Generation Challenge Programme

Crop Ontology

www.cropontology.org

The Initial Problem

The volume of agriculture-related information and terminology related to phenotype, breeding, germplasm, pedigree, traits, among others, is increasing exponentially.

In order to facilitate access to the data held within and/or across the databases, Generation Challenge Programme (GCP) initiated the development of a Crop Ontology, a tool to facilitate powerful manipulations of the data through ontology-driven approaches.

How did we build it?

The Ontology data is stored inside a non-relational database. We use the cloud computing power provided by Google App Engine which allows us to maintain high-availability across different geographical locations.

Powered by Open Source

Crop Ontology is built on a range of modern open source technology including Google App Engine, jQuery, HTML5 and CSS3. The entire source code is available on GitHub.

→ https://github.com/lmatteis/Crop-Ontology

The GCP Crop Ontology currently provides validated names, definitions and relations for traits for eight crops: cassava, chickpea, groundnut, maize, musa, potato, rice, sorghum and wheat. Trait lists are being developed for common beans and cowpea.

Methods & scales

Retrieve and provide information regarding methodology and scales of measurement.

Annotate your dataset

Match your Excel fields with terms inside the ontology.

Translation

Collaborate on the translation of traits in your own language.

What is it?

This curation and annotation web site is a participatory tool that enables you to browse the Crop Ontology, search for specific terms and access the definition, as well as additional information.

Why?

This system allows anyone to sign up and create their own ontologies. However, only after a moderator has validated their terms do they then become “public”.

Browse crop specific Ontologies

Navigate through the Ontology and find traits of interest. Retrieve traits information such as their name and definition and see the connections with other elements of the Ontology.

Participatory online curation

Through a user-friendly website we allow people from anywhere in the world to access and collaborate on the ontology.

Web standards

Thanks to web standards such as HTML5 and CSS3, we can build highly interactive and easy to use interfaces. This allows users to more easily create and edit ontologies from any computer or mobile device.

Ontologies build connections

Ontologies allow us to build connections between terms and find information that we couldn’t otherwise.

APIS increase productivity

By building a platform with a programmable interface (API) we enable others to extend the functionality of our application in ways we didn’t think of, or didn’t have resources for.

Observations

trait
cassava

trait
rice

plant height

inches

measurement

FYR

WIR

WHR

API

Crop Ontology

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