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Proceedings

8th International Conference on

Life Cycle Assessment in the Agri-Food Sector

LCA FOOD 2012

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France

INRA

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Welcome

Soyez les bienvenus à LCA Food 2012 à Saint-Malo, France !
Welcome to LCA Food 2012 in Saint Malo, France!

"Towards Sustainable Food Systems"

The LCA FOOD conference series is the world's premier scientific and technical forum on Life Cycle Assessment in the agri-food sector. We hope that you will find the conference interesting and enjoyable and that you will "harvest" new ideas and contacts. Your input to the conference will contribute to its success.

The previous conferences in this series took place in Brussels (1996, 1998), Gothenburg (2001, 2007), Horsens (2003), Zürich (2008) and Bari (2010). This year, for the first time, the conference takes place in France. It has been organised by INRA, the French National Institute for Agricultural Research, with the support of ADEME, the French Environment and Energy Management Agency.

Objectives of the conference

The production, transformation, distribution and consumption of food and drink contribute strongly to human prosperity and health. However, the food and agriculture sector also contributes a large part of the environmental impacts caused by human activities. Because these impacts, in particular climate change and biodiversity loss, need to be reduced urgently, a shift towards sustainable food systems is essential.
Over the last two decades the Life Cycle Assessment (LCA) methodology has been developed and applied in the agriculture and food sectors to quantify environmental impacts and assist decision making. In recent years, LCA in the agri-food sector has developed rapidly, in particular for sustainability assessments of agricultural systems and their products, and for guiding consumers toward sustainable food-consumption patterns (e.g., via eco-labelling).
LCA Food 2012 will serve as a global forum in which to share recent developments in LCA methodology, databases and tools, as well as applications of LCA to food-production systems and food-consumption patterns. All of this will contribute, we hope, to achieving the 2012 conference motto: "Towards Sustainable Food Systems".

From the 362 abstracts submitted, the conference is scheduled to have 121 oral presentations and 183 posters, and at the time of writing, we expect more than 420 participants from at least 42 countries. In addition to this book of abstracts, which contains 2-page abstracts for most oral presentations and posters, you will find 6-page papers for most oral presentations, along with the poster abstracts, in the conference proceedings, provided as a PDF file on the memory stick in your conference beach bag.

We want to thank the authors for their presentations and posters. We are very grateful to the 23 members of our scientific committee for their efforts in reviewing the abstracts and selecting the papers for oral presentations. We warmly thank our sponsors for supporting the conference. Last but not least, we want to thank our indefatigable INRA colleagues of the organising committee for their essential contribution to the success of the conference.

We hope you will appreciate the scientific and technical content of the conference, contacts with participants, the French and Breton cuisine during the lunches and Gala Dinner, and the city of Saint Malo and its seaside. We are delighted to welcome you to this beautiful region to join the rapidly growing LCA Food community and hope you will meet old friends and make new ones.

Michael Corson
LCA Food 2012 co-chair

Hayo van der Werf
LCA Food 2012 co-chair

POSTER SESSION B - WEDNESDAY, 3 OCTOBER, 16.20-16.50

GROUP 4, SESSION B: CROP PRODUCTION SYSTEMS

110. Land use key parameters to be addressed in life cycle assessment study of soybean grains

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Brazil is considered as one of the largest exporters of agricultural products in the world. The growth of Brazilian agriculture in a continuous and solid way is extremely important to improve the quality of life of millions of Brazilians. A great part of this growth has come from the soy complex (grain, meal and oil) whose exports have more than quadrupled over the last 10 years, reaching the value of US$ 23.8 billion in 2011. In 2011, Brazil produced 74.3 million tons of soy, being ranked as the second largest world producer of soy with 26% of the world crop, estimated at 263.7 million tons. The cultivation of soy occupies the largest area (35.7%) among the products of the annual and perennial crops of the country. Soy is planted-practically all over the country with the Center-west (49%) and South (34%) being two of largest areas. The recent expansion of the crop has taken place in areas of degraded pasturelands. Due to the importance of this crop to the country, the objective of this work is to select important parameters relative to the land use which can be considered in a life cycle assessment study of soy grains. The first selected parameter is the occupation of agricultural lands for this crop. The country has an area of 8.5 million of km^2 of which 37.3% is used for general agricultural and pasture purposes and 25.6% for cultivation of food products such as meat and vegetables. As the parameters for land use have not been established yet for LCA purposes in the country, 2.18 million of km^2 was considered as the reference area for normalisation of land for food production. The average land occupation for the soy crop 1.12 m^2yr per ton produced in 2010. Besides the territorial occupation itself the authors suggest that the total amount of fertilisers in relation to the nitrogen, phosphorus and potassium macronutrients as well as the total amount of pesticides (only actives) used per hectare could be indicative of the human interference on the land. These indicators are independent of the climate, temperature, relief, type of the soil or other factor that minimises the anthropogenic interference due to the capability of nature recovering. They are also independent of time, a key parameter in agricultural impacts. The impact of land use could be evaluated by soil organic matter content as this measure is considered as the one of the best stand-alone indicator of life support functions of land. Soil organic matter, consisting mostly of C, is the largest terrestrial pool in the C biogeochemical cycle. Soil organic matter, although occupying only 5% of the total soil volume, has an important influence in soil physical, chemical and biological properties, directly influencing the productivity of soybean. Management systems capable of maintaining and even increasing the soil organic carbon may stocks contribute to maintaining the productive capacity of soils and to mitigate the problem of increasing atmospheric CO2.

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