Description of the Niger Crop Model for Millet

The purpose of this model is to provide information on crop productivity increases from using treated urine (Takin Ruwa) as fertilizer as compared unfertilized for growing millet.

To use the model, click on the yellow-shade box directly to the right of the text "Click here to begin! >>". This will show a drop-down menu. Select a variable type and then enter the value for the variable. Repeat this for the second variable and the model will display the results.

The model is built in Excel and consists of two spreadsheets: the model and the data. The sheets are locked to provide the best user experience, but there is no password so users are welcome to unlock the sheets and examine the calculations and data. There is a small macro that resets the variable type and value when the user changes the first variable. Depending on the software you use to open the spreadsheet, the user may have to allow the macro to run.

The model is built to be as self-explanatory as possible, and most users will find all the information they need to use the model already available within the Excel file.

The model requires two input variables to function. The input variables are a combination of number of people, amount of urine, cropping area and application rate. Using these input variables, the model calculates the potential crop productivity for millet. The output is given in two groupings, one for millet without fertilizer and one for millet with Takin Ruwa fertilizer. Both the crop productivity and the yield are given, including a range that is based on the standard deviation for the source data.

There are three optional data entry options: market value of Takin Ruwa, cost of urea fertilizer, and market price for millet. These optional data support the Optional Outputs part of the model, specifically the outputs that give a USD amount.

The Niger Crop Model for Millet is based on data from "Modelling of productive sanitation systems, Niger" by Louise Karlberg. The output data from this model are the amount of urine used, the crop productivity, and the standard deviation. The relationship between the amount of urine and crop productivity is close to linear and a linear equation is used to interpolate the data for urine application rates between 0 and 10000 litres per hectare. Additionally, the output data are given for three different climate scenarios: normal, wet and dry. Full details on this data model are given in the supporting document:
"*SupportingDocument-ModellingOfProductiveSanitationSystemsNiger2010.doc*"

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