

Collaborative design of a sustainability diagnosis based on simple in-field measurements for Walloon field crop systems

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In Wallonia, different alternative models of agriculture are developing. Conservation agriculture or organic agriculture constitute good examples of that. Each movement is creating its own definition and assessment system for sustainability (Vankeerberghen and Stassart, 2016), which makes communication between farmers and objective comparison of these new farming systems difficult.

In this complex structure, one of the roles of universities is to allow an objective evaluation of the different existing farming systems, based on relevant indicators (Lebacq *et al.*, 2013), and clear sustainability objectives.

During five years, we will develop a diagnosis tool for field crop systems. The indicators employed will be based on the concept of ecosystem services. The in-field measurement methods will be co-designed with a network of Walloon farmers, and will be tested during three growing seasons on their fields. Our research question is the following: can we collaboratively design a diagnosis tool for cropping systems that is, on the same time:

- Generator of scientific knowledge that is exploitable by researchers;
- Appropriable by the farmers and their technical advisors;
- Transferable beyond the initial farmers network;
- Rigorous and in accordance with a clear sustainability definition?

This work presents the objectives and the planning of the thesis.

Lebacq, T., Baret, P., & Stilmant, D. (2013). Sustainability indicators for livestock farming. A review. *Agronomy for Sustainable Development*, 33(2), 311-327.

Vankeerberghen, A., & Stassart, P. M. (2016). The transition to conservation agriculture: an insularization process towards sustainability. *International Journal of Agricultural Sustainability*, 14(4), 392-407.