



# Crop Wild Relatives in Europe

## Prioritising species for *in situ* and *ex situ* conservation



### Introduction

*A Crop Wild Relative (CWR) can be any species that is closely related to a crop. But if we were to conserve all taxa that fall under this broad definition, the number of target CWR in Europe will be too large to manage. Thus, to develop strategies for the effective conservation of CWR in situ and ex situ it is paramount that we prioritize species based on criteria that consider international, European, and national interests.*

### Objectives

More than 12.000 species have been identified as CWR in Europe (Kell et al 2008). In the past, prioritization efforts resulted in a European checklist based on three main criteria: the socioeconomic value of crops, the potential value of their related CWR for variety improvement, and their threat status (Kell et al. 2017; Rubio-Teso et al. 2020).

An opportunity is presented here to revise the existing European checklist, especially for those CWR related to COUSIN flagship crops (wheat, lettuce,

pea, barley, and Brassica), and to generate an updated version under the project's scope.

The new checklist generated is the starting point to identify 'hotspots' for *in situ* conservation that consider COUSIN flagship CWR-rich habitats, pedo-climatic conditions, different management regimes (e.g. protected areas, agricultural lands), and resilience to climate change.





### Results

The COUSIN project has generated an exhaustive priority checklist for Europe of 1408 CWR taxa belonging to 42 different families. The checklist specifically targets CWRs that are native to Europe and related to food security, i.e. wild relatives of food and fodder/forage crops. It is based on (i) the previously existing European CWR priority checklist, (ii) global checklists that prioritize CWR of crops important for nutrition and food security (Vincent *et al.* 2019; Castañeda-Álvarez *et al.* 2016), and (iii) some national CWR priority checklists. The latter have been primarily screened for CWR related to COUSIN flagship crops. In addition, expert's validation has been performed, particularly CWR of flagship crops, which have been prioritised and commented by COUSIN plant breeders and researchers.

### Recommendations

The COUSIN CWR checklist constitutes a baseline for conservation action and sustainable use in Europe, particularly of those taxa related to the project's flagship crops (wheat, barley, pea, lettuce and brassicas) as it aims at maximizing their CWR species diversity. It underpins a European strategy to establish a network of genetic reserves for both *in situ* and *ex situ* conservation of CWR.

At the country level, the COUSIN CWR checklist is a starting point for designing a national strategy for the conservation and sustainable use of CWR. Thus, it can be used to develop the country's own national CWR checklist and a database of populations occurrence, covering the genetic diversity contained therein. Furthermore, it is also a valuable source of information available for plant breeders and farmers interested in their utilization for the development of new cultivars.

### Further readings

- **Castañeda-Álvarez NP et al (2016)** *Global conservation priorities for crop wild relatives. Nature Plants, 2(4), 1–6.*
- **Kell et al (2008)** *Crops and wild relatives of the Euro-Mediterranean region: making and using a conservation catalogue. In: Maxted et al (eds.) Crop wild relative conservation and use.*
- **Kell et al (2017).** *Broadening the base, narrowing the task: prioritizing crop wild relative taxa for conservation action. Crop Science, 57:1042-1058.*
- **Rubio-Teso ML et al (2020)** *In situ plant genetic resources in Europe: crop wild relatives. [https://more.bham.ac.uk/farmerspride/wp-content/uploads/sites/19/2020/10/D1.2 In situ PGR in Europe crop wild relatives.pdf](https://more.bham.ac.uk/farmerspride/wp-content/uploads/sites/19/2020/10/D1.2%20In%20situ%20PGR%20in%20Europe%20crop%20wild%20relatives.pdf)*
- **Vincent H et al (2019)** *Modelling of crop wild relative species identifies areas globally for in situ conservation. Communications Biology, 2(1), 1–8.*

