## 



**transPLANT**

**Trans-national Infrastructure for Plant Genomic Science**

[**www.transplantdb.eu**](file:///C:\Users\hcwi\Downloads\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:  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 | **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> |
| Biosource | Organism (host taxid) 1  Infra\_specific\_name 1  Infra\_specific\_rank 1  Host common name 1  Genotype m | **MIxS Plant-associated environmetal 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  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 | **MIxS Plant-associated environmetal 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> |
| 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  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 | List exist for assays in CIMR, MIAPE, MIMARKS (ISA-TAB configurations) + new attributes for phenotypic assays | - |
| 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> |  |