



# To Contribute Crop Traits Lists Using the New Online GCP Crop Ontology Curation and Annotation Tool

Luca Mattei<sup>1</sup>, Rosemary Shrestha<sup>2</sup>, Milko Skofic<sup>1</sup>, Elizabeth Arnaud<sup>3\*</sup>

<sup>1</sup>Bioversity International, Rome, Italy; <sup>2</sup>Crop Research Informatics Laboratory – International Maize and Wheat Improvement Center (CIMMYT), Mexico;

<sup>3</sup>Bioversity International, Montpellier, France; \*Principal Investigator

## The objectives

- Compile validated names, definitions and relationships for traits of crops in the form of trait dictionaries.
- Enable the curation of the ontology content and data annotation by the curators, researchers, breeders, students etc.
- Synchronize the trait dictionaries with the crop field books of the Integrated Breeding Platform.
- hosted on Google App Engine and the versioned code is hosted on GitHub.

## Access the crop trait names and methods for the field books

- (A) Online GCP Crop ontology & working place for curators
- (B) Login and post comment on a term
- (C) Consult a trait information

- (D) Open the measurement method for scoring stem rust
- (E) Submit new trait names to the ontology web site
- (F) Access target trait information from the Integrated Breeding Field Book disease

## Annotation of phenotypic data with the validated terms of the GCP crop ontology

- The Annotation feature matches validated terms from the ontology with the content of the data file and suggest to replace where necessary the local term leading to the harmonization of the annotation.
- The result can be downloaded as comma separated file that can be uploaded into Excel of a database.
- Still at the prototype level.

2) Here's the generated table. Start annotating your data by clicking cells in the header.

pregno	rep	clone	stem rust	cmd11	cmd31	cmd5f	cmdm1	cbb3s	cbb6s	mcbb5	cbb31	cbb6f	mcbb1	cad5s	cad5f	cgml			
101	1	05/1570	0.7	0.0	0.0	0.0	0.0	3	2	2.5	1.0	1.0	1.0	2	0.3	2			
102	1	05/1740	0.8	0.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	1.0	2	0.1	2			
103	1	05/0303	0.8	0.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	1.0	2	0.1	2			
104	1	05/1601	0.7	0.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	1.0	2	0.2	4			
105	1	05/0127	0.7	0.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	1.0	2	0.1	2			
106	1	05/0286	0.8	0.0	0.0	0.0	0.0	3	3	3.0	1.0	0.9	1.0	2	0.2	4			
107	1	05/0311	0.8	0.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	1.0	2	0.4	4			
108	1	05/0125	0.8	0.0	0.0	0.0	0.0	4	3	3.5	1.0	1.0	1.0	3	0.3	4			
109	1	05/0231	0.8	0.0	0.0	0.0	0.0	3	3	3.0	0.8	1.0	0.9	2	0.3	5			
110	1	05/0741	0.8	7	1	1	1	1.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	3	4	
111	1	05/1274	0.7	7	1	1	1	1.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	3	9	
112	1	05/0128	0.6	5	1	1	1	1.0	0.0	0.0	0.0	4	4	4.0	1.0	1.0	3	7	
113	1	05/1553	1.0	7	1	1	1	1.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	3	4	
114	1	05/0099	0.4	5	1	1	1	1.0	0.0	0.0	0.0	3	3	3.0	0.6	1.0	0.8	2	0.1
115	1	TME 1	1.0	7	1	1	1	1.0	0.0	0.0	0.0	4	4	4.0	1.0	1.0	3	0.3	
116	1	05/0998	1.0	7	1	1	1	1.0	0.0	0.0	0.0	4	3	3.5	1.0	1.0	3	0.4	
117	1	05/1814	0.5	5	1	1	1	1.0	0.0	0.0	0.0	3	2	2.5	1.0	1.0	2	0.3	
118	1	05/0327	0.4	7	1	1	1	1.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	1.0	2	0.3
119	1	05/0024	0.8	5	1	1	1	1.0	0.0	0.0	0.0	3	2	2.5	0.8	0.8	2	0.2	
120	1	30572	0.9	7	3	2	1	2.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	2	0.3	
201	2	05/1740	0.8	5	1	1	1	1.0	0.0	0.0	0.0	3	3	3.0	1.0	1.0	2	0.3	

## Reference

Shrestha R, Arnaud E, Mauleon R, Senger M, Davenport GF, Hancock D, Morrison N, Bruskiwich R, and McLaren G. Multifunctional crop trait ontology for breeders' data: field book, annotation, data discovery and semantic enrichment of the literature. *AoB Plants*(2010) Vol. 2010 plq008 first published online May 27, 2010 doi:10.1093/aobpla/plq008.

