

# **Cranfield Agricultural LCI Models Release Notes (3)**

## **July 2008**

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## **1 Main changes since February 2007**

Since the last release of the models in February 2007, several improvements have been made to the arable and animal models and some bugs were eliminated. The tomato model has not been changed as the work on this is still ongoing.

Main changes include:

- The models now use the IPCC 2006 methods for calculating greenhouse gas emissions at the Tier 2 or 3 level and use the 2006 coefficients for Global Warming Potential (previously used IPCC 2001 values)
- Revised ammonia emission estimates have been incorporated to make the model accord closely with the UK NARSES model  
([http://randd.defra.gov.uk/Document.aspx?Document=AM0101\\_3668\\_FRA.doc](http://randd.defra.gov.uk/Document.aspx?Document=AM0101_3668_FRA.doc))
- The energy carriers have been update to use more recent and public data from the EU's European Reference Life Cycle Data System (ELCD)  
(<http://lca.jrc.ec.europa.eu/lcainfohub/index.vm>)
- More scenario options have been added to most animal production areas
- The sheep industry model has been restructured
- The milk model has an improved nutritional model
- Manure arisings are more closely linked to diet
- Potato irrigation energy revised
- Fertiliser and pesticide manufacture energy reviewed and some revised.

Most individual results have not changed very much since the last release although the primary energy for sheep production has come down noticeably with a change in proportion of hill sheep.

## **2 Using the models**

- **You must unzip the files before using them.**
- They are big and can be slow, especially on older computers.
- Use the toolbar to select commodities and other options.
- If using the animal model, the arable one is loaded in the background, but if you want to use the arable one, you should close the animal one and load the arable one separately.
- The tomato one stands alone.

- Each arable crop has a scenario sheet that allows exploration of various parameter values. Data can be exported to a CSV file from each scenario sheet. These can be loaded back into Excel.
- The animal model has one scenario sheet for all commodities. Results can be exported from the Results sheet. Each animal production commodity has its own input, model and results sheet, which show details of the workings. When using the main animal scenario sheet, there may be a delay of a few seconds in between making a change and a prompt asking if you wish to make any other changes. Do not worry, it is Excel ensuring that everything that could be calculated has been.
- Please note that the models operate at a commodity, **not farm level**. The models use a steady state analysis, so that they do not reflect practices that might occur during the transition from one system to another. They were developed from data that were applicable to England and Wales, although much will also be appropriate for other parts of the UK.
- It is fair to note that there is disagreement about the interpretation of organic production used in our work.

### Continuous improvements

All results are the best that we believe we can make them. Work continues in improving the science and its implementation, so future versions may not give the same results for all commodities. The models are being updated to incorporate more recent data, such as estimates of GHG emissions from agriculture in line with the IPCC 2006 reporting guidelines, revised ammonia emission estimates. Some substantial changes may thus result once this is complete.

## 3 “I have a problem”

A few people have reported some problems running the models. In an ideal world, if you load the animal\_LCA.xls and change one of the values in the right hand column on the scenario sheet, it will say "Be patient" and then have changed the values on the Results page.

### 3.1 Problem 1: Can't find file "...Temporary.....Arable....."

This is because you are running the spreadsheets from the zip file. They **MUST** be specifically extracted into a directory (File\Extract All). It may look very similar but it is not the same.

### 3.2 Problem 2: Runtime Error 9. Subscript out of range

This occurs when the spreadsheet Animal\_LCA.xls is given a different name. It **MUST** have this name. (Suggest you put it in a folder with a different name)

Awkward problems about the animal book are best addressed to Eric Audsley  
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