instructions

Contents

Accessing and setting up the template

Google Sheets (preferred)

The data entry template is available as a View-only Google Sheet here: https://docs.google.com/ spreadsheets/d/1tbePuzJnCmVSI1n4J1yVnqH2MedqRT35vxUPtHzw3u8/edit#gid=1167393800
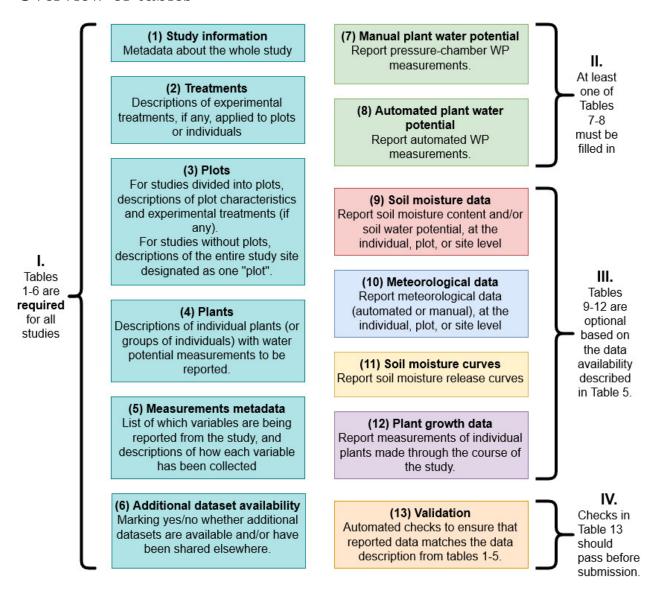
To enter your data, please *make a copy* of this Google Sheet using File > Make a copy. Name your copy of the sheet something informative. *RMD note: A specific format here may be helpful, but "shouldn't" matter as we will be extracting values programmatically from the Google Sheets, and the identifying information is also present in the table itself.*

Enter your data by working through this document. When you are done, please submit your data using the form *here.* *RMD note: Update this to a survey form that takes the Google Sheet URL and includes instructions for updating sharing permissions so we can access it.*

Microsoft Excel (less preferred)

Not implemented yet, but once we have a stable version of the template in GSheets we can create an Excel analog without too much trouble and post a link to it here.

Overview of tables

| (1) Study information
Metadata about the whole study | (7) Manual plant water potential
Report pressure-chamber WP measurements. |
| (2) Treatments
Descriptions of experimental treatments, if any, applied to plots or individuals | (8) Automated plant water potential
Report automated WP measurements. |

II. At least one of Tables 7-8 must be filled in

I. Tables 1-6 are **required** for all studies

- **(3) Plots**
  For studies divided into plots, descriptions of plot characteristics and experimental treatments (if any).
  For studies without plots, descriptions of the entire study site designated as one "plot".

- **(4) Plants**
  Descriptions of individual plants (or groups of individuals) with water potential measurements to be reported.

- **(5) Measurements metadata**
  List of which variables are being reported from the study, and descriptions of how each variable has been collected

- **(6) Additional dataset availability**
  Marking yes/no whether additional datasets are available and/or have been shared elsewhere.

- **(9) Soil moisture data**
  Report soil moisture content and/or soil water potential, at the individual, plot, or site level

- **(10) Meteorological data**
  Report meteorological data (automated or manual), at the individual, plot, or site level

- **(11) Soil moisture curves**
  Report soil moisture release curves

- **(12) Plant growth data**
  Report measurements of individual plants made through the course of the study.

III. Tables 9-12 are optional based on the data availability described in Table 5.

- **(13) Validation**
  Automated checks to ensure that reported data matches the data description from tables 1-5.

IV. Checks in Table 13 should pass before submission.

Instructions for entering data

T1: Study information

Enter a single row of data with information about your study.

If you are submitting data for multiple sites, please fill in separate templates for each.

T2: Treatments

This table describes the experimental treatments (if any) applied at either the "plot" or "individual" level. For example, your study might involve rainout shelters or fertilizer applications to some plots but not other. Or, you may have conducted a greenhouse experiment where some *individuals* received water additions or had experimentally manipulated phenotypes.

1. If your study does *not* contain experimental treatments (i.e. all measurements are under "ambient" or "control" conditions), set `Level of Treatment` to "Entire Study" and set the `Treatment ID` to "No treatment".
2. If the study contains experimental treatments at the level of plots (or transects, or stands):
    1. Set 'Level of Treatment to "Stand/plot/transect".
    2. For all non-control treatments, enter a Treatment ID (short code for how the treatment is referred to elsewhere in the data) and a Treatment Description describing the treatment.
    3. For example, "LOW_WATER" for Treatment ID and a description of a rainfall manipulation experiment for Treatment Description.
3. If the study contains experimental treatments at the level of individuals (e.g. individuals grown in a greenhouse under separate conditions, or genotype experiments):
    1. Select Level of Treatment = Individual
    2. For all non-control treatments, enter a Treatment ID (short code for how the treatment is referred to elsewhere in the data) and a Treatment Description describing the treatment.
    3. For example, "PHENO_1" for Treatment ID and a description of a phenotype manipulation experiment for Treatment Description.

T3: Stand/plot/transect

For studies divided into plots (or stands, transects, or any other unit or organization between "Whole study" and individual plants), this table describes those, including abiotic conditions and experimental treatments (if any).

If your study does not contain meaningful plots (e.g. measurements in a single greenhouse bay or a single stand of trees), describe the entire study site as a single "plot".

1. If the study does not have any "plot" structure (for example, all measurements are taken from a single "plot", or the study is a greenhouse experiment with a single room, or treatments are imposed only at the individual level):
    1. Set the Plot_ID to "Whole site"
    2. Set Treatment_ID to "No treatment"
    3. Enter the remaining data for the study site (as applicable).
2. If the study is divided into plots:
    1. Enter one row for each plot
    2. Assign a unique Plot ID to each plot.
    3. Select the appropriate experimental treatment ID. Treatment IDs must come from the treatments described in the Treatmetns table (2).
    4. Enter the remaining data fields as applicable.

T4: Plants (individuals)

This table describes the individual plants (or, if measurements are pooled among multiple individuals of the same species, groups of individuals) for which water potential will be reported.

1. If water potential measurements reported correspond to specific individuals: 1. Assign each individual an Individual_ID and set the "Number_of_individuals" to 1.
2. If water potential measurements reported derive from pools of multiple individuals (of the same species, in the same plot): 1. Assign each pool an Individual_ID and set the "Number of individuals" to the number of individuals in the pool.

3. If the study is organized into plots (see the Plots table): 1. Specify which plot each individual or pool of individuals comes from. If there are no meaningful plots, set all Plot_IDs to "Whole site". 1. Plot IDs must come from the plots described in the Plots table.
4. If experimental treatments are assigned at the "Site" or "Plot" levels, assign the Plot Treatment ID corresponding to the treatments described in the Treatments Table.
5. If experimental treatments are assigned at the individual level, assign the Individual Treatment ID corresponding to the treatments described in the Treatments Table.
6. Enter the remaining columns as available/applicable.

T5: Data descriptions

This table describes the data variables (plant water potential, and any additional related covariates) to be reported in the following tables.

At least one of Automated and/or Manual Plant Water Potential must be supplied (green rows). All other variables are optional. Rows are color coded according to which table each variable is reported in.

T6: Additional datasets

T7: Manual plant WP

T8: Automated plant WP

T9: Soil moisture data (timeseries)

T10: Meteorological data

T11: Plant growth data

T12: Soil moisture curves

T13: Submission validation

Instructions for submitting data