This repository contains the R scripts used for the data analysis and modelling for the publication:

Manure matters: Prospects for regional banana-livestock integration for sustainable intensification in South-West Uganda, by den Braber et al. in the International Journal for Agricultural Sustainability.

<http://dx.doi.org/10.1080/14735903.2021.1988478>.

For repeating the analysis and obtaining the figures presented in the paper, do the following:

Start a new R project, and make the following folders:

-data\_analysis

-model

-results

Each folder and the content it should contain will be described in detail hereunder.

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Data analysis

The folder 'data\_analysis' has 2 subfolders:

-data

-scripts

>sub\_folder 'data' containst two sub\_sub\_folders:

> 'defintions\_protocols' contains a text.file with metadata and a csv file with all

the definitions of all the variables used in the input survey

> 'raw' contains csv files with all raw (anonymized) data from the input use survey

> subfolder 'scripts' contains all the scripts used for the analysis of the input use survey.

Download the following scripts from the repository and store in this folder:

1\_data\_analysis\_for\_table\_3.R

2\_data\_analysis\_for\_table\_3.R

3\_data\_analysis\_for\_table\_3.R

4\_figure\_4.R

5\_figure\_5.R

6\_table\_5.R

my\_figure\_theme.R

Running the scripts in consecutive order generates the information to fill table 3, and

generates figures 4,5 and 6 from the paper. These figures and information are

automatically stored in folder results.

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Model

The folder 'model' contains 2 subfolders:

-data

-scripts

>sub\_folder 'data' contains two sub\_sub\_folders and several csv files:

> banana\_area\_mapping contains the results of a spatial analysis in which the

% of banana area was visually estimated for a gridded file. It is used to calculate

the total banana area in the 2 sub-counties of interest

> 'sensitivity\_analysis' provides the input files for the model sensitivity analysis

> the remaining csv files contain otherthe remaingin input files to run the model and

to obtain figures 6,7,8,9 and table 4,5 and 6 as presented in the paper.

> subfolder 'scripts' contains scripts prefix "M". Running these scripts in consecutive

order will generate figures 6,7,8,9 and table 4,5 and 6.

M1-4 are the subroutines of the model

M5 contains a wrapper function which activates the sub routines.

M6 tranforms csv input files into a format which can be read by the model

M7 transforms the model output in files that can be analyzed furhter

M8 - M16 run the model in several ways to obtain figure 6,7,8,9 and table 4,5 and 6,

which are then stored in folder 'results'.