

## Two parallel panels

### Panel 1 – Broadening scopes (chair : N. Erbout)

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#### Witness accounts : De Groentelaar, The pitfalls of farming and marketing fresh food for newcomers

Tijs Boelens

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#### Incorporate agroecology within research : The on-going story of four young researchers

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#### Introduction

The number of papers mentioning agroecology is increasing and many of them present theories on the concept of agroecology (Wezel et al., 2009 ; Stassart et al., 2012). Moreover, agroecology is now being put into practice within research institutions. In Gembloux Agro-Bio Tech (University of Liège – Belgium), the interdisciplinary research platform *AgriculturesLife* has been launched in 2013. Today, 20 PhD students and other researchers are involved. We, four of them, have initiated a discussion on agroecology through the elaboration of a review paper. Our research projects are respectively on

agroforestry systems, on conservation biological control (CBC) based on wildflower strips, on trajectories of farmers searching for autonomy and on ecosystem services (ES). By writing our review paper, we were invited to be inspired by agroecology. We started to question our research practices and our way of conducting science. Indeed, some agroecological principles are said to be helpful to develop new agricultural systems (Doré et al., 2011). The aim of this short paper is to show how such principles – presented in the first paragraph – may be incorporated in new and ongoing PhD research projects.

## 1. How do agroecology principles question our projects ?

Three main questions arose while discovering theories on agroecology during the literature review :

*Which scale for which focus when studying agriculture ?*

Agronomic research projects often aim at finding solutions to a specific problem. The kind of targeted change affects the scale of study. Indeed, technical changes are mostly approached at the field, farm, or landscape scale while socio-technical changes imply studies at the territorial, food system, or global scale.

*Which method in order to obtain which knowledge when studying agriculture ?*

Scientific research on agriculture encompasses various kinds of methods : e.g. modelling, plot or field scale monitoring, qualitative or quantitative surveys. These methods are based on different knowledge – scientific, professional, citizens – with the common objective to build complementary one. However, the method chosen may affect the kind of knowledge produced. Indeed, there are knowledge produced for generic situation (based on technocentric approach), other to understand a situation (ecocentric approach) or even to transform a situation (holocentric approach) – see below Bawden (1997).

*What does agroecology teach us ?*

Agroecology warns against one-size-fits-all solutions (Lyon et al., 2011). Indeed, problems are often situated in contexts of uncertainty and thus too complex to be fully understood by working at a unique scale and method. Therefore, agroecology invites to cross scales and combine methods (Doré et al., 2011). Such an approach may lead to a diversification of the data types. Furthermore, it often implies inclusion of various disciplines (Tomich et al., 2011) and multiple stakeholders (MacMillan & Benton, 2014). This way of conducting science challenges us because our projects were originally built on one method applied at one scale.

## 2. How do we make our projects evolve ?

These arising questions inspired us to launch a seminar about transdisciplinarity, a core concept of agroecology (Méndez et al., 2012). We started a reflexive work on our research practices following three axes : (1) the translation of a societal problem in a scientific problem, (2) the implications of the methodological choices and (3) the position of the researcher.

A research project currently being developed by one of us uses the concept of ES as a tool for translating the societal issue of ‘current agricultural practices impacting the natural environment’ to a scientific research question ‘investigating the contribution of diversified farming systems to the delivery of ES in their surrounding landscapes’. Additionally, to ensure the relationship between this societal issue and the scientific research, a ‘field thesis committee’, composed of stakeholders, will be

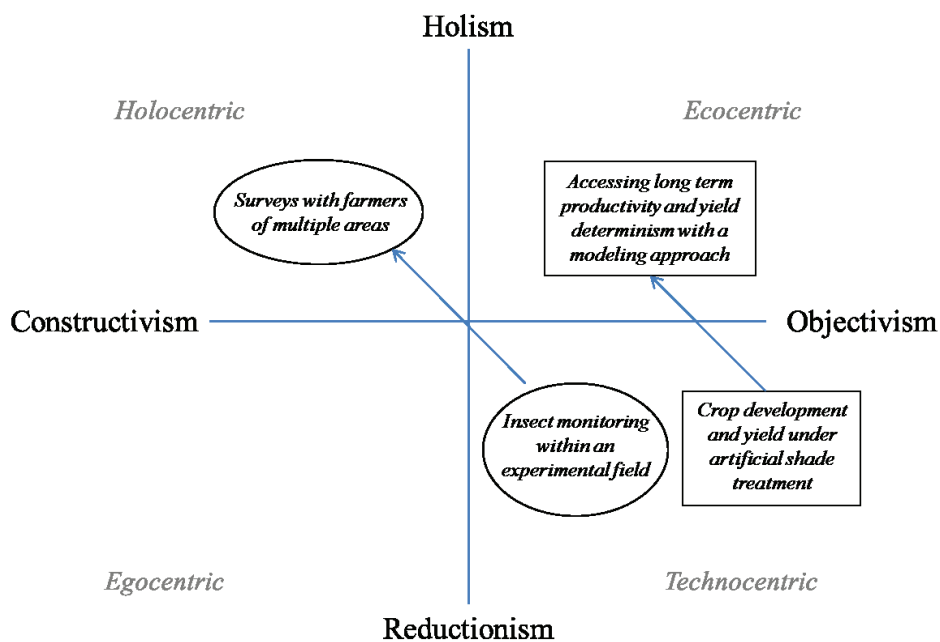
set-up to complement the conventional scientific thesis committee and to allow combining scientific and practical knowledge.

We use Bawden's framework (1997) to situate our research approaches (Figure 1). This exercise helps us to define our scope of research and then, to enlarge it by developing different complementary methodologies. For example, one of our projects on agroforestry started with a field experiment focused on acquiring scientific knowledge of species interactions under the climate constraints of Belgium. Nevertheless, knowledge about long term dynamic and productivity of agroforestry systems could be interesting in terms of yield prediction or field and landscape management strategy for farmers, as well as for the scientist in order to have a more global understanding of the system's functioning. Thus, a complementary modeling approach has been set up. In the same way, another project on wildflower strips for CBC is diversifying its focus. While the current research is based on an experimental field, farmers' point of views about this practice should also be taken into account. Knowing their motivations as well as their constraints may help to build adapted solutions together with them. Therefore, a complementary study based on semi-directive surveys with farmers is being launched. According to Bawden's framework (1997), the first approach of both examples may be qualified as technocentric. The agroforestry project got diversified in adding an ecocentric approach while the wildflower strips project is developing a holocentric one.

By diversifying our methodologies, we modify our link with the "real world" which questions our posture as researchers. It can be understood through the project that aims at characterizing the learning trajectories of farmers searching for autonomy. Firstly, the project focused on describing learning that results from the coordination between farmers and biodiversity conservationists. However, field work rapidly showed that coordination is locked in public policies limiting learning processes. A solution could be to create the conditions of learning by designing, in an experimental way, new socio-technical devices. This may imply to develop methodologies directly involving the researcher, moving his/her position from observation (ecocentric) toward direct intervention (holocentric). Knowing that social experiments have a high rate of irreversibility (you cannot re-make the experimentation if you fail once, without social cost), opening to such methodologies entails risks, especially for a PhD student. The researcher has then the choice between intervention research to answer his question and modify his position or to transform his research question and maintain a similar methodological framework.

## Conclusion

Through this reflection, we realized that incorporating agroecology within research is not applying a recipe. What does agroecology teach us is to consider on the one hand some principles, on the other hand our own research objectives, and see how the first one can serve the second. But our collective reflection is not ending here. Indeed, we are today questioning ourselves for what aim and especially by whom the knowledge we will produce may be used ? Setting-up a working group with farmers may allow us to share our respective experiences and address with them the question of producing and using knowledge in a context of changes.



**Figure 1** (based on Bawden framework, 1997). The circles relate to the 'wildflower strips project'. The squares relate to the 'agroforestry project'. The technocentric approach is based on objective knowledge applied to a reductionist context. There, a proof gives the truth. The knowledge produced is a prescription, a recipe to apply. The ecocentrism is still based on objective knowledge, but its approach is more systemic by trying to understand the interactions involved (holism). The holocentric approach is based on the idea that people have a subjective representation of their surroundings. This challenges the idea that proof gives the truth and invites to build knowledge with people, by considering their specific situation (based on Steyaert's personal communications, 2014).

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## **The challenge of “cultivating” resilient cities — A foreigners’ eye view on urban agriculture initiatives in Montréal (Québec) and Brussels (Belgium)**

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Urban and peri-urban agriculture initiatives have demonstrated their significant potential in addressing a range of social, economic and environmental benefits besides the sheer levels of food production that can be achieved in and around cities. Yet, a new generation of urban agriculture practitioners still face challenges that must be understood and addressed in a transdisciplinary approach if this movement is to become even more widespread and profitable in our growing cities. Here, we report on a first series of urban and peri-urban agriculture projects visited in Montréal (Québec) by a Belgian delegation of professionals involved in this movement, and others visited in Brussels (Belgium) by a Canadian delegation. We developed a short questionnaire filled by all participants allows for a more detailed characterization of similarities (through hierarchical clustering classification) among urban agriculture initiatives in both cities. The results show that each initiative in urban agriculture tackles the issues of food production, economic efficiency, biodiversity benefits and social cohesion in sometimes very different ways, highlighting “ a complex landscape of urban agricultures” in both Montréal and Brussels, as well as the pressing need to characterize and acknowledge the complementarity among initiatives. This overview will serve as a basis to pinpoint important avenues for future research, such as socio-economic and environmental assesment of this activity sector and its contribution to urban well-being, economy and environmental sustainability. We also advocate for the intensification of interactions between universities, non-profit organizations and public policy organisms or institutes that share an interest in urban planning, mechanisms of poverty alleviation, and solutions to social development and environmental sustainability. Such ambitious projects have yet to be developed in the target cities (i.e., Montréal & Brussels), but also elsewhere.