Instructions for using the DATAMAN database to generate ammonia, nitrous oxide and methane emission factors for agriculture.

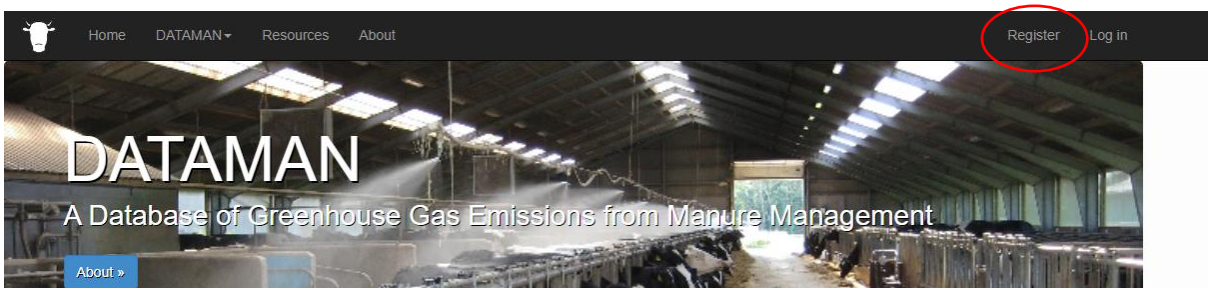
Background

The DATAMAN and MELS projects were created to build a publicly available global database of methane (CH_4), nitrous oxide (N_2O), and ammonia (NH_3) emissions (plus relevant activity and ancillary data) relating to livestock housing, storage, and field application of manure (including excreta deposited during grazing) (Beltran et al. 2021; Hassouna et al. 2023). The overall aim of these projects is to provide researchers and policy makers alike with the most up-to-date knowledge on methods for managing GHG and NH_3 emissions from manure. DATAMAN contains three databases: (1) housing, (2) storage, and (3) field-based emissions. In future, DATAMAN will be expanded to include a fourth database focusing on NH_3 and N_2O emission factors for synthetic N fertilisers.

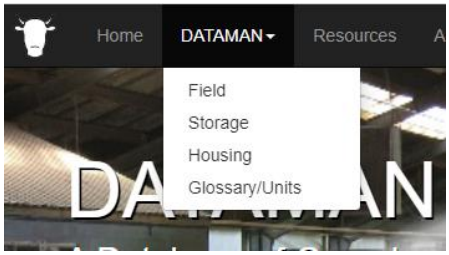
How to access and download the data.

The first step is to register as a user of DATAMAN. There is no cost to register, just simply click on Register (circled below) and follow the steps.

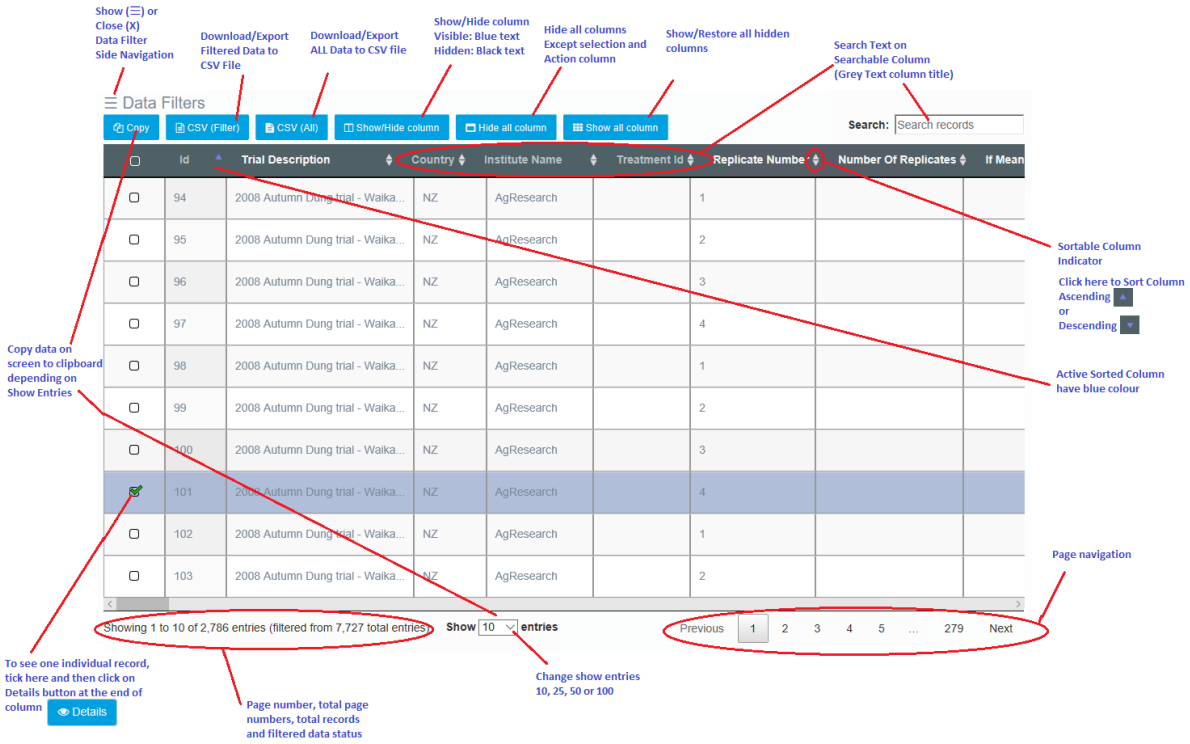
If registered, then log in.



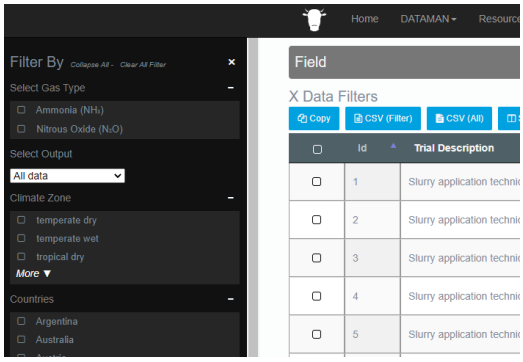
As noted, DATAMAN contains three databases (housing, storage, and field). The three databases, plus a glossary/units page, can be found in the DATAMAN tab in the Menu options at the top of the website screen:



The database has a number of options and functions (see below, showing the Field database). To download all of the data, simply click CSV (All). However, if you are only interested in a subset of the database, then use the ☰ Data Filters function by clicking on the hamburger menu (top left on screenshot shown below).



Once the menu is clicked, filtering options appear on the left:



These can be used for selecting data based on gas type (CH_4, N_2O, NH_3) and whether 'all data' or 'emission factors only' are required, followed by a list of factors that can be filtered. Available factors for filtering include:

- Climate zone
- Countries
- Institutes
- Emission Measurement Method
- Animal Category

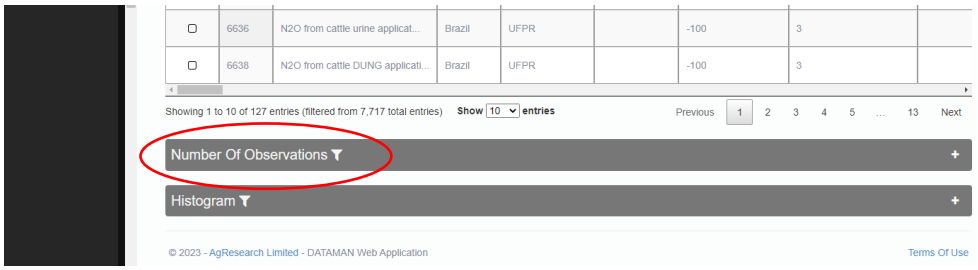
- Manure type
- Housing type (Housing only)
- Floor type (Housing only)
- Storage type (Storage only)
- Manure treatment (Storage and Field only)
- Manure application method (Field only)

Example of how to download data from a single country – 7 easy steps.

How do I download all Brazilian data associated with N_2O emissions and emission factors for grazing and manure application to land?

1. Select 'Field' database
2. Click on 'Data Filters' menu
3. Select Gas type: Nitrous oxide
4. Select Output dropdown list: All data (this is the default setting)
5. Go down to Countries and expand the list of countries by clicking on the 'more' arrow
6. Select 'Brazil'
7. Download Brazilian data by clicking 'CSV (Filter)'. A comma separated values (CSV) file will be downloaded to your computer which can then be saved and used for examining and/or analysing.

Note: you can check what type of data is included in filtered subsets by clicking on the 'Number of Observations' beneath the table of database entries.



References

Beltran, I., van der Weerden, T.J., Alfaro, M.A., Amon, B., de Klein, C.A.M., Grace, P., Hafner, S., Hassouna, M., Hutchings, N., Krol, D.J., Leytem, A.B., Noble, A., Salazar, F., Thorman, R.E., Velthof, G.L., 2021. DATAMAN: A global database of nitrous oxide and ammonia emission factors for excreta deposited by livestock and land-applied manure. Journal of Environmental Quality 50:513–527.

Hassouna, M., van der Weerden, T.J., Beltran, I., Amon, B., Alfaro, M.A., Anestis, V., Cinar, G., Dragoni, F., Hutchings, N.J., Leytem, A., Maeda, K., Maragou, A., Misselbrook, T., Noble, A., Rychła, A., Salazar, F., Simon, P., 2023. DATAMAN: A global database of methane, nitrous oxide, and ammonia emission factors for livestock housing and outdoor storage of manure. Journal of Environmental Quality, 52:207–223.

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