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Audrey Didier, Marion Deloche, Lionel Bardy, François Balfourier

### ► To cite this version:

Audrey Didier, Marion Deloche, Lionel Bardy, François Balfourier. The French Genetic Resources Centre on Small Grain Cereals: a tool-box for prebreeding. Enhanced Genepool Utilization. Capturing Wild Relative and Landrace Diversity for Crop Improvement, PGR Secure. INT., Jun 2014, Cambridge, United Kingdom. hal-02794892

**HAL Id: hal-02794892**

**<https://hal.inrae.fr/hal-02794892v1>**

Submitted on 5 Jun 2020

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# **The French Genetic Resources Centre on Small Grain Cereals: a tool-box for prebreeding**

**Didier A., Deloche M., Bardy L., Balfourier F.**

## **INRA-UBP, UMR 1095 - Genetic, Diversity and Ecophysiology of Cereals**

5 chemin de Beaulieu  
63039 Clermont-Ferrand Cedex 2

The small grain cereals Genetic Resources Centre (GRC) gathers accessions of major species of agricultural interest belonging to genus *Triticum* (wheat), *Hordeum* (barley), *Secale* (rye), *Triticosecale* (triticale), *Avena* (oat), and their wild relatives. About 25 000 accessions composed by patrimonial genetic resources as landraces, breeding lines, registered cultivars, are held in INRA Clermont-Ferrand. All these genetic resources constitute a useful genebank as well, for basic, genomic studies and applied breeding approaches.

Different genetic analyses have contributed to describe the genetic diversity of the GRC collections. The main result was the definition of a core collection (F. Balfourier, *et al.*, 2007) which is now highly genotyped for more than 120 000 SNP and phenotyped for a hundred of agronomical and technological descriptors (Bordes *et al.*, 2008, 2011, 2013). A part of the bread wheat collection is also evaluated in precompetitive national project "Breedwheat" and in the European project "Wheatbi".

Genetic Resources Centre is a part of different kind of network at national level, in the national networks for cereal crop genetic resources, and at European level, in ECPGR Cereals Networks.

The implementation of a quality management system is in progress, with a first quality-label from a French organization IBiSA in 2013 and CRG engages itself in a certification process.

A part of small grains cereals collection is available online on SIREGal database (<http://urgi.versailles.inra.fr/siregal>) and request of seeds samples can be done directly by SIREGal or by mail. This database is a part of a global portal (GnpIS) which allows crossing and exchanging data from genomic, proteomic and phenotypic evaluations.

Balfourier *et al.* 2007 TAG 114:1265-1275  
Bordes *et al.* 2008 JCS 48(3): 569-579  
Bordes *et al.* 2011 JCS 54:137-147.  
Bordes *et al.* 2013 TAG 126 (3): 805-822