

SETAC 18th LCA Case Study Symposium

4th NorLCA Symposium

**Sustainability Assessment in the 21st century
Tools, Trends & Applications**

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Tuesday, Session Schedules

Tuesday, Interactive Events

Tuesday, 27 November		
Interactive Events		
09:00 - 18:00	Life Cycle Market Place <i>C Molin, Technical University of Denmark</i>	Vandrehallen

Tuesday, Oral Presentations, SS-01

08:30 - 12:00	Tuesday, 27 November	Room 101
SS-01: Teaching sustainability: Paving the way to a common understanding and meaningful actions		
Chairpersons: <i>RK Rosenbaum, SI Olsen</i>		
08:30	A strategy for teaching sustainability assessment. <i>Olsen, SI</i>	TOSS01-01
08:45	Science Master's Program (SMP) in sustainability: Fueling innovation through graduate education. <i>Krogmann, U</i>	TOSS01-02
09:00	Teaching LCA at an advanced level – accomplishments and challenges. <i>Løkke, S</i>	TOSS01-03
09:15	Learning by doing - bringing real-life case studies into the classroom. <i>Hauschild, MZ</i>	TOSS01-04
09:30	Teaching life cycle management with an integrated approach of business game and lecture. <i>Egede, P</i>	TOSS01-05
09:45	Role-plays for teaching sustainability – paths towards ethical, critical, systemic and transdisciplinary thinking. <i>Gasso-Tortajada, V</i>	TOSS01-06
10:00	<i>Coffee break and Life Cycle Market Place visit</i>	
10:40	How to integrate LCA in industry to promote its usefulness and avoid greenwashing. <i>Humbert, S</i>	TOSS01-07
10:55	The International Life Cycle Academy: A quality network for teaching in quantitative sustainability assessment - the why and the how. <i>Weidema, B</i>	TOSS01-08
11:10	Teaching environmental assessment methods to agronomists: Didactical problems and opportunities for their curriculum. <i>Cerutti, AK</i>	TOSS01-09
11:25	<i>Summary discussion moderated by the chairs</i>	

TOSS01-09

Teaching environmental assessment methods to agronomists: didactical problems and opportunities for their curriculum

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Environmental sustainability was recently included in the academic education, enriching the curricula of undergraduate and graduate programs across Europe. However in the agricultural context the approach to environmental sustainability is often limited to critically examining the problematic effects of the use of specific pesticides or other substances, but a systemic vision of sustainability in food production is missing.

Environmental assessment methods (EAM) may significantly contribute to promote a more holistic vision of agriculture, as they require to model agricultural systems (highlighting connections and fluxes) and to grasp the complexity of environmental effects of management strategies, by applying a variety of assessment methods and categories.

In Italy few agricultural courses include the teaching of environmental assessment methods (EAM), mainly because of the persisting academic separation of environmental and agricultural disciplines. At the Department of Agriculture, Forestry and Food Science, University of Turin (Italy) a short pilot laboratory (6 hours) about the application of EAM in agriculture has been proposed in 2011 and 2012 to students of three master courses: Agricultural Sciences and Technologies, Food Sciences and Technologies, Science and Culture of the Alps. Students were involved in a lecture (3 hours) about EAM, followed by a 3 hours group-work, in which - according to specific guidelines - they examined a scientific paper focused on a EAM application in the agricultural sector. Students were then asked to give a short report of the group activity and a brief oral discussion.

At the end of semester 30 students were asked to highlight benefits and difficulties of this learning experience. From their comments it was possible to identify interesting remarks in the following aspects:

- (I) System thinking. Application of EAM requires to describe the energy flows and material cycles of the system under study, and to decide the allocation of environmental impacts to specific phases of the production.
- (II) Holistic view of productive systems. The need to identify boundaries between technical and natural systems for impact assessment highlights the strong interconnection between the two of them.
- (III) The problem of efficiency. The application of a variety of assessment methods may highlight that productions efficient from an agronomic point of view may not be so from an environmental point of view.
- (IV) Interpreting labels and indicators. Students highlighted their difficulties in understanding the environmental meaning of some well known labels and the risk of greenwashing.
- (V) Conceptions about sustainable agriculture. During the group work students were asked to highlight (if possible) the paradigm of sustainability of the authors of the scientific paper and to discuss it: so they were able to reflect on the complexity of the concept on 'sustainability'.

All these aspects may have a positive outcome in the professional life of the future agronomists, even if they will not apply any EAM in their activity. Relying on the results of this educational research, the Authors will prepare a questionnaire to be applied before and after the next laboratory in order to highlight paradigms of sustainability and to assess - in the framework of action-research - the effectiveness of the course in promoting a more holistic vision of agricultural issues.