

*Final programme*

**International Conference  
on  
LCA in Foods**

*Gothenburg, Sweden  
26-27 April, 2001*



Organised by  
SIK, the Swedish Institute for Food and Biotechnology  
In collaboration with  
Vito, the Flemish Institute for Technological Research



## Scope and Objectives

Life Cycle Assessment (LCA) has proven to be a valuable tool to identify and quantify the potential environmental impacts throughout the entire life cycle of a product. The products are studied starting from the exploitation of resources, over the production, the use and the final disposal of the product. In recent years LCA has been applied in the areas of agriculture and food production with the aim to improve the environmental efficiency of the production chains.

This third international conference on LCA in agriculture and food production will update the progress made since the two previous editions organised by VITO in 1996 and 1998 in Brussels, Belgium. This conference has been organised by SIK, The Swedish Institute for Food and Biotechnology in close co-operation with VITO, The Flemish Institute for Technological Research.

The main objective of this two-day conference is to provide a discussion forum for researchers working in the field of LCA and for industry and decision makers interested in the environmental impact of foods. An overview will be given of the achievements made with regard to the application of LCA in agriculture and food production. The presentations will highlight methodological development as well as application of LCA in the food area. Specific methodological issues which become relevant when LCA is applied on foods will be addressed. Case studies will demonstrate the value of life cycle approaches, e.g. in supporting decision making processes, product improvement and eco-labelling.

Among other themes, the following issues are to be explored.

### **LCA methodology**

- system boundaries and allocation
- assessment of land use
- assessment of pesticides

### **Case studies**

- vegetable and animal food products
- fishery
- diets

### **LCA as a tool for decision support**

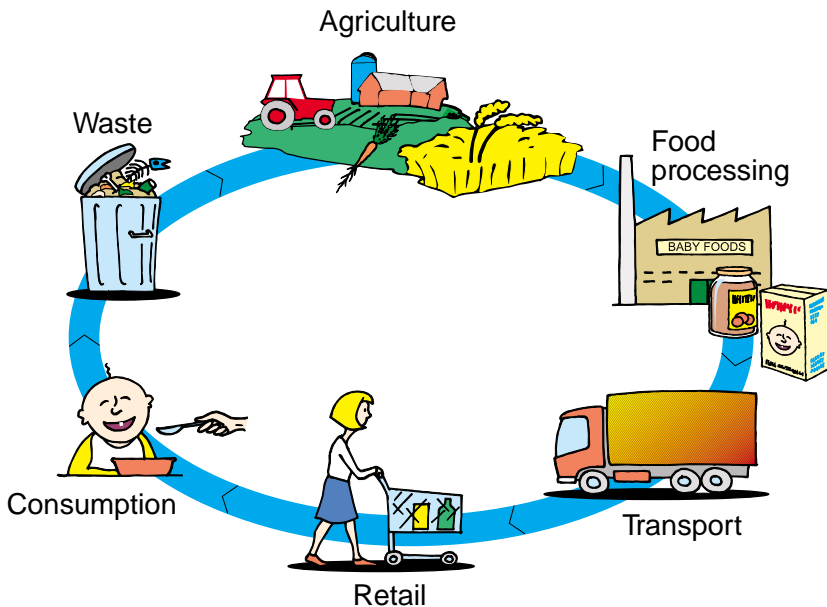
- achievement of more sustainable production and consumption patterns
- selection of clean technologies
- comparison of alternative production processes, e.g. organic and conventional production

## Programme

On the first day methodological backgrounds on LCA will be given and the application of LCA on animal production and fish will be presented and discussed. The second day starts by focusing on LCA studies comparing organic and conventional production and the assessment of the toxic impacts of pesticides. Later the assessment of land use and environmental impact of choice of diets are discussed.

Communication is done by means of platform presentations and posters. Poster sessions include the development of methodology and case studies.

Each of the posters is introduced during the plenary sessions by means of short presentations. All posters will remain on display during the entire conference.



❖ **Morning session: Methodology**

**Chair: Anne-Marie Tillman, Chalmers University of Technology, Sweden**

- 08.00 Registration – Coffee and tea
- 09.00 Welcome and introduction  
*Thomas Ohlsson, SIK, Sweden*
- 9.40 The use of Eco-indicator 99 for the impact assessment of food products  
*N. Jungbluth, ESU services, Switzerland*
- 10.10 LCE-agri – A decision support system based on LCA and LCC methodology within the framework of groundwater protection  
*M. Flake, LCE-Consulting GmbH, Germany*
- 10.40 Coffee/tea break
- 11.00 Food-environment relationships: Beyond LCA  
*M. Helms, Vrije University, The Netherlands*
- 11.30 Poster session 1: short presentations
- 12.10 Lunch – Poster session

❖ **Afternoon session: Meat and fish**

**Chair: Theo Geerken, VITO, Belgium**

- 14.00 Analysis of complex product systems: A pig meat study  
*S. Eftting, PRé Consultants, The Netherlands*
- 14.30 System expansion and allocation in Life Cycle Assessment of milk and beef  
*C. Cederberg, Göteborg University, Sweden*
- 15.00 Coffee/tea break
- 15.20 Life Cycle Assessment applied to seafood: A case study about Swedish cod fishery, demonstrating new methods to assess the environmental impact of seafood production  
*F. Ziegler, SIK, Sweden*
- 15.50 LCA as a basis for labelling of fish products  
*M. Thrane, Aalborg University, Denmark*
- 16.20-17.00 Poster presentations and poster session 2

❖ **Morning session: Inputs and production processes**  
**Chair: Chris Dutilh, Unilever, The Netherlands**

- 09.30 Life Cycle Impact Assessment of pesticides on human health  
*R. Charles, Swiss Federal Research Station for Plant Production, Switzerland*
- 09.50 Comparative LCA of apple production in New Zealand under two production schemes: Integrated Fruit Production and Organic Fruit Production  
*L. Milà i Canals, Universitat Autònoma de Barcelona, Spain*
- 10.10 Comparison of conventional and organic wine  
*B. Notarnicola, Università degli Studi di Bari, Italy*
- 10.40 Coffee/tea break
- 11.00 Food production and land use – An environmental comparison of different land use systems  
*G.A. Reinhardt, IFEU, Germany*
- 11.20 Developing a land use/biodiversity indicator for agricultural product LCAs  
*R. Schenck, Institute for Environmental Research and Education, USA*
- 11.40 Comparing farming systems at crop rotation level by LCA  
*T. Nemecek, FAL, Switzerland*
- 12.00 Lunch – Poster session

❖ **Afternoon session: Value added chains and diets**  
**Chair: Bo Weidema, 2.-0 LCA consultants, Denmark**

- 14.00 Case studies of life-cycle energy use for the Swedish food supply: possibilities of more energy efficient diets  
*A. Carlsson-Kanyama, Environmental Strategies Research Group, Sweden*
- 14.20 LCI of food in The Netherlands  
*B. Krutwagen, IVAM Environmental Research, The Netherlands*
- 14.40 The application of LCA methodology to the life cycle of frozen vegetables  
*P.J. McKeown, Unilever, UK*
- 15.00 Coffee
- 15.20-16.30 Conclusions and closure of the conference

❖ **Poster session I**  
**Methodology, animal products,**  
**fish products**

- Use of LCA to investigate embodied greenhouse gas emissions for the trade of food products  
*Jungbluth, N. and Frischknecht, R., ESU-services, Switzerland*
- Integration of temporal and spatial variability into the framework of LCA – different approaches and case studies  
*Flake, M., Hansen, A., LCE-Consulting GmbH, Germany*  
*Ritter, S. and Richter, O., Institut für Geoökologie der TU, Germany*
- Energy flows in food production systems – methods and examples for quantification and transformation between different forms of energy  
*<sup>1</sup>Moerschner, J. and <sup>2</sup>Reinhardt, G. <sup>1</sup>Inst. for Agricultural Engineering, Georg-August-University of Göttingen, Germany*  
*<sup>2</sup>Institute for energy and environmental research Heidelberg GmbH (ifeu), Germany*
- Functional Units for Food Product LCAs  
*Marshall, K., Unilever, England*
- Using Life Cycle Assessment (LCA) to enable farmers to find Best Available Techniques (BAT) and comply with Integrated Pollution Prevention and Control (IPPC) directive  
*Sandars, D.L., Audsley, E., Cañete, C., Scotford, I.M., Cumby, T.R., Williams, A.G.*  
*Silsoe Research Institute, United Kingdom*
- Contribution to global warming and eutrophication from biofuel (rape seed oil) and diesel  
*Strid Eriksson, I., Elmquist, H. and Nybrant, T.*  
*Swedish University of Agricultural Sciences, Dept. of Agricultural Engineering, Sweden*
- Life Cycle Assessment of animal housing systems as part of an overall assessment  
*Erzinger S. and Badertscher Fawaz R., Swiss Federal Research Station for Agricultural Economics and Engineering, Taenikon, Switzerland*
- LCA of chicken meat: a case study  
*<sup>1</sup>Ryberg, A., <sup>1</sup>Andersson, K. and <sup>2</sup>Ahlmén, K.*  
*<sup>1</sup>CIT Ekologik, Chalmers Industriteknik, Sweden*  
*<sup>2</sup>Miljöledarna Ciconia AB, Sweden*
- Life Cycle Assessment of Cheese  
*Thuresson, J., SIK Institutet för livsmedel och bioteknik, Sweden*
- Preliminary experiences and results from LCA on fish products at Aalborg University (AAU) – Denmark  
*Christensen, P., Thrane, M., Nordahl Madsen, J., Aalborg University, Denmark*
- LCA in Fishing Vessel Design  
*Hassel, K. and Ellingsen, H., SINTEF Fisheries and Aquaculture AS, Norway*

❖ **Poster session 2**  
**Inputs and production processes,  
 value added chains, diets**

- Environmental Life Cycle Assessment of farms  
<sup>1</sup>Gaillard, G., <sup>2</sup>Rossier, D.,  
<sup>1</sup>Nemecek, T.  
<sup>1</sup>Swiss Federal Research Station for Agroecology and Agriculture (FAL), Switzerland  
<sup>2</sup>Swiss Federal Advisory Service (SAAS/SRVA), Switzerland
- Agricultural production systems and the environment  
 Grönroos, J., Seppälä, J., Seuri, P. and Voutilainen, P.  
 Finnish Environment Institute, Finland
- LCA of pig meat aiming to select improvement options for fodder production  
 Blonk, H., *Blonk Milieu Advies, the Netherlands*
- The application of Life Cycle Analysis in glasshouse horticulture  
 van Woerden, S., *Research Station for Floriculture and Glasshouse Vegetables, the Netherlands*
- Supply Chain Management in the Sugar Industry – A case study of Lower Saxony  
 Leseberg, T., *Institut für Geoökologie der TU, Germany*  
 Mateika, M., *Institut für Werkzeugmaschinen und Fertigungstechnik der TU, Germany*  
 Flake, M., *LCE-Consulting GmbH, Germany*
- Environmental and Economic Assessment of a Malting Plant  
<sup>1</sup>Sanjuán, N., <sup>2</sup>Ackermann, R.,  
<sup>1</sup>Clemente, G., <sup>3</sup>Ramo, T., <sup>1</sup>Mulet, A.  
<sup>1</sup>Food Technology Department, Polytechnic University of Valencia, Spain  
<sup>2</sup>Institut für Technischen Umweltschutz, Fachgebiet Abfallvermeidung, Sekretariat KF6, Technische Universität Berlin, Germany  
<sup>3</sup>Maltería La Moravia, S.A. (grupo Damm), Spain
- Towards transparent information of environmental quality of products – Finnish food industry involved in LCA data production  
 Katajajuuri, J-M and Loikkanen, T., *The Research Group of Industrial Environmental Economics (IEE), Environmental Technology, VTT Chemical Technology, Finland*
- Comparative LCA of virgin olive oil vs. seed oils  
<sup>1</sup>Nicoletti, G.M. and <sup>2</sup>Notarnicola, B.  
<sup>1</sup>Facoltà di Economia, Università degli Studi di Foggia, Italy  
<sup>2</sup>Dipartimento di Scienze Geografiche e Merceologiche, Facoltà di Economia, Università degli Studi di Bari, Italy
- Life Cycle Assessment of Source-Separated Urine as Fertiliser  
 Tidåker, P. and Jönsson, H.  
*Swedish University of Agricultural Sciences, Sweden*
- Certified environmental product declarations: the Arla experiences  
 Andersson, K., *CIT Ekologik, Chalmers Industriteknik, Sweden*
- Environmental impacts of food purchases investigated in a modular LCA  
 Jungbluth, N and Frischknecht, R., *ESU-services, Switzerland*

## Organisation

The conference is organised by SIK, The Swedish Institute for Food and Biotechnology in co-operation with VITO, The Flemish Institute for Technological Research. Constructive support for organising this event was received from the members of the International Scientific Committee:

T. Geerken, VITO, Belgium

Ch. Dutilh, Unilever Nederland B.V., the Netherlands

J. Hermansen, Department of Agricultural Systems, Research Centre Foulum, Denmark

M. Meeusen-van Onna, LEI, the Netherlands

A-M Tillman, Chalmers University of Technology, Sweden

B. Weidema, 2-0 LCA consultants, Denmark

B. Mattsson, SIK, Sweden

P. Olsson, SIK, Sweden

## General information

### Dates

Thursday 26 April	08.00-09.00	Registration
	09.00	Opening of Conference
	19.00	Conference Dinner ( <i>please book separately</i> )
Friday 27 April	16.30	Closure of Conference

### Conference Venue

The conference will be held at SIK, the Swedish Institute for Food and Biotechnology, Postal address: Box 5401, SE-402 29 Gothenburg, Sweden

Visiting address: Frans Perssons väg 6, Delsjömotet

Tel: +46 31 335 56 00

Fax: +46 31 83 37 82

### Language

English is the official language of the conference. No simultaneous translation facilities will be provided.

### Conference Registration Fees

The conference registration fee is EUR 400 inclusive VAT if registered before 15 March 2001. After this date, the fee will be increased to EUR 450. Included in the fee are two lunches, coffee/tea breaks and proceedings. The fee does not cover the Conference Dinner of Thursday April 26, which costs an additional EUR 60.



### **Registration and cancellation**

Registration should be done by completing the enclosed registration form. Send or fax it to Mrs. Eivor Johansson, preferably before 15 March 2001 (early registration deadline). An invoice will be sent to you.

Cancellation without charges are possible in response to written requests received at the Conference Secretariat by 1 April, 2001.

### **Proceedings**

The proceedings, printed in English, will be available at the start of the conference and are included in the conference fee. The proceedings contain papers of the lectures and posters.

### **Liability**

SIK does not accept any responsibility for any personal injury, damage or loss of property which may occur in connection with this conference or any of the programmed events.



*Spring in Gothenburg*



## *Welcome to SIK!*

**If you arrive by train or bus** at the central station, take a number 300 bus or a “Röd” or “Grön” express bus from Nils Ericsonsterminalen to the bus stop called Delsjömotet. Then walk under the motorway and follow the signs to SIK.

**If you arrive at Landvetter airport** you should take a taxi. SIK is on the outskirts of Gothenburg, about 20 minutes by car from Landvetter airport.

**If you arrive by car** SIK is on the road number 40 in the direction of Landvetter and Jönköping. If you are approaching from Gothenburg, turn off at the first junction marked Delsjöområdet, then turn left and follow the signs to SIK.

**Visiting address:** Frans Perssons väg 6. Phone: + 46 31 335 56 00.

Conference registration form



**International Conference  
LCA in Foods**

*Gothenburg 26-27 April 2001*

*Please write in capital letters! Return the form preferably before 15 March 2001 to:*

*Mrs. Eivor Johansson,  
SIK, Box 5401, SE-402 29 Gothenburg, Sweden  
Phone: +46 31 335 56 00, fax +46 31 83 37 82  
E-mail: eivor.johansson@sik.se*

Name: .....

Organisation:.....

Address:.....

Postal address: .....

Country: .....

Telephone: .....

Telefax: .....

E-mail: .....

Accompanying person(s): .....

Special dietary requirements: .....

Registration fee incl VAT:

		<i>Price per person</i>	<i>No. of persons</i>	<i>Total euro</i>
Before	15 March	EUR 400	.....	.....
After	15 March	EUR 450	.....	.....
Conference Dinner	26 April	EUR 60	.....	.....
GRAND TOTAL				.....

Please send me an invoice. My VAT number is: .....

Date and signature:.....

*Hotel reservation form*



# International Conference LCA in Foods

*Gothenburg 26-27 April 2001*

Please write in capital letters! Return the form preferably before 15 March 2001 to:  
Kerstin Andersson

Travel Service, Avenyn 21, SE-411 36 Gothenburg, Sweden

Phone +46 31 13 43 00, fax +46 31 711 39 80, e-mail: kerstin.andersson@travelservice.se

Alt	Hotel	Class	Single	weekend price	Double	weekend price
1	LISEBERG HEDEN	F	1 265	(995)	1 645	(1 245)
2	SCANDIC CROWN	F	1 560	(1 050)	1 995	(1 195)

F = First class The price is per room and night, incl. breakfast and taxes. Swedish currency

Alt	# rooms	Single	Double	Arrival	Departure	Other

Name: .....

Organisation/company .....

Address: .....

Postal address: .....

Country:.....

Telephone: .....

Telefax: .....

E-mail: .....

Accompanying person(s): .....

## Hotel information

### **Hotel Liseberg Heden**

A first class hotel in the City of Gothenburg and in the famous park Heden. This hotel is just next to the “Avenyn” shopping restaurants, entertainment, the amusement park “Liseberg”.

In the hotel you find Restaurant & Bar.

### **Hotel Scandic Crown**

The first class hotel is in the heart of Gothenburg and next door you find “Nordstan”. Here you can do all your shopping. Near are also restaurants, entertainment, the amusement park “Liseberg” and more.

In the hotel you find Restaurant & Bar, Pool.

For questions regarding lodging and hotel reservations please contact TRAVEL SERVICE. Ask for Ms. Kerstin Andersson, phone no +46 31 13 43 00, fax no +46 31 711 39 80, e-mail [kerstin.andersson@travelservice.se](mailto:kerstin.andersson@travelservice.se)

## Conference Dinner

We organise a Conference Dinner for our delegates and accompanying person(s). This conference dinner will be held on Thursday 26 April 2001 on Restaurant Reveljen. A typical Swedish west coast dinner will be served with entertainment and decor in harmony with that.

After a cocktail comes a cold and warm special buffet followed by desserts.

Jump Session gives a swinging and spectacular dance show. The show is based on Afro-American dances from the 1920s to 40s like Lindy Hop, Jitterbug, Charleston, Tap and Blues. After the dinner you get the opportunity to practise this happy swing dance.

Please register separately for this event on the enclosed registration form.

## Conference Secretariat

All enquiries, except for hotel bookings should be addressed to:

Mrs Eivor Johansson

SIK

Box 5401

SE-402 29 Gothenburg

Sweden

Tel: +46 31 335 56 00

Fax; +46 31 83 37 82

E-mail: [eivor.johansson@sik.se](mailto:eivor.johansson@sik.se)

