	medium tall - good yellow rust tolerance	
SPONTAN	2014	List: DE, AT, LU	DE, Secobra	High resistance (bunt), bad in wet gluten	https://www.secobra.de/
STANISLAVA	2005	List: SK	SK, Selekt Bučany	medium early cv., A-E quality, drought tolerance, winter-hardiness	https://griss.vurv.sk/
STAPARKA	1986	List: RS	RS, IFVC	good yellow rust tolerance	http://www.ifvcns.rs/

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Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
STEFANUS	2005	List: AT	AT, Saatzucht Donau	organic VCU test; baking quality 7	http://www.saatzucht-donau.at/
STUPICKÁ BASTARD	.	PGR	CZ, VURV		https://grinczech.vurv.cz/gringlobal/search.aspx
SULTAN	2008	List: CZ, SK	CZ, Selgen		https://selgen.cz/
SUNNYBOY	2017	List: AT, SK	CZ, RAGT		https://ragt-osivo.cz/cs-CZ/ragt-czech-sro
SURETTA	2008	List: CH	CH, Agroscope/DSP	good milling quality	https://www.agroscope.admin.ch/agroscope/de/home.html
TATA MATA	2017	List: HR	HR, Poljoprivredni Institut Osijek	good tolerance to *Septoria nodorum, Fusarium* spp., good tolerance to yellow rust, high yields	https://www.poljinos.hr/
TENGRI	2007	List: CH	CH, Peter Kunz	organic variety, top quality	https://www.gzpk.ch/
THOMARO	2018	List: DE	DE, Dottenfelderhof	organic variety, top quality, resistance to yellow and leaf rust, *Tilletia* and *Ustilago*	https://www.dottenfelderhof.de/
TILLIKO	2016	List: AT, DE	DE, GZF Darzau	organic variety; baking quality 7; *Tilletia* resistance (BtZ)	
TITLIS	2002	List: CH, FR	CH, Agroscope/DSP	excellent baking quality; good organic results in CH	https://www.agroscope.admin.ch/agroscope/de/home.html
TOBIAS	2011	List: AT	AT, Saatzucht Donau	organic VCU; late maturity, high protein content, baking quality 8	http://www.saatzucht-donau.at/
TREBELIR	2016	List: DE	DE, GZF Darzau	organic variety; resistance against leaf diseases, *Tilletia* & *Ustilago*	
TURANDOT	2012	List: CZ	CZ, Selgen		https://selgen.cz/
UNITAR	.	BL	RO, NARDI Fundulea	Relatively good results in organic yield trials; low protein content	http://www.incda-fundulea.ro/index_en.html
URSITA	.	BL	RO, NARDI Fundulea	Bunt resistant from S*ecale.* Relatively good results in organic yield trials	http://www.incda-fundulea.ro/index_en.html

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Variety name	Year of release	Status	Origin (Country, Breeder)	Traits for selection	Source
VIKI	2016	List: SK, DE	CZ, Selgen		https://selgen.cz/
VIOLA	2010	List: SK	SK, Hordeum Sládkovičovo	early cv., A-B quality, good-medium resistance to fungal diseases	https://griss.vurv.sk/
VLASTA	1992	List: CZ	CZ, VURV		https://grinczech.vurv.cz/gringlobal/search.aspx
VULKAN	2009	List: HR, SI	HR, Poljoprivredni Institut Osijek	good weed suppression, good tolerance to *Septoria nodorum, S. tritici* and *Fusarium* spp., high yields (medium quality class)	https://www.poljinos.hr/
WENDELIN	2018	List: DE	DE, Secobra	Organic Variety, good resistance, very good yield, good quality	https://www.secobra.de/
WITAL	2018	List: CH	CH, Peter Kunz	new organic variety	https://www.gzpk.ch/
WIWA	2005	List: CH	CH, Peter Kunz	Recommended by Bavarian state institute for organic farming	https://www.gzpk.ch/
XT 9.23	2017	CV - passed VCU testing	SI, Primož Titan	excellent weed suppression, good tolerance to S*. nodorum, Fusarium* spp. and *Septoria tritici*, good quality	
ZVEZDA	1982	List: RS	RS, IFVC	good yellow rust tolerance-high protein content	http://www.ifvcns.rs/

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Table 2: List of *potato genotypes* included in the ECOBREED putative collection

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Netherlands	C. Meijer B.V.	n.a.	Solanum tuberosum	ACUSTIC	Potato	n.a.	Netherlands	late blight resistance	http://www.meijer-potato.com/en-index.php
Germany	Norika GmbH	n.a.	Solanum tuberosum	ADDRETA	Potato	n.a.	Germany	breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
United Kingdom		n.a.	Solanum tuberosum	ADELINA	Potato	n.a.	United Kingdom	Bioland Germany - for organic production	
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	AFRA	Potato	n.a.	Germany	breeders preference for organic production	https://www.europlant.biz/home/
Netherlands	Agrico	n.a.	Solanum tuberosum	AGATA	Potato	n.a.	Netherlands	organic variety in Austria	https://www.agrico.nl/
Denmark	Danespo	n.a.	Solanum tuberosum	AGILA	Potato	n.a.	Denmark	Bioland Germany - for organic production	http://www.danespo.com/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	AGRIA	Potato	n.a.	Germany	organic variety in Austria	https://www.europlant.biz/home/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	ALLIANS	Potato	n.a.	Germany	late blight resistance, breeders preference for organic production	https://www.europlant.biz/home/
Netherlands	Agrico	n.a.	Solanum tuberosum	ALMERA	Potato	n.a.	Netherlands	ADHB organic list	https://www.agrico.nl/
Netherlands	Agrico	n.a.	Solanum tuberosum	ALOUETTE	Potato	n.a.	Netherlands	late blight resistance, ADHB organic list	https://www.agrico.nl/

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	AMBO	Potato	n.a.	Ireland	SASA - organic seed in production	http://www.ipmpotato.com/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	AMBRA	Potato	n.a.	Netherlands	earliness	https://www.hzpc.com/
Poland	Pomorsko Mazowiecka Hodowla Ziemniaka w Strzekęcinie	n.a.	Solanum tuberosum	AMETYST	Potato	n.a.	Poland	proposed by IHAR	http://www.pmhz.pl/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	ANABELLE	Potato	n.a.	Netherlands	organic variety in Austria	https://www.hzpc.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	ANDEAN SUNSIDE	Potato	n.a.	Netherlands	late blight resistance	https://www.agrico.nl/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	ANUSCHKA	Potato	n.a.	Germany	organic variety in Austria	https://www.europlant.biz/home/
France	F. Levieil - Cooperative de lennon	n.a.	Solanum tuberosum	APOLLO	Potato	n.a.	France	organic variety in France	
United Kingdom	Caithness Potatoes Ltd	n.a.	Solanum tuberosum	ARGOS	Potato	n.a.	United Kingdom	UNEW - suitable for organics	https://www.caithnesspotatoes.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	ARIELLE	Potato	n.a.	Netherlands	earliness	https://www.agrico.nl/
United Kingdom	GB Seed Industry	n.a.	Solanum tuberosum	ARRAN VICTORY	Potato	n.a.	United Kingdom	SASA - organic seed in production	http://www.gbseeds.co.uk/
Netherlands	Agrico	n.a.	Solanum tuberosum	ARROW	Potato	n.a.	Netherlands	earliness	https://www.agrico.nl/

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Netherlands	Agrico	n.a.	Solanum tuberosum	ATHLETE	Potato	n.a.	Netherlands	late blight resistance, breeders preference for organic production, SASA - organic seed in production	https://www.agrico.nl/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	AUGUSTA	Potato	n.a.	Germany	breeders preference for organic production	https://www.europlant.biz/home/
Ireland	Jonquil Development Ltd	n.a.	Solanum tuberosum	AVALANCHE	Potato	n.a.	Ireland	ADHB organic list	
United Kingdom	Sarpo Potatoes Ltd	n.a.	Solanum tuberosum	AXONA	Potato	n.a.	United Kingdom	ADHB organic list	http://sarpo.co.uk/sarpo-potatoes/
France	Bretagne Plants	n.a.	Solanum tuberosum	AZILIS	Potato	n.a.	France	late blight resistance	http://www.plantsdebretagne.com/
Hungary	University of Pannonia, Potato Research Centre	n.a.	Solanum tuberosum	BALATON ROSZA	Potato	n.a.	Hungary	proposed by UPAN	http://englishweb.uni-pannon.hu/
United Kingdom	Cygnet PB Ltd	n.a.	Solanum tuberosum	BAMBINO	Potato	n.a.	United Kingdom	SASA - organic seed in production	https://beta.companieshouse.gov.uk/company/SC176353
Hungary	University of Pannonia, Potato Research Centre	n.a.	Solanum tuberosum	BASA	Potato	n.a.	Hungary	proposed by UPAN	http://englishweb.uni-pannon.hu/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	BELANA	Potato	n.a.	Germany	breeders preference for organic production	https://www.europlant.biz/home/
Germany	Solana GmbH	n.a.	Solanum tuberosum	BELMONDA	Potato	n.a.	Germany	SASA - organic seed in production	https://www.solana.de/home-en.html

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Netherlands	C. Meijer B.V.	n.a.	Solanum tuberosum	BIONICA	Potato	n.a.	Netherlands	late blight resistance - breeder cathalogue data	http://www.meijer-potato.com/en-index.php
Austria	NÖ Saatbaugenossenschaft R.G.M.B.H.	n.a.	Solanum tuberosum	BIONTA	Potato	n.a.	Austria	organic variety in Austria	http://www.noes.at/en/
Germany	Norika GmbH	n.a.	Solanum tuberosum	BIRGIT	Potato	n.a.	Germany	breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
Netherlands	Stet Holland	n.a.	Solanum tuberosum	BONNATA	Potato	n.a.	Netherlands	late blight resistance	https://www.stet-potato.com/
Hungary	University of Pannonia, Potato Research Centre	n.a.	Solanum tuberosum	BOTOND	Potato	n.a.	Hungary	proposed by UPAN	http://englishweb.uni-pannon.hu/
United Kingdom	GB Seed Industry	n.a.	Solanum tuberosum	BRITISH QUEEN	Potato	n.a.	United Kingdom	SASA - organic seed in production	http://www.gbseeds.co.uk/
Poland	Hodowla Ziemniaka Zamarte	n.a.	Solanum tuberosum	BZURA	Potato	n.a.	Poland	proposed by IHAR	http://www.zamarte.com/
Germany	Solana GmbH	n.a.	Solanum tuberosum	CAMPINA	Potato	n.a.	Germany	in FIBL organic tests, Switzerland	https://www.solana.de/home-en.html
Germany	Norika GmbH	n.a.	Solanum tuberosum	CAPRICE	Potato	n.a.	Germany	late blight resistance, breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
France	Germicopa	n.a.	Solanum	CAPUCUNE	Potato	n.a.	France	breeders preference	https://www.germi

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
			tuberosum					for organic production	copa.com/
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	CARA	Potato	n.a.	Ireland	late blight resistance, SASA - organic seed in production	http://www.ipmpotato.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	CAROLUS	Potato	n.a.	Netherlands	late blight resistance, ADHB organic list	https://www.agrico.nl/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	CARRERA	Potato	n.a.	Netherlands	earliness	https://www.hzpc.com/
United Kingdom	Cygnet PB Ltd	n.a.	Solanum tuberosum	CASABLANCA	Potato	n.a.	United Kingdom	SASA - organic seed in production	https://beta.companieshouse.gov.uk/company/SC176353
France	Grocep	n.a.	Solanum tuberosum	CEPHORA	Potato	n.a.	France	organic variety in France	http://plantdepommedeterre.org/index/le-comite-centre-sud
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	CHALLENGER	Potato	n.a.	Netherlands	organic variety in Switzerland	https://www.hzpc.com/
France	Germicopa	n.a.	Solanum tuberosum	CHARLOTTE	Potato	n.a.	France	breeders preference for organic production	https://www.germicopa.com/
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	COLEEN	Potato	n.a.	Ireland	ADHB organic list	http://www.ipmpotato.com/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	COLOMBA	Potato	n.a.	Netherlands	earliness	https://www.hzpc.com/
France	Comité Nord Plant	n.a.	Solanum tuberosum	COLORADO	Potato	n.a.	France	organic variety in France	https://www.potatopro.com/compani

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
									es/comite-nord-plant
Netherlands	Den Hartigh BV	n.a.	Solanum tuberosum	CONNECT	Potato	n.a.	Netherlands	late blight resistance, breeders preference for organic production	http://www.denhartigh-potato.nl/
France	Grocep	n.a.	Solanum tuberosum	COQUINE	Potato	n.a.	France	organic variety in France	http://plantdepommedeterre.org/index/le-comite-centre-sud
France	Comité Nord Plant	n.a.	Solanum tuberosum	CORRIDA	Potato	n.a.	France	organic variety in France	https://www.potatopro.com/companies/comite-nord-plant
Netherlands	Agrico	n.a.	Solanum tuberosum	COSMOS	Potato	n.a.	Netherlands	ADHB organic list	https://www.agrico.nl/
United Kingdom	Jonquil Development Ltd	n.a.	Solanum tuberosum	CRISPIN	Potato	n.a.	United Kingdom	late blight resistance - The European Cultivated Potato database	
Germany	Norika GmbH	n.a.	Solanum tuberosum	DAMARIS OO1	Potato	n.a.	Germany	breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
France	Germicopa	n.a.	Solanum tuberosum	DELILA	Potato	n.a.	France	late blight resistance, breeders preference for organic production	https://www.germicopa.com/
Poland	Hodowla Ziemniaka Zamarte	n.a.	Solanum tuberosum	DENAR	Potato	n.a.	Poland	earliness - proposed by IHAR	http://www.zamarte.com/

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	DESIREE	Potato	n.a.	Netherlands	SASA - organic seed in production	https://www.hzpc.com/
Netherlands	Agroplant Holland B.V.	n.a.	Solanum tuberosum	DIDO	Potato	n.a.	Netherlands	SASA - organic seed in production	http://www.agroplant.nl/en/
Austria	NÖ Saatbaugenossenschaft R.G.M.B.H.	n.a.	Solanum tuberosum	DITTA	Potato	n.a.	Austria	organic variety in Austria	http://www.noes.at/en/
France	Bretagne Plants	n.a.	Solanum tuberosum	EDEN	Potato	n.a.	France	organic variety in France	http://www.plantsdebretagne.com/
France	Germicopa	n.a.	Solanum tuberosum	EDONY	Potato	n.a.	France	late blight resistance, breeders preference for organic production	https://www.germicopa.com/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	ELFFE	Potato	n.a.	Germany	breeders preference for organic production	https://www.europlant.biz/home/
Netherlands	Den Hartigh BV	n.a.	Solanum tuberosum	EOS	Potato	n.a.	Netherlands	UNEW - suitable for organics	http://www.denhartigh-potato.nl/
Netherlands	Agrico	n.a.	Solanum tuberosum	ERIKA	Potato	n.a.	Netherlands	organic variety in Switzerland	https://www.agrico.nl/
Netherlands	Agrico	n.a.	Solanum tuberosum	ESCORT	Potato	n.a.	Netherlands	late blight resistance, Newcastle university - suitable for organics	https://www.agrico.nl/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	EUROSTARCH	Potato	n.a.	Germany	organic variety in Austria	https://www.europlant.biz/home/
Germany	Norika GmbH	n.a.	Solanum	FIDELIA	Potato	n.a.	Germany	breeders preference	http://contao.p211

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
			tuberosum					for organic production	230.webspaceconfig.de/index.php/kontakt.html
Germany	Solana GmbH	n.a.	Solanum tuberosum	FINESSA	Potato	n.a.	Germany	Bioland Germany - for organic production	https://www.solana.de/home-en.html
Poland	Hodowla Ziemniaka Zamarte	n.a.	Solanum tuberosum	FINEZJA	Potato	n.a.	Poland	proposed by IHAR	http://www.zamarte.com/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	FINKA	Potato	n.a.	Germany	breeders preference for organic production	https://www.europlant.biz/home/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	FORTUS	Potato	n.a.	Netherlands	breeders preference for organic production	https://www.hzpc.com/
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	GALACTICA	Potato	n.a.	Ireland	UNEW - suitable for organics	http://www.ipmpotato.com/
United Kingdom	Cygnet PB Ltd	n.a.	Solanum tuberosum	GATSBY	Potato	n.a.	United Kingdom	SASA - organic seed in production	https://beta.companieshouse.gov.uk/company/SC176353
Germany	Norika GmbH	n.a.	Solanum tuberosum	GOLDMARIE NN	Potato	n.a.	Germany	in FIBL organic tests, Switzerland	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
Germany	Solana GmbH	n.a.	Solanum tuberosum	GRANOLA	Potato	n.a.	Germany	UNEW - suitable for organics	https://www.solana.de/home-en.html
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	GUNDA	Potato	n.a.	Germany	breeders preference for organic production	https://www.europlant.biz/home/

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Austria	NÖ Saatbaugenossenschaft R.G.M.B.H.	n.a.	Solanum tuberosum	HERMES	Potato	n.a.	Austria	organic variety in Austria	http://www.noes.at/en/
Hungary	University of Pannonia, Potato Research Centre	n.a.	Solanum tuberosum	HOPEHELY	Potato	n.a.	Hungary	proposed by UPAN	http://englishweb.uni-pannon.hu/
Germany	Norika GmbH	n.a.	Solanum tuberosum	HUCKELBERRYGOLD	Potato	n.a.	Germany	breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
United Kingdom	The James Hutton Institute	n.a.	Solanum phureja	INCA BELLA	Potato	n.a.	United Kingdom	S. phureja - proposed by IHAR	https://www.hutton.ac.uk/
United Kingdom	The James Hutton Institute	n.a.	Solanum phureja	INCA DOWN	Potato	n.a.	United Kingdom	S. phureja - proposed by IHAR	https://www.hutton.ac.uk/
United Kingdom	The James Hutton Institute	n.a.	Solanum phureja	INCA SUN	Potato	n.a.	United Kingdom	S. phureja - proposed by IHAR	https://www.hutton.ac.uk/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	INNOVATOR	Potato	n.a.	Netherlands	organic variety in Switzerland	https://www.hzpc.com/
Poland	Pomorsko Mazowiecka Hodowla Ziemniaka w Strzekęcinie	n.a.	Solanum tuberosum	INWESTOR	Potato	n.a.	Poland	late blight resistance - proposed by IHAR	http://www.pmhz.pl/
Poland	Hodowla Ziemniaka Zamarte	n.a.	Solanum tuberosum	JASIA	Potato	n.a.	Poland	proposed by IHAR	http://www.zamarte.com/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	JELLY	Potato	n.a.	Germany	breeders preference for organic production	https://www.europlant.biz/home/
United Kingdom	Greenvale AP	n.a.	Solanum	JESTER	Potato	n.a.	United	SASA - organic seed	https://www.green

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
			tuberosum				Kingdom	in production	vale.co.uk/
Germany	Norika GmbH	n.a.	Solanum tuberosum	KARLENA	Potato	n.a.	Germany	organic variety in Austria	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
France	Germicopa	n.a.	Solanum tuberosum	KELLY	Potato	n.a.	France	late blight resistance, breeders preference for organic production	https://www.germicopa.com/
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	KIKKO	Potato	n.a.	Ireland	ADHB organic list	http://www.ipmpotato.com/
United Kingdom	Cygnet PB Ltd	n.a.	Solanum tuberosum	KINGSMAN	Potato	n.a.	United Kingdom	SASA - organic seed in production	https://beta.companieshouse.gov.uk/company/SC176353
United Kingdom	The James Hutton Institute	n.a.	Solanum tuberosum	KIRRIE	Potato	n.a.	United Kingdom	UNEW - suitable for organics	https://www.hutton.ac.uk/
Slovenia	Agricultural Institute of Slovenia	n.a.	Solanum tuberosum	KIS 05-204/191-2	Potato	n.a.	Slovenia	proposed by KIS	http://www.kis.si/
Slovenia	Agricultural Institute of Slovenia	n.a.	Solanum tuberosum	KIS KOKRA	Potato	n.a.	Slovenia	late blight resistance, breeders preference for organic production	http://www.kis.si/
Slovenia	Agricultural Institute of Slovenia	n.a.	Solanum tuberosum	KIS SAVINJA	Potato	n.a.	Slovenia	late blight resistance, breeders preference for organic production	http://www.kis.si/
Slovenia	Agricultural Institute of Slovenia	n.a.	Solanum tuberosum	KIS SLAVNIK	Potato	n.a.	Slovenia	earliness - proposed by KIS	http://www.kis.si/
Slovenia	Agricultural Institute	n.a.	Solanum	KIS VIPAVA	Potato	n.a.	Slovenia	earliness - proposed	http://www.kis.si/

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
	of Slovenia		tuberosum					by KIS	
Germany	Norika GmbH	n.a.	Solanum tuberosum	KOENIGSBLAU	Potato	n.a.	Germany	breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
Netherlands	Agrico	n.a.	Solanum tuberosum	KURAS	Potato	n.a.	Netherlands	organic variety in Austria	https://www.agrico.nl/
United Kingdom	Greenvale AP	n.a.	Solanum tuberosum	LADY BALFOUR	Potato	n.a.	United Kingdom	ADHB organic list	https://www.greenvale.co.uk/
Netherlands	C. Meijer B.V.	n.a.	Solanum tuberosum	LADY CHRISTL	Potato	n.a.	Netherlands	organic variety in Switzerland	http://www.meijer-potato.com/en-index.php
Netherlands	C. Meijer B.V.	n.a.	Solanum tuberosum	LADY ROSETTA	Potato	n.a.	Netherlands	organic variety in Switzerland	http://www.meijer-potato.com/en-index.php
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	LAURA	Potato	n.a.	Germany	organic variety in Austria	https://www.europlant.biz/home/
Netherlands	Agrico	n.a.	Solanum tuberosum	LEVANTE	Potato	n.a.	Netherlands	late blight resistance, breeder data	https://www.agrico.nl/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	LINDA	Potato	n.a.	Germany	SASA - organic seed in production, Bioland	https://www.europlant.biz/home/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	LISETA	Potato	n.a.	Netherlands	earliness - proposed by KIS	https://www.hzpc.com/
Poland	Hodowla Ziemniaka Zamarte	n.a.	Solanum tuberosum	LORD	Potato	n.a.	Poland	earliness - proposed by IHAR	http://www.zamarte.com/

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Germany	Norika GmbH	n.a.	Solanum tuberosum	LOREEN	Potato	n.a.	Germany	organic variety in Austria	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
Netherlands	Agrico	n.a.	Solanum tuberosum	MADELEINE	Potato	n.a.	Netherlands	organic variety in Austria	https://www.agrico.nl/
Poland	Pomorsko Mazowiecka Hodowla Ziemniaka w Strzekęcinie	n.a.	Solanum tuberosum	MAGNOLIA	Potato	n.a.	Poland	earliness - proposed by IHAR	http://www.pmhz.pl/
France	Comité Nord Plant	n.a.	Solanum tuberosum	MAÏWEN	Potato	n.a.	France	late blight resistance	https://www.potatopro.com/companies/comite-nord-plant
Poland	Hodowla Ziemniaka Zamarte	n.a.	Solanum tuberosum	MALAGA	Potato	n.a.	Poland	proposed by IHAR	http://www.zamarte.com/
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	MARABEL	Potato	n.a.	Germany	UNEW - suitable for organics	https://www.europlant.biz/home/
United Kingdom	GB Seed Industry	n.a.	Solanum tuberosum	MARIS BARD	Potato	n.a.	United Kingdom	SASA - organic seed in production	http://www.gbseeds.co.uk/
United Kingdom	GB Seed Industry	n.a.	Solanum tuberosum	MARIS PEER	Potato	n.a.	United Kingdom	SASA - organic seed in production	http://www.gbseeds.co.uk/
United Kingdom	GB Seed Industry	n.a.	Solanum tuberosum	MARIS PIPER	Potato	n.a.	United Kingdom	UNEW - suitable for organics	http://www.gbseeds.co.uk/
Netherlands	Agrico	n.a.	Solanum tuberosum	MARKIES	Potato	n.a.	Netherlands	organic variety in Switzerland	https://www.agrico.nl/

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
United Kingdom	The James Hutton Institute	n.a.	Solanum phureja	MAYAN GOLD	Potato	n.a.	United Kingdom	late blight resistance	https://www.hutton.ac.uk/
Poland	Pomorsko Mazowiecka Hodowla Ziemniaka w Strzekęcinie	n.a.	Solanum tuberosum	MAZUR	Potato	n.a.	Poland	proposed by IHAR	http://www.pmhz.pl/
Netherlands		n.a.	Solanum tuberosum	MERCURY	Potato	n.a.	Netherlands	late blight resistance - The European Cultivated Potato database	
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	MILVA	Potato	n.a.	Germany	SASA - organic seed in production	https://www.europlant.biz/home/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	MONALISA	Potato	n.a.	Netherlands	UNEW - suitable for organics	https://www.hzpc.com/
		n.a.	Solanum tuberosum	MONTANA	Potato	n.a.		late blight resistance - The European Cultivated Potato database	
Germany	Solana GmbH	n.a.	Solanum tuberosum	NATASHA	Potato	n.a.	Germany	earliness - proposed by IHAR	https://www.solana.de/home-en.html
United Kingdom	GB Seed Industry	n.a.	Solanum tuberosum	NICOLA	Potato	n.a.	United Kingdom	SASA - organic seed in production	http://www.gbseeds.co.uk/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	NOBLESSE	Potato	n.a.	Netherlands	breeders preference for organic production	https://www.hzpc.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	NOFY	Potato	n.a.	Netherlands	late blight resistance, breeder data	https://www.agrico.nl/

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Poland	Hodowla Ziemniaka Zamarte	n.a.	Solanum tuberosum	OBERON	Potato	n.a.	Poland	proposed by IHAR	http://www.zamarte.com/
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	ORLA	Potato	n.a.	Ireland	ADHB organic list	http://www.ipmpotato.com/
United Kingdom	Caithness Potatoes Ltd	n.a.	Solanum tuberosum	OSPREY	Potato	n.a.	United Kingdom	ADHB organic list	https://www.caithnesspotatoes.com/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	OSTARA	Potato	n.a.	Netherlands	organic variety in Austria	https://www.hzpc.com/
United Kingdom		n.a.	Solanum tuberosum	OTHELLO	Potato	n.a.	United Kingdom	UNEW - suitable for organics	
Germany	EUROPLANT Pflanzenzucht GmbH	n.a.	Solanum tuberosum	OTOLIA	Potato	n.a.	Germany	breeders preference for organic production	https://www.europlant.biz/home/
Poland	Pomorsko Mazowiecka Hodowla Ziemniaka w Strzekęcinie	n.a.	Solanum tuberosum	OWACJA	Potato	n.a.	Poland	earliness - proposed by IHAR	http://www.pmhz.pl/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	PANAMERA	Potato	n.a.	Netherlands	breeders preference for organic production	https://www.hzpc.com/
Ireland	Jonquil Development Lltd	n.a.	Solanum tuberosum	PARAMOUNT	Potato	n.a.	Ireland	ADHB organic list	
United Kingdom	The James Hutton Institute	n.a.	Solanum tuberosum	PARU	Potato	n.a.	United Kingdom	late blight resistance	https://www.hutton.ac.uk/
France	Bretagne Plants	n.a.	Solanum tuberosum	PASSION	Potato	n.a.	France	organic variety in France	http://www.plantsdebretagne.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	PICASSO	Potato	n.a.	Netherlands	UNEW - suitable for organics	https://www.agrico.nl/

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
United Kingdom	Cygnet PB Ltd	n.a.	Solanum tuberosum	PINK GIPSY	Potato	n.a.	United Kingdom	SASA - organic seed in production	https://beta.companieshouse.gov.uk/company/SC176353
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	PRADA	Potato	n.a.	Netherlands	earliness - proposed by KIS	https://www.hzpc.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	PREMIERE	Potato	n.a.	Netherlands	ADHB organic list	https://www.agrico.nl/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	PRIMABELLE	Potato	n.a.	Netherlands	earliness	https://www.hzpc.com/
Germany	Solana GmbH	n.a.	Solanum tuberosum	PRINCESS	Potato	n.a.	Germany	late blight resistance	https://www.solana.de/home-en.html
Netherlands	Kweekbedrijf Prummel BV	n.a.	Solanum tuberosum	PRODUCENT	Potato	n.a.	Netherlands	UNEW - suitable for organics	
United Kingdom	GB Seed Industry	n.a.	Solanum tuberosum	RECORD	Potato	n.a.	United Kingdom	SASA - organic seed in production	http://www.gbseeds.co.uk/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	RESY	Potato	n.a.	Netherlands	organic variety in France	https://www.hzpc.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	RIVIERA	Potato	n.a.	Netherlands	earliness	https://www.agrico.nl/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	ROBINTA	Potato	n.a.	Netherlands	SASA - organic seed in production	https://www.hzpc.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	ROMANO	Potato	n.a.	Netherlands	ADHB organic list	https://www.agrico.nl/

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	ROOSTER	Potato	n.a.	Ireland	UNEW - suitable for organics	http://www.ipmpotato.com/
Canada	McCain Potatoes	n.a.	Solanum tuberosum	ROYAL	Potato	n.a.	Canada	organic variety in Austria	http://www.mccainpotatoes.com/
Germany	Norika GmbH	n.a.	Solanum tuberosum	SALOME	Potato	n.a.	Germany	late blight resistance, breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
Netherlands	Agrico	n.a.	Solanum tuberosum	SANTE	Potato	n.a.	Netherlands	ADHB organic list	https://www.agrico.nl/
United Kingdom	Sarpo Potatoes Ltd	n.a.	Solanum tuberosum	SARPO EXTRA	Potato	n.a.	Hungary	late blight resistance - The European Cultivated Potato database	http://sarpo.co.uk/sarpo-potatoes/
United Kingdom	Sarpo Potatoes Ltd	n.a.	Solanum tuberosum	SARPO MIRA	Potato	n.a.	Hungary	late blight resistance, ADHB organic list	http://sarpo.co.uk/sarpo-potatoes/
United Kingdom	Sarpo Potatoes Ltd	n.a.	Solanum tuberosum	SARPO PEAK	Potato	n.a.	Hungary	late blight resistance - The European Cultivated Potato database	http://sarpo.co.uk/sarpo-potatoes/
United Kingdom	Sarpo Potatoes Ltd	n.a.	Solanum tuberosum	SARPO SHONA	Potato	n.a.	Hungary	late blight resistance	http://sarpo.co.uk/sarpo-potatoes/
United Kingdom	Sarpo Potatoes Ltd	n.a.	Solanum tuberosum	SARPO UNA	Potato	n.a.	Hungary	SASA - organic seed in production	http://sarpo.co.uk/sarpo-potatoes/
France	Bretagne Plants	n.a.	Solanum tuberosum	SELENA	Potato	n.a.	France	proposed by IHAR	http://www.plantsdebretagne.com/

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	SETANTA	Potato	n.a.	Ireland	ADHB organic list	http://www.ipmpotato.com/
United Kingdom		n.a.	Solanum tuberosum	SHELAGH	Potato	n.a.	United Kingdom	UNEW - suitable for organics	
Canada	McCain Potatoes	n.a.	Solanum tuberosum	SHEPODY	Potato	n.a.	Canada	UNEW - suitable for organics	http://www.mccainpotatoes.com/
Ireland	IPM Potato Group Limited	n.a.	Solanum tuberosum	SLANEY	Potato	n.a.	Ireland	UNEW - suitable for organics	http://www.ipmpotato.com/
Germany	Norika GmbH	n.a.	Solanum tuberosum	SOLIST	Potato	n.a.	Germany	breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
Germany	Norika GmbH	n.a.	Solanum tuberosum	SORAYA NN	Potato	n.a.	Germany	in FIBL organic tests, Switzerland	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
United Kingdom	Greenvale AP	n.a.	Solanum tuberosum	SORRENTO	Potato	n.a.	United Kingdom	late blight resistance	https://www.greenvale.co.uk/
Netherlands	Zelder BV	n.a.	Solanum tuberosum	SPARTAAN	Potato	n.a.	Netherlands	organic variety in France	
United Kingdom	Caithness Potatoes Ltd	n.a.	Solanum tuberosum	STEMSTER	Potato	n.a.	United Kingdom	late blight resistance, UNEW - suitable for organics	https://www.caithnesspotatoes.com/
		n.a.	Solanum tuberosum	STORMONT ENTERPRISE	Potato	n.a.		UNEW - suitable for organics	
Poland	Pomorsko Mazowiecka Hodowla Ziemniaka w	n.a.	Solanum tuberosum	TAJFUN	Potato	n.a.	Poland	proposed by IHAR	http://www.pmhz.pl/

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
	Strzekęcinie								
Germany	Norika GmbH	n.a.	Solanum tuberosum	TALENT	Potato	n.a.	Germany	UNEW - suitable for organics	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
United Kingdom		n.a.	Solanum tuberosum	TEENA	Potato	n.a.	United Kingdom	UNEW - suitable for organics	
France	Grocep	n.a.	Solanum tuberosum	TENTATION	Potato	n.a.	France	late blight resistance	http://plantdepommedeterre.org/index/le-comite-centre-sud
Netherlands	Agrico	n.a.	Solanum tuberosum	TOLUCA	Potato	n.a.	Netherlands	late blight resistance - breeder cathalogue data	https://www.agrico.nl/
United Kingdom	The James Hutton Institute	n.a.	Solanum tuberosum	TORRIDON	Potato	n.a.	United Kingdom	UNEW - suitable for organics	https://www.hutton.ac.uk/
Austria	NÖ Saatbaugenossenschaft R.G.M.B.H.	n.a.	Solanum tuberosum	TRABANT	Potato	n.a.	Austria	organic variety in Austria	http://www.noes.at/en/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	TRIPLO	Potato	n.a.	Netherlands	breeders preference for organic production	https://www.hzpc.com/
Netherlands	Agrico	n.a.	Solanum tuberosum	TWINNER	Potato	n.a.	Netherlands	late blight resistance, breeders preference for organic production	https://www.agrico.nl/
Netherlands	Agrico	n.a.	Solanum tuberosum	TWISTER	Potato	n.a.	Netherlands	late blight resistance, breeder data	https://www.agrico.nl/
USA	USDA	n.a.	Solanum tuberosum	UMATILLA RUSSET	Potato	n.a.	USA	UNEW - suitable for organics	

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
Ireland	Greenvale AP	n.a.	Solanum tuberosum	VALES EVEREST	Potato	n.a.	Ireland	ADHB organic list	https://www.greenvale.co.uk/
United Kingdom	Greenvale AP	n.a.	Solanum tuberosum	VALES SOVEREIGN	Potato	n.a.	United Kingdom	SASA - organic seed in production	https://www.greenvale.co.uk/
United Kingdom	Caithness Potatoes Ltd	n.a.	Solanum tuberosum	VALOR	Potato	n.a.	United Kingdom	ADHB organic list	https://www.caithnesspotatoes.com/
United Kingdom	Greenvale AP	n.a.	Solanum tuberosum	VENEZIA	Potato	n.a.	United Kingdom	organic variety in Switzerland	https://www.greenvale.co.uk/
United Kingdom	Caithness Potatoes Ltd	n.a.	Solanum tuberosum	VERITY	Potato	n.a.	United Kingdom	ADHB organic list	https://www.caithnesspotatoes.com/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	VICTORIA	Potato	n.a.	Netherlands	organic variety in Switzerland	https://www.hzpc.com/
Germany	KWS Potato BV	n.a.	Solanum tuberosum	VITABELLA	Potato	n.a.	Germany	organic variety in Switzerland	https://www.potatopro.com/companies/kws-potato-bv
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	VIVALDI	Potato	n.a.	Netherlands	ADHB organic list	https://www.hzpc.com/
Netherlands	HZPC Holland BV	n.a.	Solanum tuberosum	VOYAGER	Potato	n.a.	Netherlands	organic variety in France	https://www.hzpc.com/
Germany	Norika GmbH	n.a.	Solanum tuberosum	WEGA	Potato	n.a.	Germany	late blight resistance, breeders preference for organic production	http://contao.p211230.webspaceconfig.de/index.php/kontakt.html
Hungary	University of	n.a.	Solanum	WHITE LADY	Potato	n.a.	Hungary	late blight resistance,	http://englishweb.

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Country	Holding institute / Breeding company	Accesion number	Taxon	Accession name	Crop name	Acquisition date	Origin	Criteria for selection	Source
	Pannonia, Potato Research Centre		tuberosum					breeders preference for organic production	uni-pannon.hu/
France	Germicopa	n.a.	Solanum tuberosum	YONA	Potato	n.a.	France	late blight resistance, breeders preference for organic production	https://www.germicopa.com/
France	Grocep	n.a.	Solanum tuberosum	ZEN	Potato	n.a.	France	late blight resistance	http://plantdepommedeterre.org/index/le-comite-centre-sud
Legend:									
n.a. = not applicable									
ADHB	Agriculture & Horticulture Development Board, UK								
IHAR	Plant Breeding and Acclimatization Institute								
UNPAN	University of Pannonia								
UNEW	University of Newcastle								
SASA	Science and Advice for Scottish Agriculture								
FIBL	Research Institute of Organic Agriculture								
KIS	Agricultural Institute of Slovenia								

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Table 3: List of *soybean genotypes* included in the ECOBREED putative collection

ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
SRB051	261	Glycine max	Galina	SRB	2018	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	174	Glycine max	NS Kaca	SRB	2013	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	270	Glycine max	Valjevka	SRB	2015	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	160	Glycine max	NS Atlas	SRB	2016	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	117	Glycine max	Fortuna	SRB	2015	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	489	Glycine max	NS Maximus	SRB	2011	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	4	Glycine max	Manitoba Brown	USA	1946	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	36	Glycine max	BlackStar	SRB		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	193	Glycine max	NS ALFA	SRB	2011	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	212	Glycine max	FRAJLA	SRB	2010	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	123	Glycine max	LEPOTICA	SRB	2017	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	128	Glycine max	MAPLE ARROW	CAN	1976	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	186	Glycine max	KONUSO	JPN		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	200	Glycine max	SELECTA 201	RUS		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	202	Glycine max	VALENTA	RUS		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	323	Glycine max	DANA	SRB	2017	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	154	Glycine max	BISER	SRB	2014	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	157	Glycine max	NS SPARTAKUS	SRB	2017	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	108	Glycine max	BLACK TOKYO	JPN		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	105	Glycine max	PADUA	USA		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	1	Glycine max	SIOYX	USA		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	9	Glycine max	SECCA	USA	1971	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	49	Glycine max	PROTEUS	CAN		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	64	Glycine max	DANICA	CRO		CV	21) FIELD	10); 20);	www.nsseme.com

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
SRB051	78	Glycine max	KORANA	CRO	2006	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	185	Glycine max	KITAMUSUME	JPN		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	256	Glycine max	ALISA	SRB		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	271	Glycine max	AFRODITA	SRB	1994	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	279	Glycine max	IVA	CRO	2005	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	280	Glycine max	KRAJINA	SRB	1993	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	190	Glycine max	ANICA	CRO		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	339	Glycine max	DUBRAVKA	CRO		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	392	Glycine max	EIKO	JPN		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	331	Glycine max	AIRES	ITA		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	43	Glycine max	HERB 91			CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	85	Glycine max	KATO	JPN		CV	21) FIELD	10); 20);	www.nsseme.com
ARS GRIN	PI 423708 B	Glycine max	Bydgoska 071	POL	1978	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 378681	Glycine max	Zarja	BUL	1973	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN		Glycine max	Moldavskaja 65	MDA		CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 189886	Glycine max	Jaune de Desme	FRA	1950---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 578387	Glycine max	Bei feng No. 3	CHN	1977	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 417556	Glycine max	Itocista	POL	1977	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 639628	Glycine max	Lada	RUS	2005	CV	21) FIELD	10); 20);	https://npgsweb.ar

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
									s-grin.gov
ARS GRIN	PI 593973	Glycine max	Toyokomachi	JPN	1996	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 594301	Glycine max	Toyomusume	JPN	1996	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 361114	Glycine max	Trzic Rana	ROM	1971	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 290155	Glycine max	Vinca	HUN	1963	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 372403 A	Glycine max	Caloria	GER	1972	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
SRB051	626	Glycine max	Acme	CAN	1953	CV	21) FIELD	10); 20);	www.nsseme.com
ARS GRIN	PI 153304	Glycine max	Grignon 37	FRA	1946	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 417511	Glycine max	Grignon 48	FRA	1977---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 567787	Glycine max	OAC Vision	CAN	1993---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 295951	Glycine max	Record North	RUS	1964	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 567219	Glycine max	Sibniik 315	RUS	1993---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 189955	Glycine max	Noir des Freres Dippo	FRA	1950	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 189875	Glycine max	Kamianetz	FRA	1950---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
ARS GRIN	PI 612728	Glycine max	Jilin 8978-6	CHN	2000	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 437680 B	Glycine max	Nen Tszjan Da Doau	CHN	1980---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 360958	Glycine max	Kamishunbetzu	JPN	1971	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 360955 B	Glycine max	Fiskeby V	SWE	1971---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
SRB051	2	Glycine max	Bravalla	SWE	1982---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 470930	Glycine max	Traff	SWE	1982---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 198067	Glycine max	Ugra Soja	SWE	1951---	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
SRB051	135	Glycine max	PANDO	KOR	1991	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	48	Glycine max	MN-0201	USA		CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	35	Glycine max	GRACIA	SRB	2006	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	42	Glycine max	FAVORIT	SRB	2010	CV	21) FIELD	10); 20);	www.nsseme.com
SRB051	95	Glycine max	JELICA	SRB	1994	CV	21) FIELD	10); 20);	www.nsseme.com
ARS GRIN	PI 86050	Glycine max	Rasuto San	JPN	1930	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 437654	Glycine max	Er-hej-jan	CHN	1980	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 437833	Glycine max	Curo Sengocu	JPN	1980	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
ARS GRIN	PI 437833	Glycine max	Fiskeby 882-27	SWE	1980	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 518669	Glycine max	Corsoy 79	USA	1988	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 542044	Glycine max	Kunitz	USA	1990	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 548316	Glycine max	Cloud	CHN	1991	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 548316	Glycine max	Mukden	CHN	1956	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 548503	Glycine max	Adelphia	USA	1991	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 548504	Glycine max	Altona	CAN	1996	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 548529	Glycine max	Century 84	USA	1991	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 518670	Glycine max	Williams	USA	1988	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 562374	Glycine max	Parker	USA	1992	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 578058	Glycine max	BARC-12	USA	1994	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 593463	Glycine max	General	USA	1998	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 602059	Glycine max	Apollo	USA	1998	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI	Glycine max	Olympus	USA	1998	CV	21) FIELD	10); 20);	https://npgsweb.ar

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
	602060								s-grin.gov
ARS GRIN	PI 629008	Glycine max	OHIO FG3	USA	2002	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 632401	Glycine max	APEX	USA	2002	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 632402	Glycine max	STALWART	USA	2002	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 644024	Glycine max	Stout-Rps1k	USA	2006	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 84979	Glycine max	Shakkin Nashi	JPN	1930	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 86032	Glycine max	Chusei Kurodaizu	JPN	1930	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 86073	Glycine max	Hadakadaizu	JPN	1930	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 86098	Glycine max	Mizukuguri	JPN	1930	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 88349	Glycine max	Fukukingen	CHN	1930	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 91083	Glycine max	Seihita	KOR	1931	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 229322	Glycine max	Hajinomi	JPN	1955	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 238930	Glycine max	Shatukinnashi	JPN	1957	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 248398	Glycine max	Illinois 301	USA	1958	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
ARS GRIN	PI 261472	Glycine max	Ranetsu No. 1	JPN	1959	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 261474	Glycine max	Kohoju	CHN	1959	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 83945-4	Glycine max	Dairyu Tsurunoko	KOR	1930	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 88486	Glycine max	Kaigens Kingenzu	CHN	1930	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 86146	Glycine max	Kawanagare (Iwate)	JPN	1977	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 417094	Glycine max	Kuro masshokutou (Kou 205)CHN	CHN	1977	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 417559	Glycine max	Pulaska Zolta Wczesna	POL	1977	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 437710	Glycine max	Sjao-tsin-do	CHN	1980	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 504481	Glycine max	Fengshan lu tsao shen	TWN	1986	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 504487	Glycine max	Yao tou	TWN	1986	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 504481	Glycine max	Lu tsao shen	TWN	1986	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 504504	Glycine max	Sundar No. 1	TWN	1986	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 507439	Glycine max	Tousan 101	JPN	1987	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI	Glycine max	Mao 205	TWN	1988	LR	21) FIELD	10); 20);	https://npgsweb.ar

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
	518287								s-grin.gov
ARS GRIN	PI 507190	Glycine max	Rokugatsu daizu	JPN	1987	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 548609	Glycine max	Rampage	USA	1991	CV	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
ARS GRIN	PI 567476	Glycine max	Yu ci huang	CHN	1993	LR	21) FIELD	10); 20);	https://npgsweb.ars-grin.gov
NARDI	1005	Glycine max	Avigea	BUL	2011	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	848; 1736	Glycine max	Malaga	AUT	2010	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Perla	ROM	1994	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Ada TD	ROM	2016	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Bia TD	ROM	2015	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Carla TD	ROM	2013	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Caro TD	ROM	2015	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI		Glycine max	CH 22-172	SUI			21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Eugen	ROM	2002	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Felix	ROM	2005	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
NARDI	848	Glycine max	Flavia	AUT	2010	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Larisa	ROM	2014	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Mălina TD	ROM	2012	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1432	Glycine max	Oana F	ROM	2009	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2798	Glycine max	Onix	ROM	2002	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1432	Glycine max	Ovidiu F	ROM	2018	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2375	Glycine max	Sigalia	FRA	2008	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2144	Glycine max	Tena	CRO	2008	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2606; 2607	Glycine max	Vidra	SER	2010	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1432	Glycine max	Camelia F	ROM	2016	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1432	Glycine max	Crina F	ROM	2011	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1432	Glycine max	Daciana	ROM	2006	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1988	Glycine max	Eider	CAN	2010	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	958	Glycine max	Pedro	ITA	2006	CV	21) FIELD	10); 20);	http://www.incda-

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
									fundulea.ro
NARDI	958	Glycine max	Pepita	ITA	2011	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	977; 980	Glycine max	Astafor	FRA	2007	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	771	Glycine max	Castetis	ITA	2010	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1432	Glycine max	Danubiana	ROM	1983	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	976; 980	Glycine max	ES Pallador	FRA	2015	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1432	Glycine max	Fabiana F	ROM	2017	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	181; 2144	Glycine max	Ika	CRO	2004	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	976; 977	Glycine max	Isidor	FRA	2010	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2336	Glycine max	Kofu	CAN	2015	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2336	Glycine max	Korus	CAN	2011	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1438	Glycine max	NS Zora	SER	2005	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2336	Glycine max	Optimus	CAN		CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2380	Glycine max	Steara	FRA	2013	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
NARDI	1432	Glycine max	Triumf	ROM	1996	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1438; 3176	Glycine max	Zlata	SER	2009	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	958	Glycine max	Bahia	ITA	2008	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	958	Glycine max	Blancas	ITA	2007	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	290; 2359	Glycine max	CelinaPZO	ITA	2011	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1432	Glycine max	Columna	ROM	1995	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	3041	Glycine max	DH 4173	CAN	2012	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	781; 2607	Glycine max	Dukat	SER	2007	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1902	Glycine max	Hiroko	FRA	2007	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1902	Glycine max	Mitsuko	FRA	2008	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1438	Glycine max	Neoplanta	SER	2004	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	3082	Glycine max	Pacific	ITA	1992	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	1005	Glycine max	Richi	BUL	2009	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	976;	Glycine max	Sponsor	FRA	2000	CV	21) FIELD	10); 20);	http://www.incda-

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
	2449								fundulea.ro
NARDI	1005	Glycine max	Srebina	BUL	2004	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
NARDI	2748	Glycine max	Vigo	ROM	2011	CV	21) FIELD	10); 20);	http://www.incda-fundulea.ro
AUT013 Saatzucht Gleisdorf GmbH		Glycine max	GL Melanie	Austria	2016	CV	21) FIELD	10); 20);	www.saatzuchtgleisdorf.at
AUT013 Saatzucht Gleisdorf GmbH		Glycine max	GL Hermine	Austria	2010	CV	21) FIELD	10); 20);	www.saatzuchtgleisdorf.at
AUT013 Saatzucht Gleisdorf GmbH		Glycine max	Josefine	Austria	2006	CV	21) FIELD	10); 20);	www.saatzuchtgleisdorf.at
AUT013 Saatzucht Gleisdorf GmbH		Glycine max	Christine	Austria	2007	CV	21) FIELD	10); 20);	www.saatzuchtgleisdorf.at
ERSA		Glycine max	Xonia	Italy	2014	CV	21) FIELD	10); 20);	www.saatzuchtgleisdorf.at
AUT040 BOKU		Glycine max	Mauthnerov Velkozrun	Austria			21) FIELD	10); 20);	www.boku.ac.at
AUT040 BOKU		Glycine max	Mandin Kajon	Austria			21) FIELD	10); 20);	www.boku.ac.at
AUT040 BOKU		Glycine max	Grignon 14	Austria			21) FIELD	10); 20);	www.boku.ac.at
AUT040		Glycine max	Gatersleben 45	Austria			21) FIELD	10); 20);	www.boku.ac.at

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ISNTCODE	COLLNUMB	Latin name	ACCENAME	ORIGCTY	COLLDATE	SAMPSTAT	COLLSRC	STORAGE (10) SEED COLLECTION; 20) FIELD COLLECTION	ACCEURL
BOKU									
AUT040 BOKU		Glycine max	SOJA 804	Austria			21) FIELD	10); 20);	www.boku.ac.at
AUT040 BOKU		Glycine max	SOJA 809	Austria			21) FIELD	10); 20);	www.boku.ac.at
AUT040 BOKU		Glycine max	SOJA 832	Austria			21) FIELD	10); 20);	www.boku.ac.at
AUT040 BOKU		Glycine max	Zolta Przebedowska	Austria			21) FIELD	10); 20);	www.boku.ac.at
AUT022 RWA		Glycine max	DH4173	Canada	2015	CV	21) FIELD	10); 20);	ww.raiffeisen-agro.rs
AUT022 RWA		Glycine max	Korus	Canada	2011	CV	21) FIELD	10); 20);	ww.raiffeisen-agro.rs
AUT022 RWA		Glycine max	Lenka	Canada	2015	CV	21) FIELD	10); 20);	ww.raiffeisen-agro.rs
AUT022 RWA		Glycine max	Naya	Canada	2010	CV	21) FIELD	10); 20);	ww.raiffeisen-agro.rs
AUT022 RWA		Glycine max	ES Senator	France	2012	CV	21) FIELD	10); 20);	ww.raiffeisen-agro.rs
AUT022 RWA		Glycine max	Silvia PZO	Canada	2012	CV	21) FIELD	10); 20);	ww.raiffeisen-agro.rs
AUT022 RWA		Glycine max	ES Tenor	France	2015	CV	21) FIELD	10); 20);	ww.raiffeisen-agro.rs

Table 4: List of *buckwheat genotypes* included in the ECOBREED putative collection

Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Slovenia	SVN018	SRGB 2198	Fagopyrum esculentum	Vrhtrebnje	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2206	Fagopyrum esculentum	Radovljica	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2207	Fagopyrum esculentum	Slovenj Gradec	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2221	Fagopyrum esculentum	Cerklje	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2265	Fagopyrum esculentum	Gorenje Nekovo, Kanal	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2266	Fagopyrum esculentum	Krajna vas, Sežana	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2270	Fagopyrum esculentum	Temnica na Krasu	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2273	Fagopyrum esculentum	Vojščica pri Kostanjevici	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2285	Fagopyrum esculentum	Kleče	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2296	Fagopyrum esculentum	Brusnice, Novo Mesto	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2297	Fagopyrum esculentum	Podgorje, Slovenj Gradec	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Slovenia	SVN018	SRGB 2305	Fagopyrum esculentum	Jeprca, Medvode	common buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 5470	Fagopyrum esculentum	SVNGOR05 14	common buckwheat	2005	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Slovenia	SVN018	SRGB 5505	Fagopyrum esculentum	SVNKOR2006-32	common buckwheat	2006	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Slovenia	SVN018	SRGB 5510	Fagopyrum esculentum	SVNKOR2006-43	common buckwheat	2006	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Slovenia	SVN018	SRGB 5521	Fagopyrum esculentum	SVNKOR2006-61	common buckwheat	2006	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Slovenia	SVN018	SRGB 5553	Fagopyrum esculentum	SVNDOL2007-41	common buckwheat	2007	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Slovenia	SVN018	SRGB 5559	Fagopyrum esculentum	SVNDOL2007-56	common buckwheat	2007	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Slovenia	SVN018	SRGB 5702	Fagopyrum esculentum	SVNGOR 2010-14	common buckwheat	2010	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Slovenia	SVN018	SRGB 5737	Fagopyrum esculentum	20.10	common buckwheat	2010	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Slovenia	SVN018	SRGBTBA	Fagopyrum esculentum	HUNORS 2010-9	common buckwheat	2010	Slovenia	http://www.kis.si/Zacasna_resitev_genske_banke
Austria	AUT046	ARCHE-BU001	Fagopyrum esculentum	Buchweizen CSFR	common buckwheat	n.a.	Czech Republic	https://www.arche-noah.at/

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Austria	AUT046	ARCHE-BU002	Fagopyrum esculentum	Herkunft Conrad	common buckwheat	1981	Austria	https://www.arche-noah.at/
USA	NE9	PI 263949	Fagopyrum esculentum	PA 127	common buckwheat	1960	Serbia	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 280832	Fagopyrum esculentum	No. 3872	common buckwheat	1962	Soviet Union, Former	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 451723	Fagopyrum esculentum	Trigo Saraceno O'Alforfon	common buckwheat	1980	Mexico, Baja Norte	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 590988	Fagopyrum esculentum	Yuqiao No. 2	common buckwheat	1995	China, Beijing	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 590989	Fagopyrum esculentum	Chaselimadao	common buckwheat	1995	China, Beijing	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 600909	Fagopyrum esculentum	Winsor Royal	common buckwheat	1997	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 633689	Fagopyrum esculentum	MC 056	common buckwheat	2003	Soviet Union, Former	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 633690	Fagopyrum esculentum	MC 057	common buckwheat	2003	India	https://npgsweb.ars-grin.gov/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
USA	NE9	PI 647594	Fagopyrum esculentum	Tokyo/PA 011	common buckwheat	2007	Canada	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647598	Fagopyrum esculentum	Pulawska/PA 054	common buckwheat	2007	Poland	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647599	Fagopyrum esculentum	PA 056	common buckwheat	2007	Switzerland	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647601	Fagopyrum esculentum	Nostrano	common buckwheat	2007	Italy	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647603	Fagopyrum esculentum	Sarrasin du Pays/PA 030	common buckwheat	2007	France	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647614	Fagopyrum esculentum	CIfa 41	common buckwheat	2007	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647615	Fagopyrum esculentum	Pennline 18	common buckwheat	2007	United States, Pennsylvania	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647616	Fagopyrum esculentum	Tokyo/PA 011	common buckwheat	2007	United States, Pennsylvania	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647617	Fagopyrum esculentum	Tokyo	common buckwheat	2007	Canada, Saskatchewan	https://npgsweb.ars-grin.gov/gringlo

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
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USA	NE9	PI 647635	Fagopyrum esculentum	MC 258	common buckwheat	2007	Poland	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647636	Fagopyrum esculentum	MC 052	common buckwheat	2007	Soviet Union, Former	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647640	Fagopyrum esculentum	CD 7272	common buckwheat	2007	Czechoslovakia	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647642	Fagopyrum esculentum	Aomori	common buckwheat	2007	Japan	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647643	Fagopyrum esculentum	Gunma Prefectura	common buckwheat	2007	Japan	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647644	Fagopyrum esculentum	Kanada	common buckwheat	2007	Japan	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647647	Fagopyrum esculentum	MC 040	common buckwheat	2007	Poland	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647648	Fagopyrum esculentum	MC 041	common buckwheat	2007	Poland	https://npgsweb.ars-grin.gov/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
USA	NE9	PI 647656	Fagopyrum esculentum	Hiroshima	common buckwheat	2007	Japan	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647665	Fagopyrum esculentum	Sweden-2	common buckwheat	2007	Sweden	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647673	Fagopyrum esculentum	Gornosorskaya	common buckwheat	2007	Soviet Union, Former	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647674	Fagopyrum esculentum	Satilovskaya 4	common buckwheat	2007	Soviet Union, Former	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647675	Fagopyrum esculentum	Odesskaya	common buckwheat	2007	Soviet Union, Former	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647681	Fagopyrum esculentum	Slavyanka	common buckwheat	2009	Soviet Union, Former	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 647699	Fagopyrum esculentum	CM-17	common buckwheat	2007	Czechoslovakia	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658428	Fagopyrum esculentum	Solianskaja	common buckwheat	2009	Russian Federation	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658432	Fagopyrum esculentum	Mancan	common buckwheat	2009	Canada	https://npgsweb.ars-grin.gov/gringlo

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
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USA	NE9	PI 658433	Fagopyrum esculentum	Manor	common buckwheat	2009	Canada	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658436	Fagopyrum esculentum	Martin's Alaska	common buckwheat	2009	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658437	Fagopyrum esculentum	Sperli	common buckwheat	2009	Switzerland	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658440	Fagopyrum esculentum	Enka	common buckwheat	2009	Denmark	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658441	Fagopyrum esculentum	CIfa 1	common buckwheat	2009	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658444	Fagopyrum esculentum	Laharpe/PA 029	common buckwheat	2009	France	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658445	Fagopyrum esculentum	PA 093	common buckwheat	2009	Italy	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 658446	Fagopyrum esculentum	G 32223	common buckwheat	2009	Italy	https://npgsweb.ars-grin.gov/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
USA	NE9	PI 658447	Fagopyrum esculentum	CIfa 2	common buckwheat	2009	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 673844	Fagopyrum esculentum	Zhong Yang Qiao Mai	common buckwheat	2014	China	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
USA	NE9	PI 681711	Fagopyrum esculentum	Grechka	common buckwheat	2017	Tajikistan, Khujand	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000001	Fagopyrum esculentum MOENCH	AELITA	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000002	Fagopyrum esculentum MOENCH	Astoriya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000003	Fagopyrum esculentum MOENCH	Chernoplodnaya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000004	Fagopyrum esculentum MOENCH	Chishiminskaya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000005	Fagopyrum esculentum MOENCH	Kalininskaya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000006	Fagopyrum esculentum MOENCH	Krasnostreletskaya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000007	Fagopyrum esculentum MOENCH	Lada	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Czech Republic	CZE122	01Z5000008	Fagopyrum esculentum MOENCH	Maiskaya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000009	Fagopyrum esculentum MOENCH	Prikamskaya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000010	Fagopyrum esculentum MOENCH	Sibiryachka	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000011	Fagopyrum esculentum MOENCH	Skorospelaya 81	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000012	Fagopyrum esculentum MOENCH	Shatilovskaya 5	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000013	Fagopyrum esculentum MOENCH	Alaya 846	common buckwheat	1996	Ukraine	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000014	Fagopyrum esculentum MOENCH	UKRAJINSKAJA,Viktoriya Podolskaya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000015	Fagopyrum esculentum MOENCH	Vita Galeya	common buckwheat	1992	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000016	Fagopyrum esculentum MOENCH	LOCAL	common buckwheat	1992	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000017	Fagopyrum esculentum MOENCH	MONORI	common buckwheat	1992	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000018	Fagopyrum esculentum MOENCH	Lehnicka krajova	common buckwheat	1996	Slovakia	https://grinczech.vurv.cz/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Czech Republic	CZE122	01Z5000020	Fagopyrum esculentum MOENCH	Orbita	common buckwheat	1992	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000021	Fagopyrum esculentum MOENCH	Slavyachka	common buckwheat	1996	Ukraine	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000046	Fagopyrum esculentum MOENCH	Iwate Zairai (MIDOU)	common buckwheat	1992	Japan	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000047	Fagopyrum esculentum MOENCH	Tokushima Zairai	common buckwheat	1992	Japan	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000048	Fagopyrum esculentum MOENCH	Takizawa Zairai	common buckwheat	1992	Japan	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000049	Fagopyrum esculentum MOENCH	Yaita Zairai	common buckwheat	1992	Japan	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000050	Fagopyrum esculentum MOENCH	Stoyoama Zairai	common buckwheat	1992	Japan	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000051	Fagopyrum esculentum MOENCH	Botansoba	common buckwheat	1992	Japan	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000052	Fagopyrum esculentum MOENCH	Hara Zairai	common buckwheat	1992	Japan	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000055	Fagopyrum esculentum MOENCH	Arihira Zairai	common buckwheat	1992	Japan	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000058	Fagopyrum esculentum MOENCH	BALLADA	common buckwheat	1993	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Czech Republic	CZE122	01Z5000059	Fagopyrum esculentum MOENCH	KRUPINKA	common buckwheat	1993	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000060	Fagopyrum esculentum MOENCH	Sumcanka	common buckwheat	1993	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000061	Fagopyrum esculentum MOENCH	SKOROSPELAJA,SKOROSPELAYA	common buckwheat	1993	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000062	Fagopyrum esculentum MOENCH	Bolshevik 4	common buckwheat	1993	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000063	Fagopyrum esculentum MOENCH	PYRA	common buckwheat	1993	Czechoslovakia	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000064	Fagopyrum esculentum MOENCH	La Harpe	common buckwheat	1994	France	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000065	Fagopyrum esculentum MOENCH	HRUSZOWSKA	common buckwheat	1994	Poland	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000066	Fagopyrum esculentum MOENCH	Prego	common buckwheat	1994	Germany	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000067	Fagopyrum esculentum MOENCH	Chernigovskaya 17	common buckwheat	1996	Ukraine	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000068	Fagopyrum esculentum MOENCH	Viktoriya	common buckwheat	1996	Ukraine	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000069	Fagopyrum esculentum MOENCH	Vychodoslovenska krajova	common buckwheat	1996	Slovakia	https://grinczech.vurv.cz/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Czech Republic	CZE122	01Z5000070	Fagopyrum esculentum MOENCH	Spacinska 1	common buckwheat	1996	Slovakia	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000071	Fagopyrum esculentum MOENCH	Dozhdik	common buckwheat	1996	Belarus	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000072	Fagopyrum esculentum MOENCH	Sudtirol Nr. 3	common buckwheat	1996	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000076	Fagopyrum esculentum MOENCH	Zelenocvetkovaya 90	common buckwheat	1996	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000084	Fagopyrum esculentum MOENCH	Anita Beloruskaya	common buckwheat	1996	Ukraine	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000092	Fagopyrum esculentum MOENCH	Kasanskaya,Kusanskaja	common buckwheat	1996	Belarus	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000093	Fagopyrum esculentum MOENCH	JEZYK	common buckwheat	1996	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000094	Fagopyrum esculentum MOENCH	JUBILEJNAJA,Yubileina	common buckwheat	1996	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000095	Fagopyrum esculentum MOENCH	Kora	common buckwheat	1996	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000098	Fagopyrum esculentum MOENCH	JEC 179	common buckwheat	1996	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000100	Fagopyrum esculentum MOENCH	GREEN COROLLA 2	common buckwheat	1996	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx

D 1.2 Putative Collection of Each Target Species Identified

Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Czech Republic	CZE122	01Z5000105	Fagopyrum esculentum MOENCH	Komsta	common buckwheat	1996	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000111	Fagopyrum esculentum MOENCH	emka	common buckwheat	1996	Poland	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000112	Fagopyrum esculentum MOENCH	GEMA	common buckwheat	1996	Poland	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000113	Fagopyrum esculentum MOENCH	Lopfe	common buckwheat	1996	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000115	Fagopyrum esculentum MOENCH	Kasanskaya	common buckwheat	n.a.	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000117	Fagopyrum esculentum MOENCH	Demetra	common buckwheat	2001	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000118	Fagopyrum esculentum MOENCH	Podojlanka,Podolyanka	common buckwheat	2000	Former Soviet Union	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000119	Fagopyrum esculentum MOENCH	SIVA	common buckwheat	2001	Slovenia	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000120	Fagopyrum esculentum MOENCH	Darja	common buckwheat	2001	Slovenia	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000121	Fagopyrum esculentum MOENCH	Rana 60	common buckwheat	2001	Slovenia	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000122	Fagopyrum esculentum MOENCH	Darina	common buckwheat	2001	Slovenia	https://grinczech.vurv.cz/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Czech Republic	CZE122	01Z5000123	Fagopyrum esculentum MOENCH	KARA-DAG	common buckwheat	2001	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000124	Fagopyrum esculentum MOENCH	Bongpyng	common buckwheat	2001	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000125	Fagopyrum esculentum MOENCH	Suwon #1	common buckwheat	2001	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000127	Fagopyrum esculentum MOENCH	Jana	common buckwheat	2001	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000128	Fagopyrum esculentum MOENCH	Panda	common buckwheat	2003	Russian Federation	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000129	Fagopyrum esculentum MOENCH	LUBA	common buckwheat	2003	Russian Federation	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000130	Fagopyrum esculentum MOENCH	Billy	common buckwheat	2003	Austria	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000131	Fagopyrum esculentum MOENCH	ceska krajova	common buckwheat	2003	Czechoslovakia	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000133	Fagopyrum esculentum MOENCH	ROKSOLANA	common buckwheat	2003	Russian Federation	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000134	Fagopyrum esculentum MOENCH	Rubra	common buckwheat	2003	Russian Federation	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000135	Fagopyrum esculentum MOENCH	Bamby	common buckwheat	2003	Austria	https://grinczech.vurv.cz/gringlobal/search.aspx

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Czech Republic	CZE122	01Z5000137	Fagopyrum esculentum MOENCH	Pulawska II	common buckwheat	2003	Poland	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000138	Fagopyrum esculentum MOENCH	Tohno Zairai	common buckwheat	2003	Canada	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000139	Fagopyrum esculentum MOENCH	Silverhull 24	common buckwheat	2003	Canada	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000140	Fagopyrum esculentum MOENCH	Tempest	common buckwheat	2003	Canada	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000141	Fagopyrum esculentum MOENCH	Sweden-1	common buckwheat	2003	Sweden	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000143	Fagopyrum esculentum MOENCH	CD 7272	common buckwheat	2003	Czechoslovakia	https://grinczech.vurv.cz/gringlobal/search.aspx
Czech Republic	CZE122	01Z5000144	Fagopyrum esculentum MOENCH	CD 7273	common buckwheat	2003	unknown	https://grinczech.vurv.cz/gringlobal/search.aspx
Ukraine	UKR008	UC0101972	Fagopyrum esculentum Moench alatus	AKADEMICHNA	common buckwheat	2004	Ukraine	http://yuriev.com.ua
Ukraine	UKR008	UC0100362	Fagopyrum esculentum MOENCH	Bilorus'ka gomostil'na	common buckwheat	1993	Belarus	http://yuriev.com.ua
Ukraine	UKR008	UC0100991	Fagopyrum esculentum MOENCH	Bilorus'ka odnostebel'na	common buckwheat	n.a.	Belarus	http://yuriev.com.ua
Ukraine	UKR008	UC0100115	Fagopyrum esculentum Moench alatus	BOGATIR	common buckwheat	1992	Russian Federation	http://yuriev.com.ua

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Ukraine	UKR008	UC0100276	Fagopyrum esculentum MOENCH	Bol'shevik-Albaniya	common buckwheat	1992	Albania	http://yuriev.com.ua
Ukraine	UKR130	UC0101642	Fagopyrum esculentum Moench alatus	DETERMINANT 2	common buckwheat	n.a.	Ukraine	http://yuriev.com.ua
Ukraine	UKR008	UC0100100	Fagopyrum esculentum Moench alatus	Gibridna	common buckwheat	1992	Russian Federation	http://yuriev.com.ua
Ukraine	UKR008	UC0101109	Fagopyrum esculentum MOENCH	Gorets' vuz'kolistii	common buckwheat	1993	Russian Federation	http://yuriev.com.ua
Ukraine	UKR008	UC0100365	Fagopyrum esculentum MOENCH	CHornogorets'	common buckwheat	1992	Belarus	http://yuriev.com.ua
Ukraine	UKR008	UC0102185	Fagopyrum esculentum MOENCH	Ilishevskaya	common buckwheat	2010	Kazachstan	http://yuriev.com.ua
Ukraine	UKR130	UC0101129	Fagopyrum esculentum Moench alatus	KARA-DAG	common buckwheat	1997	Ukraine	http://yuriev.com.ua
Ukraine	UKR008	UC0101987	Fagopyrum esculentum Moench alatus	KARMEN	common buckwheat	2005	Belarus	http://yuriev.com.ua
Ukraine	UKR130	UC0101155	Fagopyrum esculentum Moench alatus	KOSMEYA	common buckwheat	1994	Ukraine	http://yuriev.com.ua
Ukraine	UKR008	UC0101698	Fagopyrum esculentum MOENCH	Krupnoplodna SHertandins'k	common buckwheat	1992	Kazachstan	http://yuriev.com.ua
Ukraine	UKR008	UC0102165	Fagopyrum esculentum MOENCH	Kvyetka determinantna	common buckwheat	2010	Belarus	http://yuriev.com.ua

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Ukraine	UKR008	UC0101979	Fagopyrum esculentum Moench alatus	Malinka	common buckwheat	2006	Ukraine	http://yuriev.com.ua
Ukraine	UKR008	UC0100988	Fagopyrum esculentum MOENCH	Mig	common buckwheat	n.a.	Russian Federation	http://yuriev.com.ua
Ukraine	UKR008	UC0101906	Fagopyrum esculentum Moench alatus	mistsevii 58	common buckwheat	1995	Lithuania	http://yuriev.com.ua
Ukraine	UKR008	UC0100948	Fagopyrum esculentum MOENCH	MostĂŞapaz	common buckwheat	1994	Poland	http://yuriev.com.ua
Ukraine	UKR008	UC0100949	Fagopyrum esculentum MOENCH	Olmemil'	common buckwheat	1994	People's republic of Korea	http://yuriev.com.ua
Ukraine	UKR008	UC0101992	Fagopyrum esculentum Moench alatus	Perlina Podil's'ka	common buckwheat	2007	Ukraine	http://yuriev.com.ua
Ukraine	UKR130	UC0101496	Fagopyrum esculentum MOENCH	RADEKHIVS'KA POLIPSHENA	common buckwheat	n.a.	Ukraine	http://yuriev.com.ua
Ukraine	UKR008	UC0100361	Fagopyrum esculentum MOENCH	Sadkom	common buckwheat	1993	Poland	http://yuriev.com.ua
Ukraine	UKR008	UC0100912	Fagopyrum esculentum MOENCH	Serebrista	common buckwheat	1994	Ukraine	http://yuriev.com.ua
Ukraine	UKR008	UC0101092	Fagopyrum esculentum MOENCH	SKOROSTIGLA 86	common buckwheat	n.a.	Russian Federation	http://yuriev.com.ua
Ukraine	UKR008	UC0100285	Fagopyrum esculentum MOENCH	Tetraployidna	common buckwheat	1992	Russian Federation	http://yuriev.com.ua

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
Ukraine	UKR008	UC0102193	Fagopyrum esculentum Moench subsp. vulgare	Vlada	common buckwheat	2011	Belarus	http://yuriev.com.ua
Ukraine	UKR008	UC0100348	Fagopyrum esculentum MOENCH	Zelenokvitkova 90	common buckwheat	1992	Ukraine	http://yuriev.com.ua
Ukraine	UKR008	UC0100283	Fagopyrum esculentum MOENCH		common buckwheat	1992	Sweden	http://yuriev.com.ua
Ukraine	UKR008	UC0100723	Fagopyrum esculentum MOENCH		common buckwheat	1994	Belarus	http://yuriev.com.ua
Austria	AUT046	ARCHE-BU004	Fagopyrum esculentum var. esculentum	Belorusskaja	common buckwheat	1973	Belarus	https://www.arche-noah.at/
Austria	AUT046	ARCHE-BU005	Fagopyrum esculentum var. esculentum	Steirischer	common buckwheat	1994	Austria	https://www.arche-noah.at/
Slovenia	SVN018	PI 199769	Fagopyrum tataricum	PA 160	tartary buckwheat	n.a.	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
Slovenia	SVN018	PI 476852	Fagopyrum tataricum	Madawaska	tartary buckwheat	n.a.	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
Slovenia	SVN018	PI 503879	Fagopyrum tataricum	Sarasin a Ployes	tartary buckwheat	n.a.	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
Slovenia	SVN018	PI 647612	Fagopyrum tataricum	Clfa 38	tartary buckwheat	n.a.	United States	https://npgsweb.ars-grin.gov/gringlo

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
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Slovenia	SVN018	PI 658429	Fagopyrum tataricum	G 32048	tartary buckwheat	n.a.	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
Slovenia	SVN018	PI 658431	Fagopyrum tataricum	G 32050	tartary buckwheat	n.a.	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
Slovenia	SVN018	PI 658438	Fagopyrum tataricum	Martin's Tarbary	tartary buckwheat	n.a.	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
Slovenia	SVN018	PI 658439	Fagopyrum tataricum	Madawaska Native	tartary buckwheat	n.a.	United States	https://npgsweb.ars-grin.gov/gringlobal/search.aspx
Slovenia	SVN018	SRGB 2223	Fagopyrum tataricum	Slovenj Gradec	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2224	Fagopyrum tataricum	Osrednje Goričko	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2257	Fagopyrum tataricum	Radohova vas	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2258	Fagopyrum tataricum	Dolina Krme na Gorenjskem	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2268	Fagopyrum tataricum	Rut nad Tolminom	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2291	Fagopyrum tataricum	Vrh nad Višnjo Goro	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-

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Country	Holding Institute	Accession Number	Taxon	Accession Name	Crop Name	Acquisition Date	Origin	Source
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Slovenia	SVN018	SRGB 2309	Fagopyrum tataricum	Ravne na Koroškem	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2315	Fagopyrum tataricum	Žirovski vrh	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2316	Fagopyrum tataricum	Sveti Miklavž nad Litijo	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2321	Fagopyrum tataricum	Novo Mesto	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2351	Fagopyrum tataricum	Cerkno	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/
Slovenia	SVN018	SRGB 2409	Fagopyrum tataricum	Straža	tartary buckwheat	n.a.	Slovenia	http://www.bf.uni-lj.si/oddelek-za-agronomijo/