##



**transPLANT**

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

[**www.transplantdb.eu**](file:///C%3A%5CUsers%5Chcwi%5CDownloads%5Cwww.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 1Title 1Description 1Submission date 1Public release date 1Publications m | **Default ISA-TAB tools configuration** <http://www.biosharing.org/bsg-000078> |  |
| Environment | Description of any field environment:Geographic location mAltitude or depth mHabitat mMeteorological conditions mLunar or solar phase mAll other measured parameters mDescription of any laboratory environment:Laboratory address and contact details mDescription of terrestrial environment:Inclination and aspect mSubstrate type mSubstrate temperature mAll other measured parameters mDescription of aquatic environment:Sample was submerged and emerged (how deep, how long) mWater temperature mTidal phase mAll other measured parameters mDescription of atmospheric environment:Atmospheric temperature mAll other measured parameters mDescription of biotic environment:Description of host organism mRelationship of organism(s) to host mAll 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) 1Infra\_specific\_name 1Infra\_specific\_rank 1Host common name 1Genotype 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 mSeasonal environment mAir temperature regimen mAntibiotic regimen mChemical administration mChemical mutagen mDisease status mFertilizer regimen mFungicide regimen mGaseous environment mGravity mGrowth hormone regimen mHerbicide regimen mMechanical damage mMineral nutrient regimen mHumidity regimen mNon-mineral nutrient regimen mRadiation regimen mRainfall regimen m Salt regimen mWatering regimen mWater temperature regimen mStanding water regimen mPesticide regimen mpH regimen mPerturbation 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 numberPlot numberPlot (x, y) coordinatesPlot geographical coordinatesTime coordinates:DayTimeBlocking:BlockSubblockSub-sub-blockSuperblockRowColumnOtherReplication:Biological replicationTechnical replication | New list | -  |
| Sample collection, processing management | Plant body site (organ) 1Age 1Life stage 1Plant product 1Organism count 1Temperature 1Oxygenation status of sample 1Sample salinity 1Sample storage duration 1Sample storage location 1Sample storage temperature 1Sampling time m | List exist for assays in CIMR, MIAPE, MIMARKS (ISA-TAB configurations) + new attributes for phenotypic assays | -  |
| Phenotype | Phenotypes (traits):Name mMethod mScale mObservations:Raw data mProcessing protocol mDerived 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> |  |