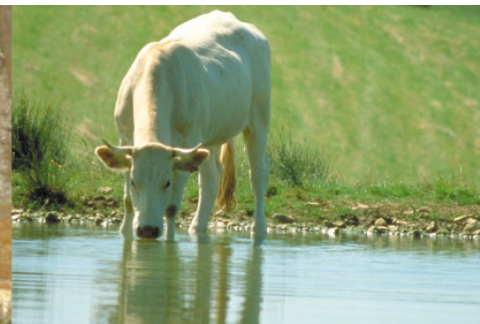


Ontologies for Genotype, Phenotype and Environment interaction studies at the INRA



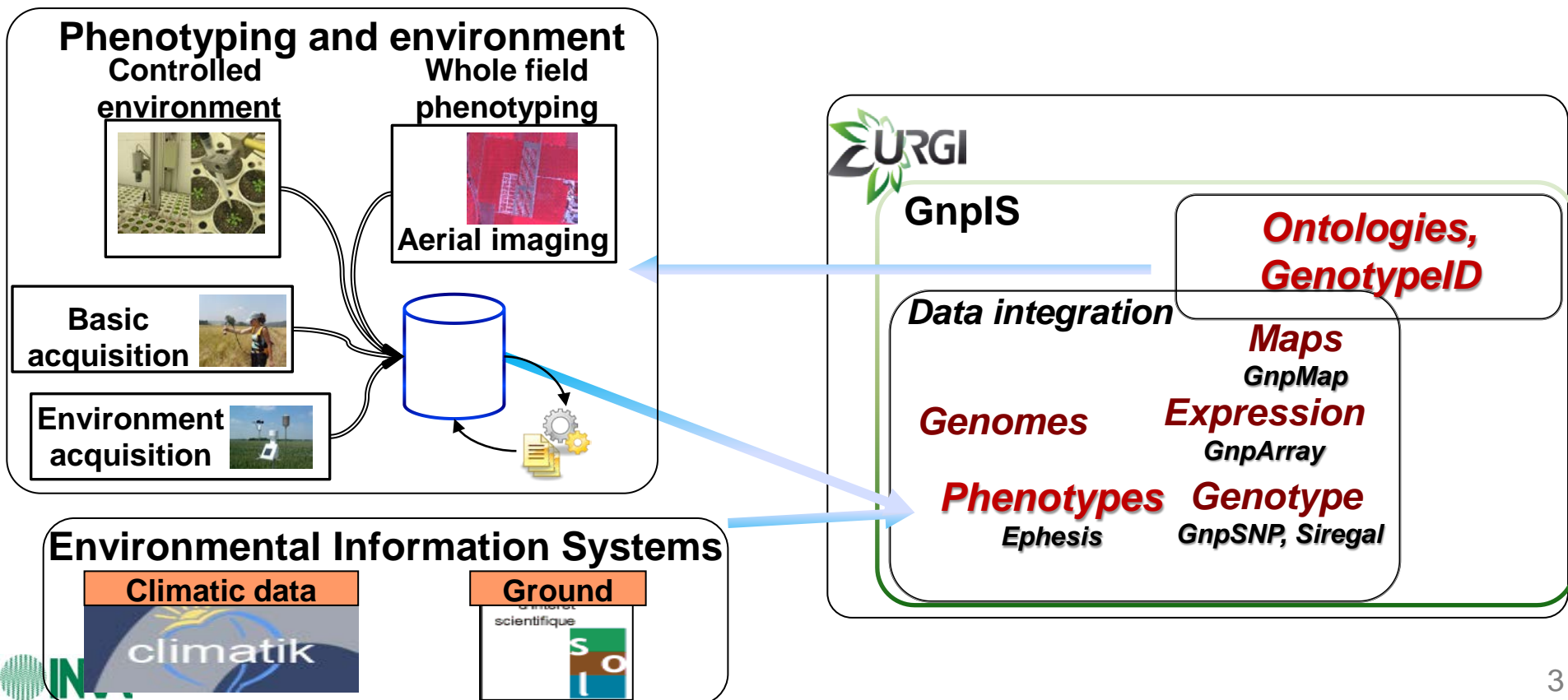
ALIMENTATION
AGRICULTURE
ENVIRONNEMENT

Ontologies and Informations system for GxE studies at the INRA

- IS project : GnpIS.Ephesis
- Who : Expert in phenotype x environment interaction studies.
- Why ontologies
- Which ontologies

Ephesis and GnpIS

- Integrative IS project for experimental trials
- Agronomical traits
- Environment data
- Physical individuals/trial elements rather than virtual genetic resources



Connexion

Principal

- ACCUEIL
- A PROPOS

Recherches

- ESSAI
- DONNÉES EXPÉRIMENTALES

Documentation

- PAGE PROJET EPHEIS
- NOUVEAUTÉS
- NOTES DE VERSION

GnplS

- SOUMISSION
- GNPIIS
- EPHEIS
- GNPARRAY
- GNPGENOME
- GNPMPAP
- GNPPROT
- GNPSEQ
- GNPSEQIGS
- GNPSNP
- SIREGAL
- SYNTENY

Ephesis ^{Beta} / Données expérimentales

RÉSULTATS



Sites expérimentaux Bergheim

1 2 3 4 5 6 7 8 9 10 >> | 751 items trouvés, affichage de 1 à 10 | Afficher 10 résultats par page

#	lotNumber	trialName	trialSite	BlocComplet	Blochincomplet	Parcelle	Rang	Souche	NbInfl	Ferti	NbInflGrnds	NbInfl	NbRam1	NbRam1m2
1	0005E	RIGW section I	Bergheim	1	6	26210	12	2	24	1.7142857	1	0	0	6.787879
2	0005E	RIGW section I	Bergheim	1	6	26210	12	3	28	2	0	0	0	6.787879
3	0071E	RIGW section I	Bergheim	1	6	26211	12	4	22	1.5714285	0	0	1	6.787879
4	0071E	RIGW section I	Bergheim	1	6	26211	12	5	31	2.2142856	0	0	0	6.787879
5	0051E	RIGW section I	Bergheim	1	6	26212	12	6	20	1.5384616	0	0	0	6.3030305
6	0051E	RIGW section I	Bergheim	1	6	26212	12	7	24	1.6	0	0	0	7.2727275
7	0072E	RIGW section I	Bergheim	1	12	26213	12	8	33	2.357143	0	16	12	6.787879
8	0072E	RIGW section I	Bergheim	1	12	26213	12	9	34	2.2666667	2	6	6	7.2727275
9	0001E	RIGW section I	Bergheim	1	12	26214	12	10	26	1.8571428	1	1	1	6.787879
10	0001E	RIGW section I	Bergheim	1	12	26214	12	11	28	2	0	0	0	6.787879

1 2 3 4 5 6 7 8 9 10 >>>

Ontologies

Why

- Data standardization for Phenotyping
 - ◆ Inside species groups
 - ◆ Help new project
 - ◆ Recommended for international collaboration and publications.
 - ◆ Ease data interoperability and reusability.
- From Phenotyping to Genetic
 - ◆ Use of the same terms and ontologies ?
 - ◆ Mapping between ontologies ?
 - ◆ Special semantic links ?

Ontologies

What

- **Phenotype Variable, Traits**
 - ◆ **Value** (numeric, list of notations, triplets, ...)
 - ◆ **Date**
 - Tracked in time : protein content during seed development
 - ◆ **Unit**
 - ◆ **Protocol**
 - Species specific
 - Might change from one group to another
 - Variable/OntologyTerm specialization : yield → plant yield, parcellar yield , subparcellar yield
 - ◆ **Simple** : plant height
 - ◆ **Not so simple** : Young leaf: color of the upper side of blade (4th leaf)
 - ◆ **Cross references** to existing vocabularies / ontologies (OIV, POC, ...)
 - ◆ **Optionally allow to carry synonyms and / or French translations**
- **Environment**

Ontologies

Needs

- Easily subset existing ontologies : Specialized on a specific question
 - Favorites
 - Species tag
 - Specialized Trait ontologies strongly linked to international references. In this case we might a repository for publication.
- Short name → synonyms
- Heavy use of cross references
 - ◆ unit, protocols, allowed values, ...

Ontologies development

- PhenotypeRCN recommandations
 - ◆ Keep it simple
 - ◆ Begin little, merge later
- Ontologies by species groups
 - ◆ Extension of existing ontologies
 - ◆ Create new ontologies
 - Linked (Xref or semantic link ?) to international references

Ontologies development

Examples

- DROPS
- Agronomics
- Grape Ontology
 - ◆ Eric Duchène and Serge Delrot
 - ◆ OIV references (Organisation Internationale Vigne et Vin)
 - ◆ Available on Ontology lookup URGI :
<http://urgi.versailles.inra.fr/ontology-lookup>

+ Must
 + Phenology
 + Wine
 + Berry Quality
 - OIV Descriptor

- Young Shoot: aperture of tip
- **Young Shoot: distribution of anthocyanin coloration on prostrate hairs**
- Young Shoot: intensity of anthocyanin coloration on prostrate hairs
- Young Shoot: density of prostrate hairs on tip
- Young Shoot: density of erect hairs on tip
- Shoot: attitude (before tying)

Term Information

ID: [GR:106](#)

Name: Young Shoot: distribution of anthocyanin color tip

Associated information

definition	OIV Descriptor
xref_definition	Scale:1-2-3
xref_definition	OIV:002

Short term perspectives

- Ontologies for INRA species group
 - ◆ Grape
 - ◆ Wheat
 - ◆ Maize
 - ◆ Arabidospis
 - ◆ Trees
 - ◆ Fruit trees
 - ◆ ...
- Collaboration with there partners