



transPLANT

Trans-national Infrastructure for Plant Genomic Science

www.transplantdb.eu

Proposition of requirements for Minimum Information About a Plant Phenotypic Experiment (MIAPPE)

The list below should be consulted by people recording and depositing the data. It covers most aspects of plant phenotyping experiment. Attributes **in yellow** are included in the default version of MIAPPE-compliant ISA-TAB configuration prepared by transPLANT.

Proposed structure of MIAPPE

Checklist part	Proposition
Study	Accept existing list(s)
Environment	Accept existing list(s)
Biosource	Accept existing list(s)
Treatments	Accept existing list(s)
Experimental design	New list (gap)
Sample: collection, processing, management,	Accept existing list(s) + additional attributes (gap)
Phenotypic traits: values, type, measurement protocol, processing protocol, scale, units	New list (gap)

Proposed checklists for MIAPPE elements

Checklist section	Attributes (number of: 1 or multiple)	Source list / Biosharing ID / Reference	Alternative checklist / Biosharing ID / Reference
Study	Identifier 1 Title 1 Description 1 Submission date 1 Public release date 1 Publications m	Default ISA-TAB tools configuration http://www.biosharing.org/bsg-000078	
Environment	Description of any field environment: Geographic location m Altitude or depth m Habitat m Meteorological conditions m Lunar or solar phase m All other measured parameters m Description of any laboratory environment: Laboratory address and contact details m Description of terrestrial environment: Inclination and aspect m Substrate type m Substrate temperature m All other measured parameters m Description of aquatic environment: Sample was submerged and emerged (how deep, how long) m Water temperature m Tidal phase m All other measured parameters m Description of atmospheric environment:	CIMR: Environmental Analysis Context http://www.biosharing.org/bsg-000175 Morrison et al. (2007) http://msi-workgroups.sourceforge.net/bio-metadata/reporting/env/reporting-requirements/ECWSG_reporting_requirements_v1.rtf	MIxS environment http://www.biosharing.org/bsg-000518

	Atmospheric temperature m All other measured parameters m Description of biotic environment: Description of host organism m Relationship of organism(s) to host m All other measured parameters m		
Biosource	Organism (host taxid) 1 Infra_specific_name 1 Infra_specific_rank 1 Host common name 1 Genotype m	MIxS Plant-associated environmental package http://www.biosharing.org/bsg-000518 Yilmaz et al. (2011) http://www.nature.com/nbt/journal/v29/n5/full/nbt.1823.html	CIMR: Plant Biology Context http://www.biosharing.org/bsg-000175 Fiehn et al. (2007b) http://msi-workgroups.sourceforge.net/bio-metadata/reporting/pbc/doc.rtf MIAME/Plant http://www.biosharing.org/bsg-000182
Treatments	Climate environment m Seasonal environment m Air temperature regimen m Antibiotic regimen m Chemical administration m Chemical mutagen m Disease status m Fertilizer regimen m Fungicide regimen m Gaseous environment m Gravity m Growth hormone regimen m Herbicide regimen m Mechanical damage m Mineral nutrient regimen m Humidity regimen m Non-mineral nutrient regimen m	MIxS Plant-associated environmental package http://www.biosharing.org/bsg-000518 Yilmaz et al. (2011) http://www.nature.com/nbt/journal/v29/n5/full/nbt.1823.html	CIMR: Plant Biology Context http://www.biosharing.org/bsg-000175 Fiehn et al. (2007b) http://msi-workgroups.sourceforge.net/bio-metadata/reporting/pbc/doc.rtf MIAME/Plant http://www.biosharing.org/bsg-000182

	Radiation regimen m Rainfall regimen m Salt regimen m Watering regimen m Water temperature regimen m Standing water regimen m Pesticide regimen m pH regimen m Perturbation m		
Experimental design	Spatial coordinates: Plant number Plot number Plot (x, y) coordinates Plot geographical coordinates Time coordinates: Day Time Blocking: Block Subblock Sub-sub-block Superblock Row Column Other Replication: Biological replication Technical replication	New list	-
Sample collection, processing management	Plant body site (organ) 1 Age 1 Life stage 1 Plant product 1	List exist for assays in CIMR, MIAPE, MIMARKS (ISA-TAB configurations) + new attributes for phenotypic assays	-

	Organism count 1 Temperature 1 Oxygenation status of sample 1 Sample salinity 1 Sample storage duration 1 Sample storage location 1 Sample storage temperature 1 Sampling time m		
Phenotype	Phenotypes (traits): Name m Method m Scale m Observations: Raw data m Processing protocol m Derived data m	“Trait/Method/Scale” triplet approach applied by Generation Challenge Program Crop Ontology (http://www.cropontology.org , Shrestha et al., 2012). List accepted from default ISA-TAB tools configuration http://www.biosharing.org/bsg-000078	