Ad hoc support

Harmonization, semantic and interoperability of phenotypic and agronomic data workshop

ABSTRACT

Phenotypic descriptions are done at different scales from the field to the cell levels. Big data are produced in the form of alphanumeric matrix, images, readings which may be complemented with knowledge such as statistical or 3D models. All these informations must be properly annotated with metadata enabling meta-analyses and linkage to the genotypes. Like all agronomic data, the phenotyping data:
1. have to be associated with environmental observations (pedo-climatic observations but also probably taking into account landscape information : vicinity of clines, presence of other crops in the neighborhood)
2. are often produced in the frame of well defined experimental designs which include crop management practices
3. need intensive multi-scale integrations (field/plot/plant, cell/tissue/plant, etc.)
4. are often assessed along plant development periods.

Currently, comparison and interpretation of trait data across phenotyping datasets is impeded by the heterogeneity of trait names and description of methods of measurement. Integrated phenotyping analysis also suffered from a lack of connections and shared vocabularies between agronomy, plant disease, entomology, eco-physiology, genetic and breeding scientific fields.

Several applied computer science projects have developed standards, tools and data models to address the issues encountered by scientists and to promote the harmonization and sharing of data; but a complete solution is not yet fully developed.

It currently appears that there is an urgent need to extend the discussions regarding plant phenotype data management in order to efficiently take into account environmental and crop management information and merge the efforts towards the development of a unified Plant

Year : 2016
Project number : 1600-008
Type of funding : SP
Project type : PC
Research units in the network : AIDA DIADE MISTEA TETIS
Start date : 2016-02-01
End date : 2016-06-30
Flagship project : no

Project leader : Jean-François Rami
Project leader's institution : CIRAD
Project leader's RU : AGAP

Budget allocated : 8000 €
Total budget allocated (including co-financing) : 8000 €
Funding : Labex